

Enclosure 2

Mr. Michael A. Wilson
05-OES-00

-2-

JAN - 4 2005

cc w/encls:

K. A. Conway, Ecology
Administrative Record

(File: State Waste Discharge Permit ST-4508)

cc w/o encls:

J. L. Day, FHI

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D. G. R. Ranade, FHI

Environmental Portal, LMSI

Enclosure 3

Hanford Site Project L-334 (*Export Waterline Instrumentation and Valves*),
Request to Discharge under
State Waste Discharge Permit ST 4508

Background and Introduction

State Waste Discharge Permit ST 4508 was issued to the U. S. Department of Energy to allow hydrotest, maintenance, and construction wastewaters to be discharged to the soil column on the Hanford Site. As explained in the Fact Sheet for the permit, it is intended to cover as many discharges as possible in order to reduce the number of other discharge permits that may need to be issued on the Hanford Site. Under Special Condition S7.A., if a planned discharge meets permit Special Conditions S1.A, S1.B.1, and S1.B.3, but fails to meet permit Special Condition S1.B.2, the Permittee may submit to Ecology a written request that the planned discharge be covered.

Description of the Planned Discharge

The Hanford Export water system is comprised of a series of large diameter (18" - 42") water pipelines that are located between the Columbia River and the 200 Area Plateau. Remote isolation capabilities are needed on the existing export water system to allow timely isolation during water line ruptures or other emergencies. A series of new remote-operated valves and pressure transmitters will be installed to provide monitoring and control capabilities from the water plant control room located in the 200 West Area.

This project will install a total of 8 new valves on the system. Each of the valves will be equipped with motorized operators, a solar-powered charging station, and a radio frequency-type automated controller. The new system will interface with the existing FH Water Utilities control system. Export water line ruptures have occurred in the recent past and isolation capabilities are essential in order to minimize the potential for environmental damage.

Installation of the valves will require four separate discharge events. Each discharge event will total approximately one million gallons and will be spread over one or two proposed discharge locations. The discharge events would be spread out over the four to six month long project. The discharge locations are between 30 and 48 road miles northwest of Richland, Washington.

Anticipated Export Water Discharge Locations and Volumes

The three main discharge locations are identified with the following coordinates:

Location	Coordinates (Northings/Eastings)	Frequency and Volume
1901Y	N142870.93/E571068.55	Up to four discharge events for a total of about 1.3 million gallons
Drains south of Route 11A	N138648.45/E571141.44	Up to four discharge events for a total of about 1.3 million gallons
2901Y	N137888.63/E571082.64	Up to four discharge events for a total of about 1.3 million gallons

All discharges for this project are to be performed within approximately 300 feet of the coordinates identified above. The discharges may be distributed over multiple drain points depending on site conditions. The combined discharge rate for all drain points is expected to be less than 700 gallons per minute.

Review of Conditions for Coverage under Special Condition S7. A.

For purposes of this review it is assumed that each discharge is directed to one location rather than being split and that each event is a separate discharge.

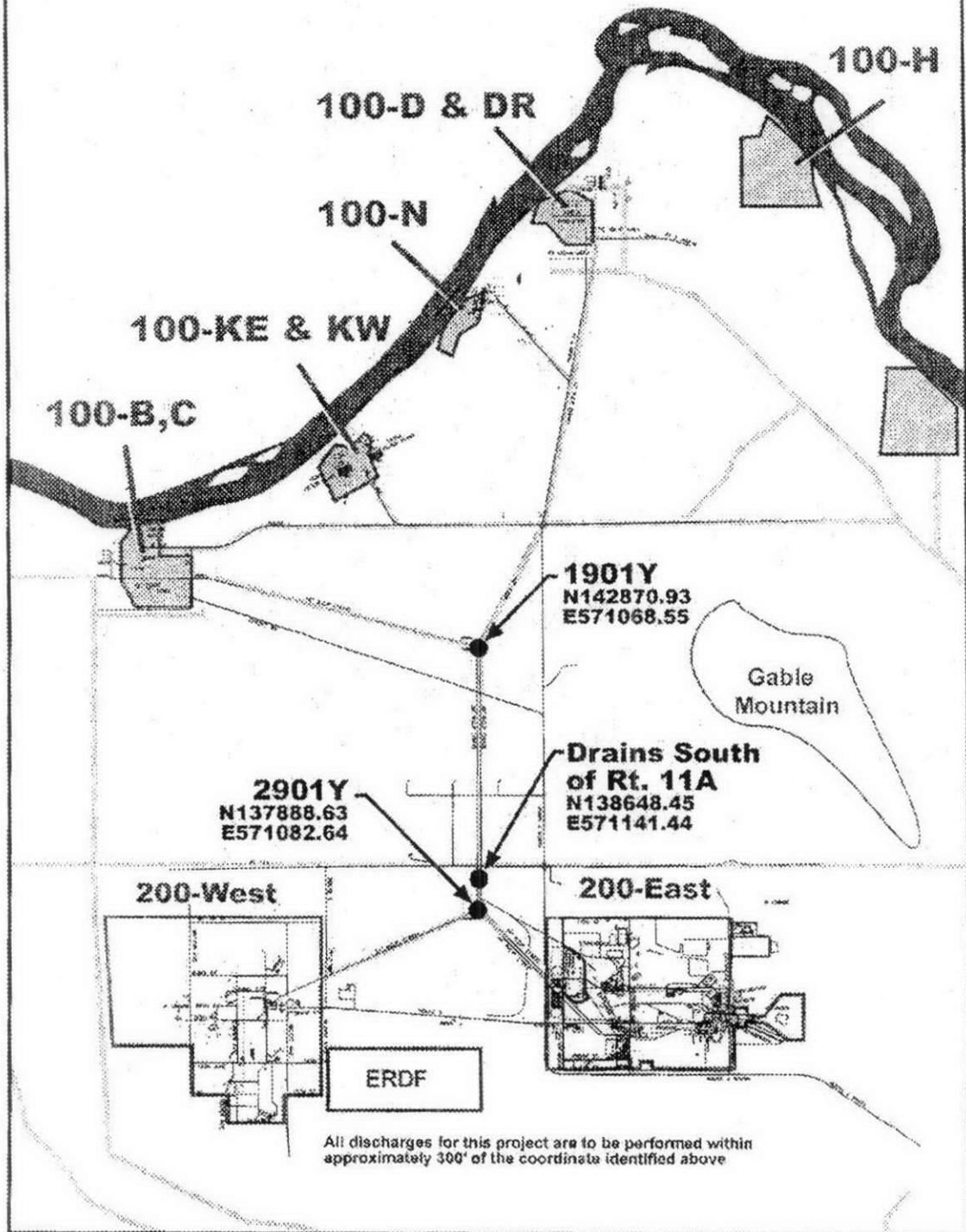
Condition	Description	Meets the requirement?
S1.A.	Hydrotest, Maintenance or Construction Discharge	Yes
S1.B.1	Less than 10 gpm averaged annually (1,000,000 gal / 525,600 min = 1.9 gpm)	Yes
S1.B.3	Meet Ground Water Criteria	Yes
S7.A	Less than 1000 gpm instantaneous (1,000,000 gal / 1440 min = 694 gpm)	Yes

Information Requested under Special Condition S7.A

Type of Discharge	Draining of water line for valve replacement
Expected Date of Discharge	Four discharges over four to six months beginning December 20, 2004 (or at least 10 work days following submittal of this request).
Source Water	Raw Columbia River Water
Additives	None
Total Volume	1,000,000 gallons per discharge
Discharge Rate	The discharge starts at 700 gallons per minute and gradually decreases to zero over a period of 48 hours.
Location	Three locations in the Hanford Site 600 Area (See attached map)
Soil Loading Rate	350,000 gallons per acre = 8 gallons per square foot discharged over a period of 48 hours (maximum based on all effluent being discharged at one location rather than split into two or more locations.)
Assigned Responsible Person	Richard W. Brown
Applicable P2 and BMP Plan Sections	Trained personnel, discharge locations meet criteria, minimize ponding, document significant discharges,
Rationale for Coverage	This discharge is consistent with the type and nature of other discharges covered under ST 4508 including those for waterline flushing.
Other Information	The discharge locations are not near any areas of contamination and would not have an impact on groundwater. Impacts will be minimized by consulting with the Hanford Groundwater Remediation Project.

Enclosure 2

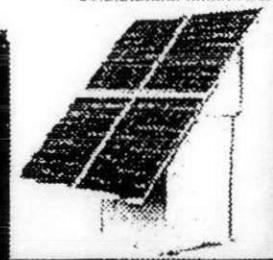
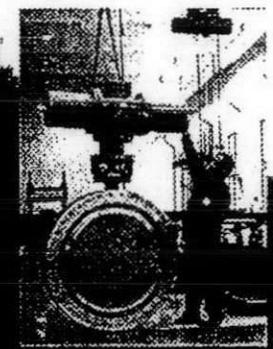
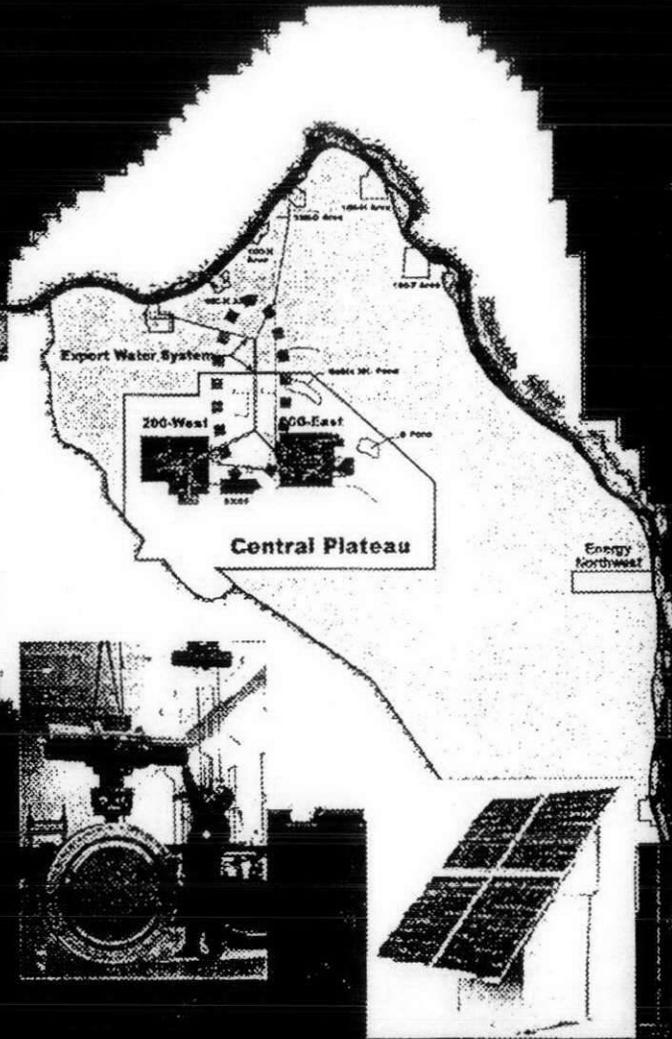
L-334 Project Remote Operation Export Water Line Valve Installation Proposed Discharge Locations



Enclosure 3

L-334, Export Waterline Instrumentation & Valves

- Valve Removal & Replacement
- Remote Controlled Electric Actuators
- Pressure Transmitter & Telemetry Units
- Solar Power Stations with Battery Storage
- Valve Pit Caissons Installed
- Telemetry/Programming /Wonderware Screen Development & System Commissioning

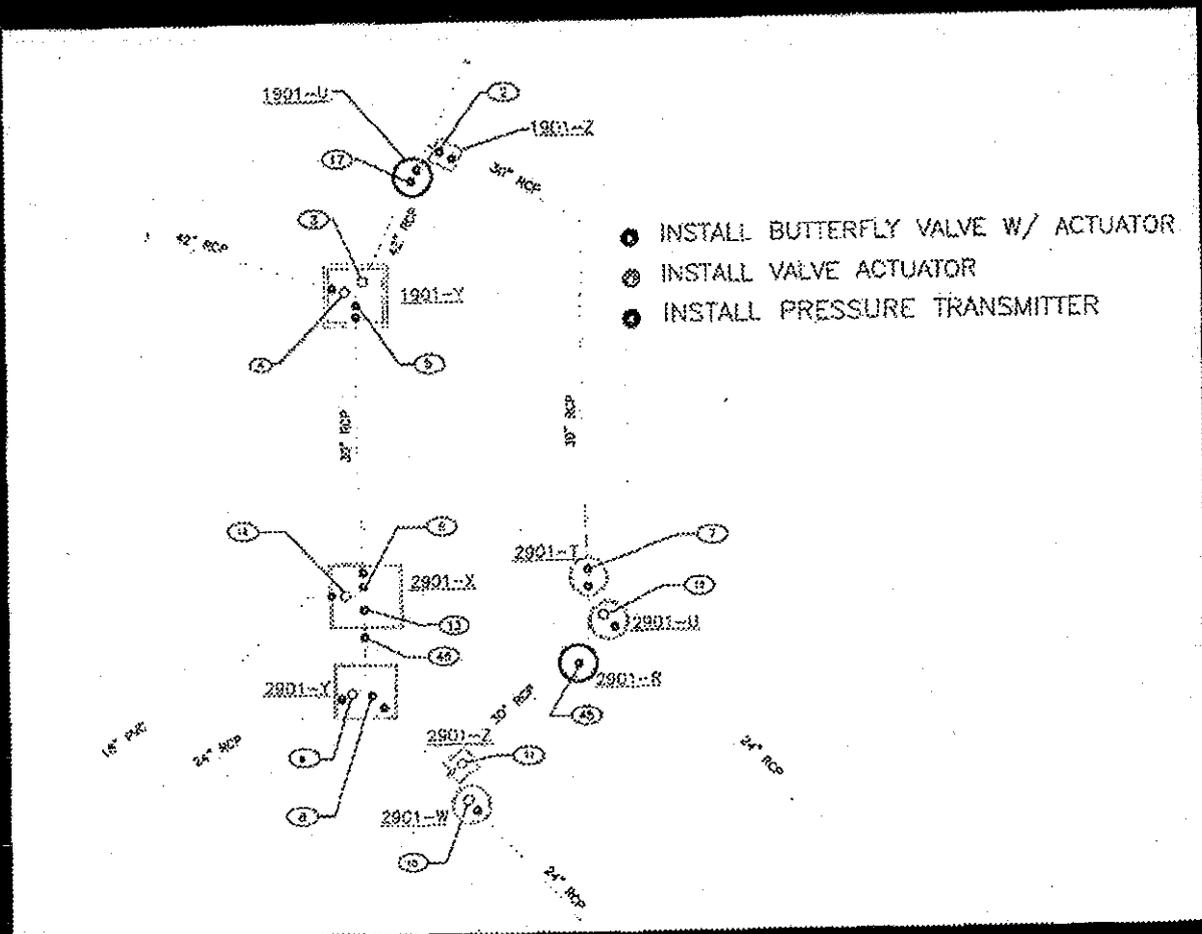


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Summary of Work

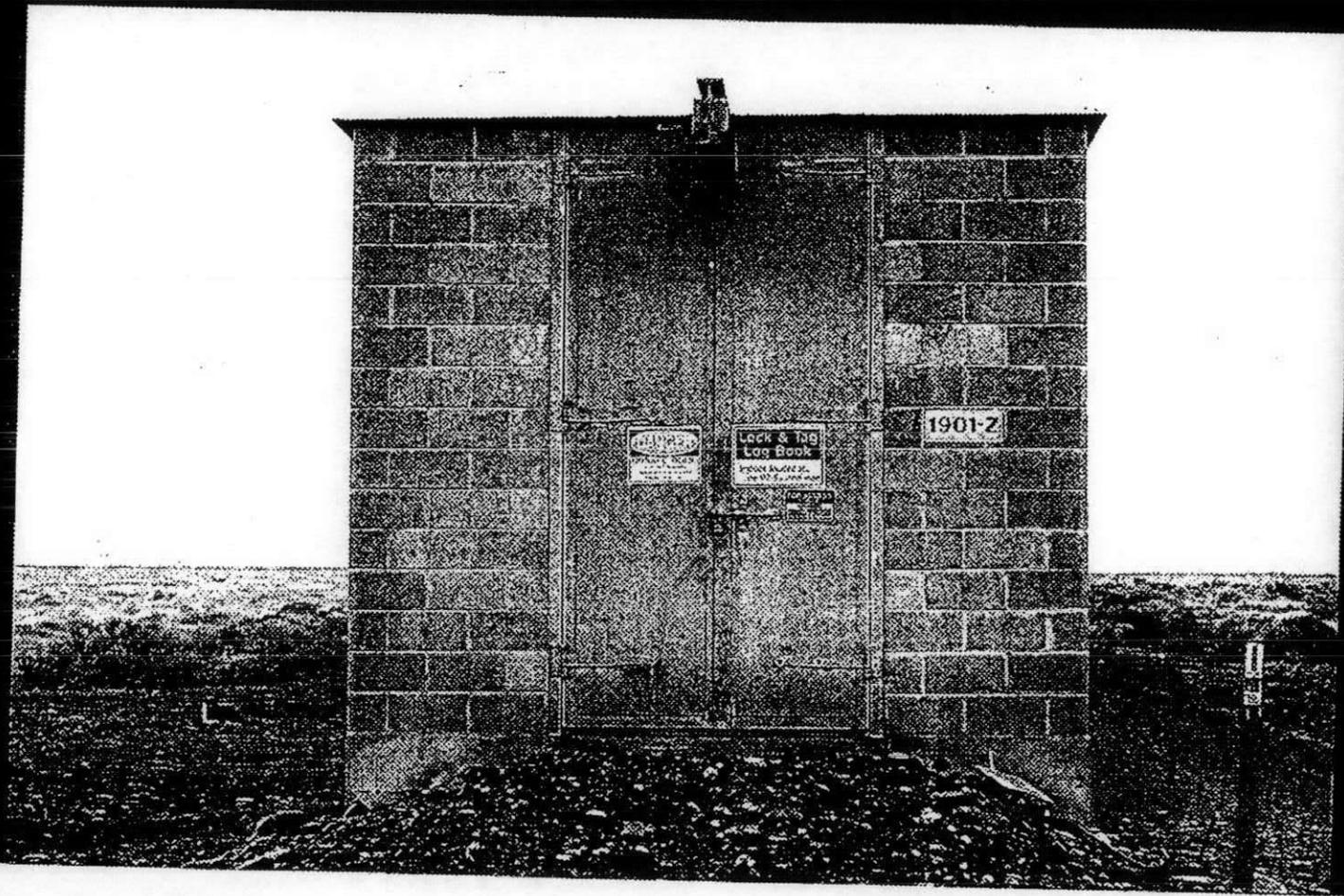
- Furnish and install six butterfly valves with automated, motor actuators.
- Furnish and install two additional automated motor actuators.
- Furnish and install two solar-power stations.
- Modify existing valve house flooring, replacing concrete panels with steel grating.
- Furnish and install 11 pressure transmitters.
- Fabricate and install 20 hinged covers on EW drain ports.
- Furnish and install two valve pits, 16-ft diameter caissons.
- Provide inspection services necessary to document the quality assurance requirements.
- Provide control interface with PLC and Wonderware.
- Bid Option 1 – Furnish and install new butterfly valve, automated motor actuator and valve pit.
- Bid Option 2 – Provide internal inspection of export water line at the seven new valve locations

Project L-334 Construction Key Plan



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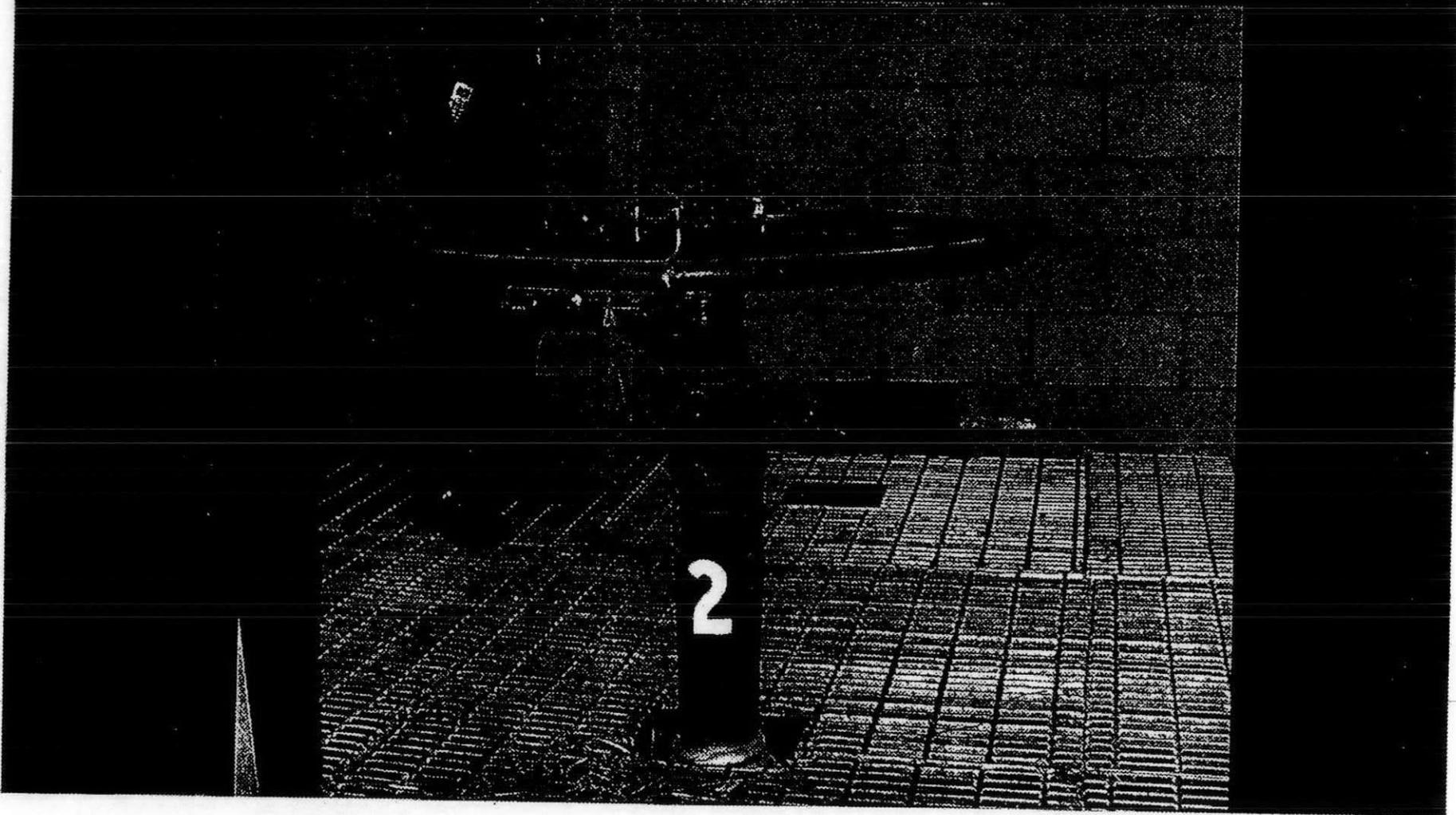
Valve House for Existing 30" Gate Valve



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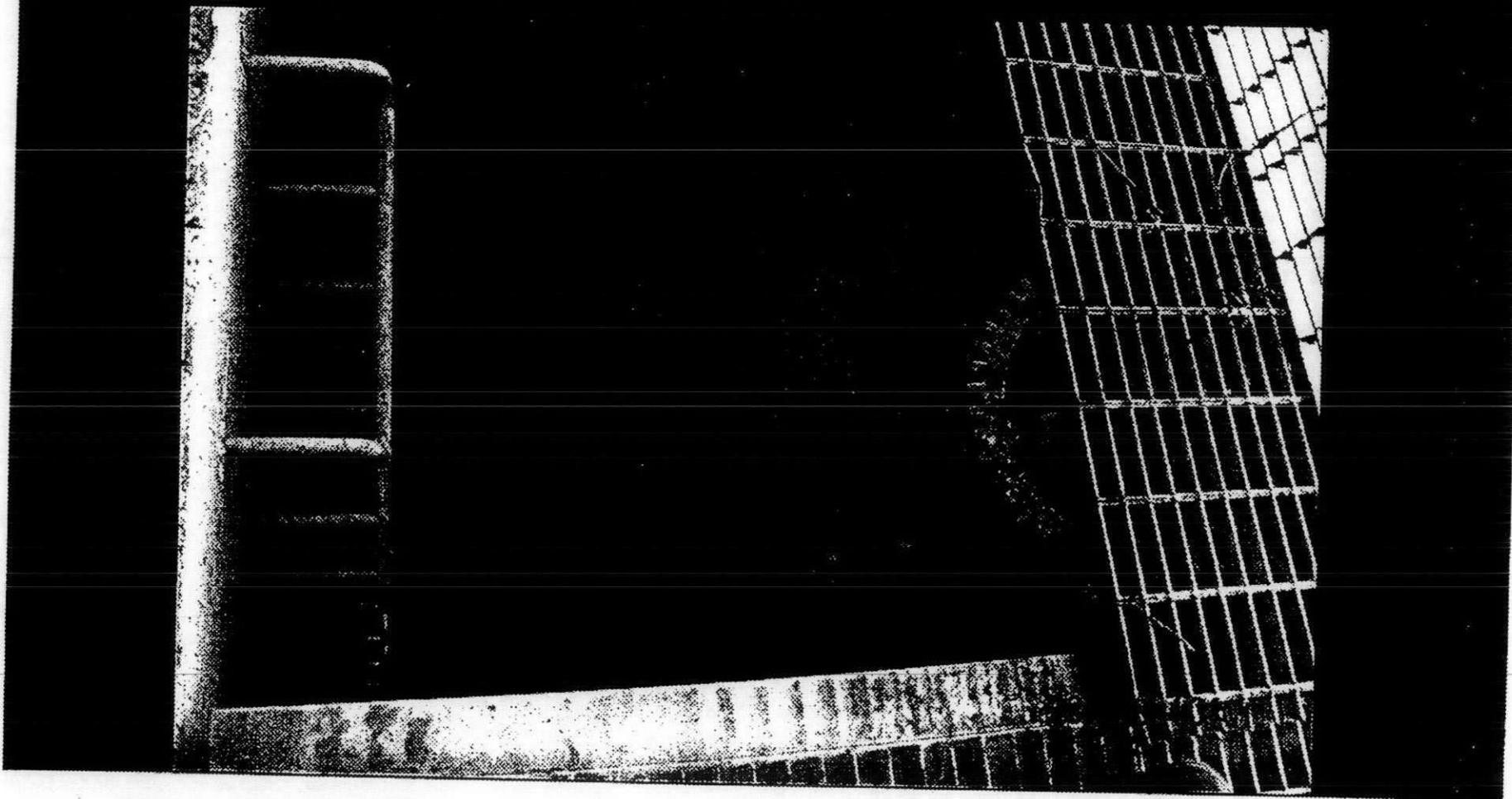
(Ref H-6-15439 SH-1)

Remove & Replace (R/R) Operator for 30" Gate Valve



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Access Opening & Ladder – Gate Valve #2



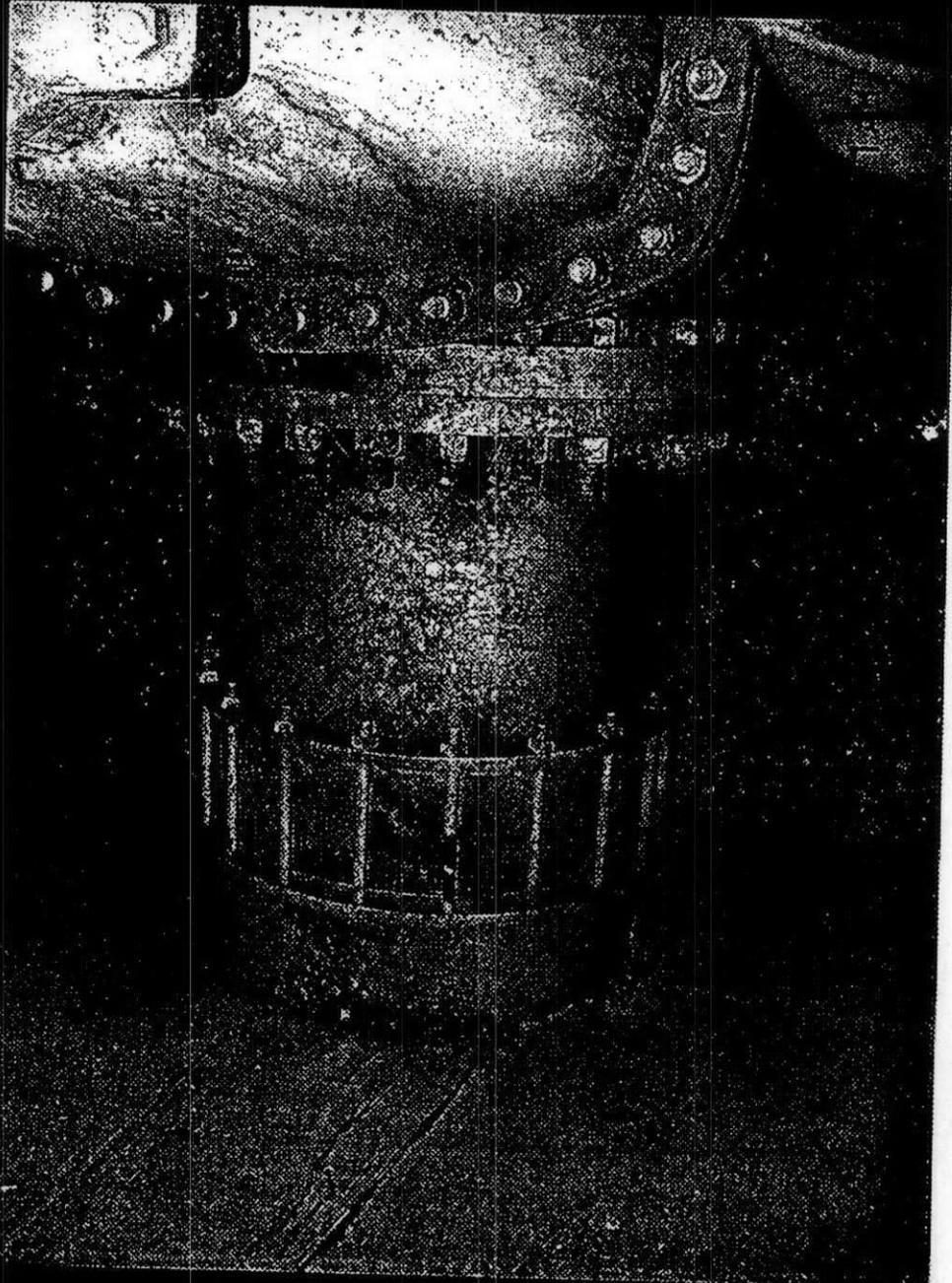
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30" Gate Valve to be Removed (wt. 6,600 lbs)



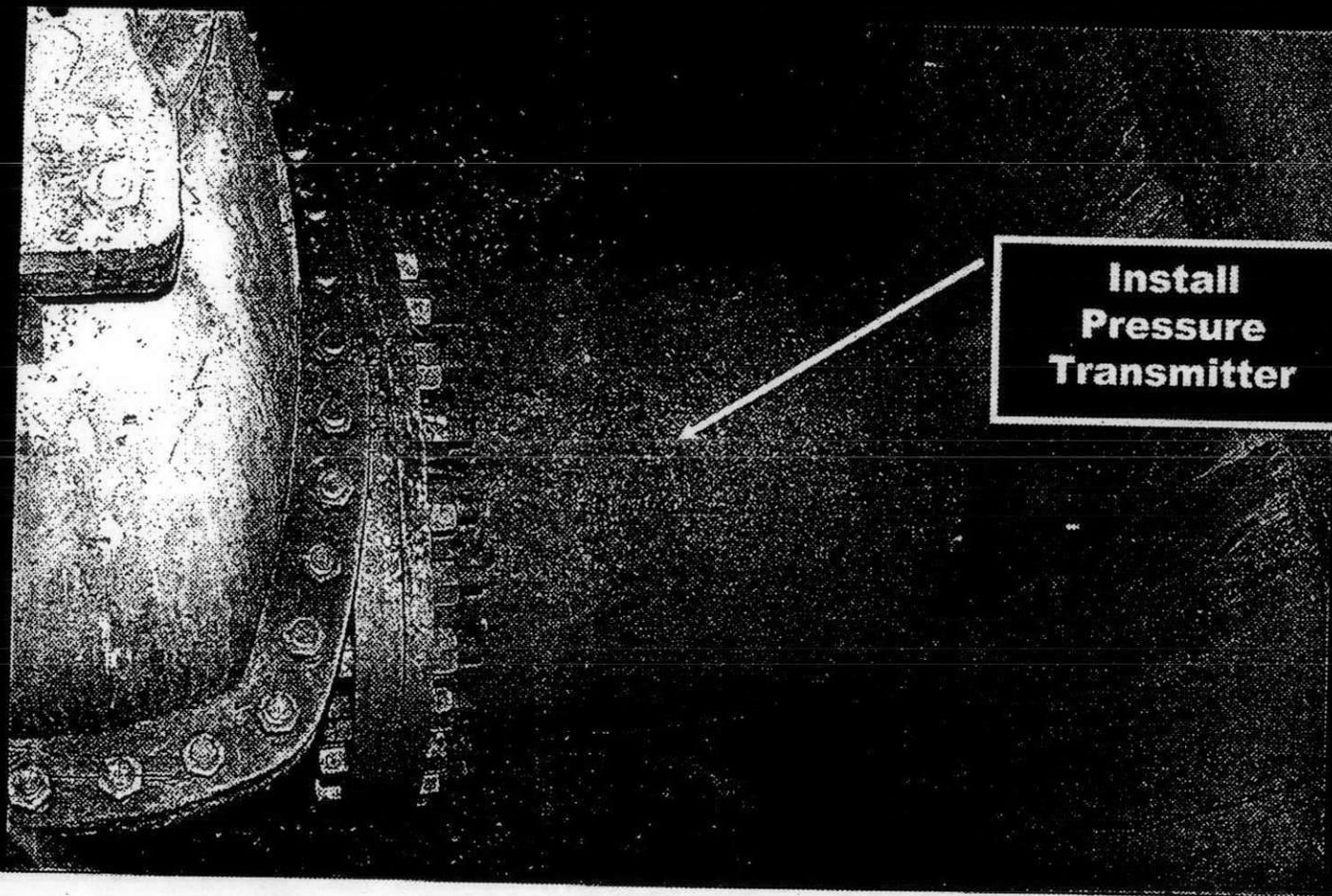
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Existing 30" Gate Valve - Upstream

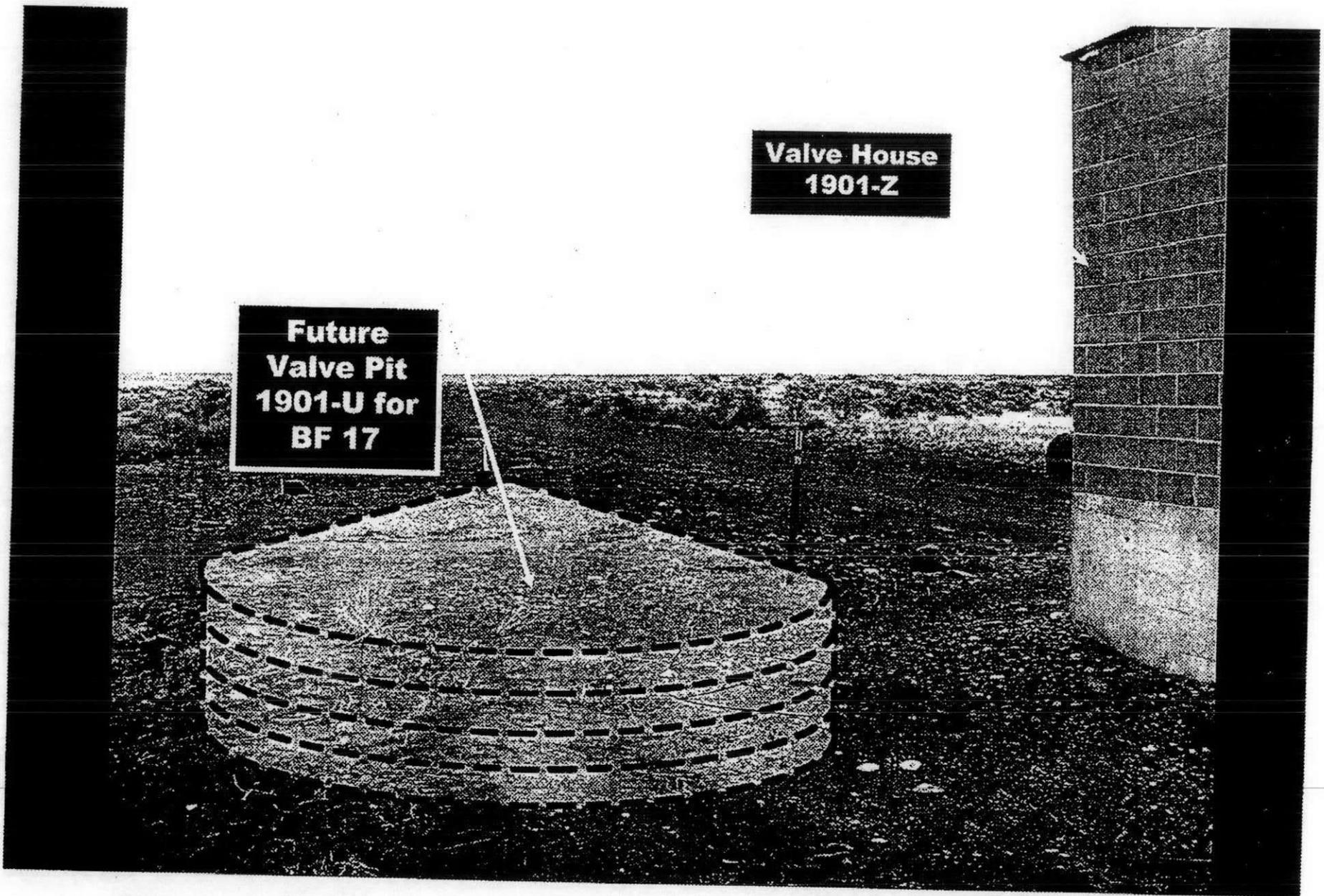


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Existing 30" Gate Valve Install Pressure Transmitter - Downstream Side



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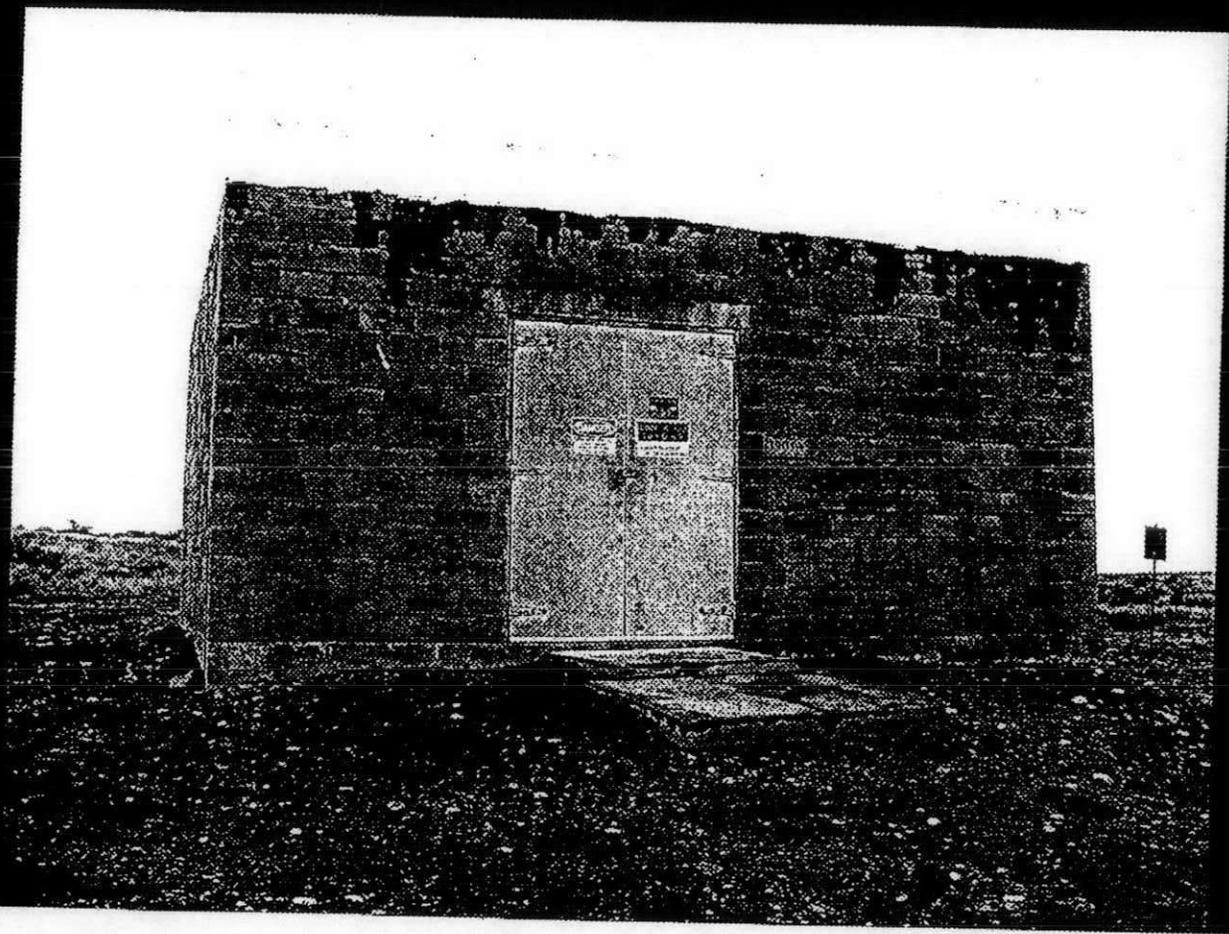
**Valve House
1901-Z**

**Future
Valve Pit
1901-U for
BF 17**

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(Ref H-6-15439 SH-1)

1901-Y Valve House for Existing Gate Valves 3, 4 & 5



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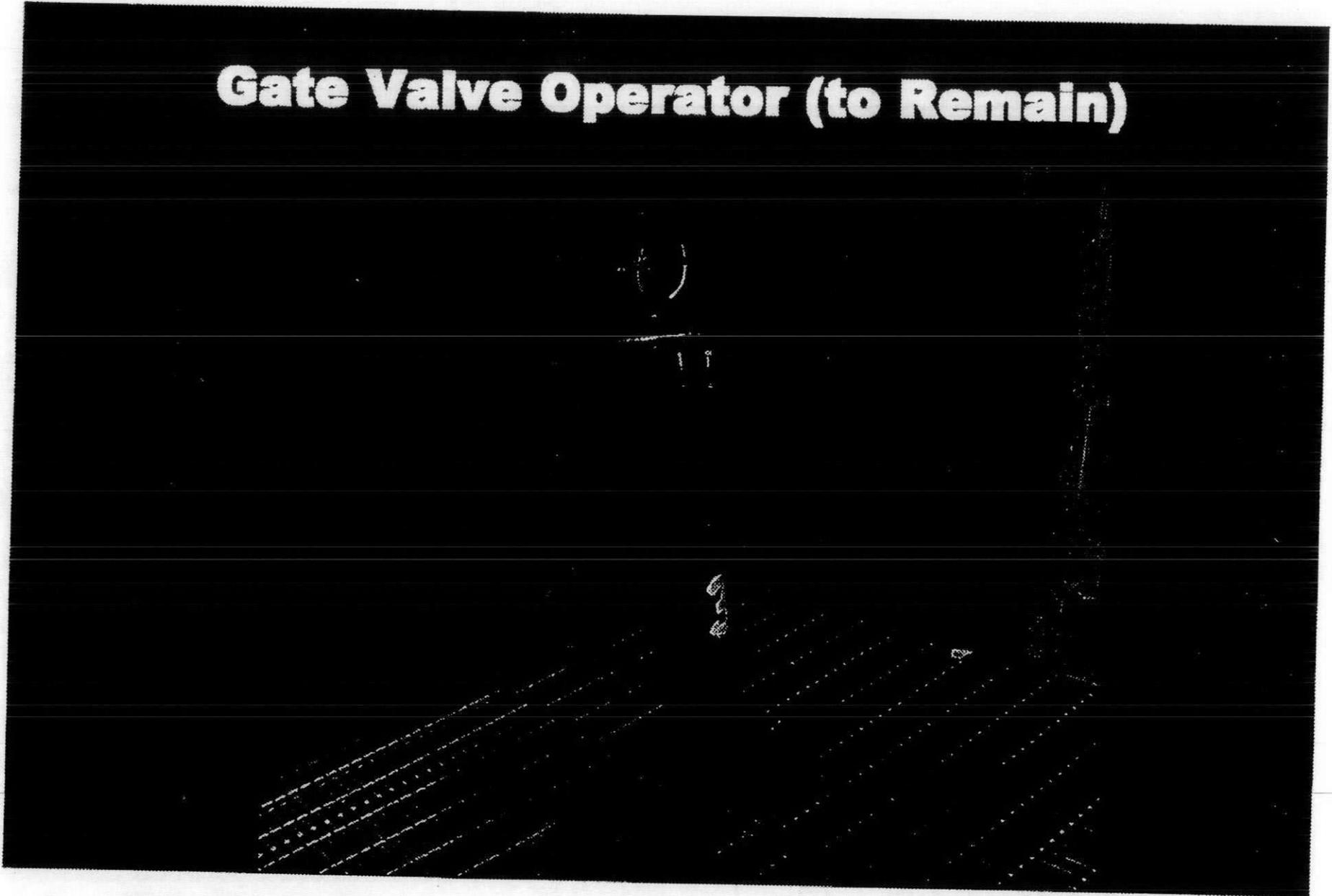
(Ref H-6-15439 SH-1)

R/R Gate Valve Operator

15

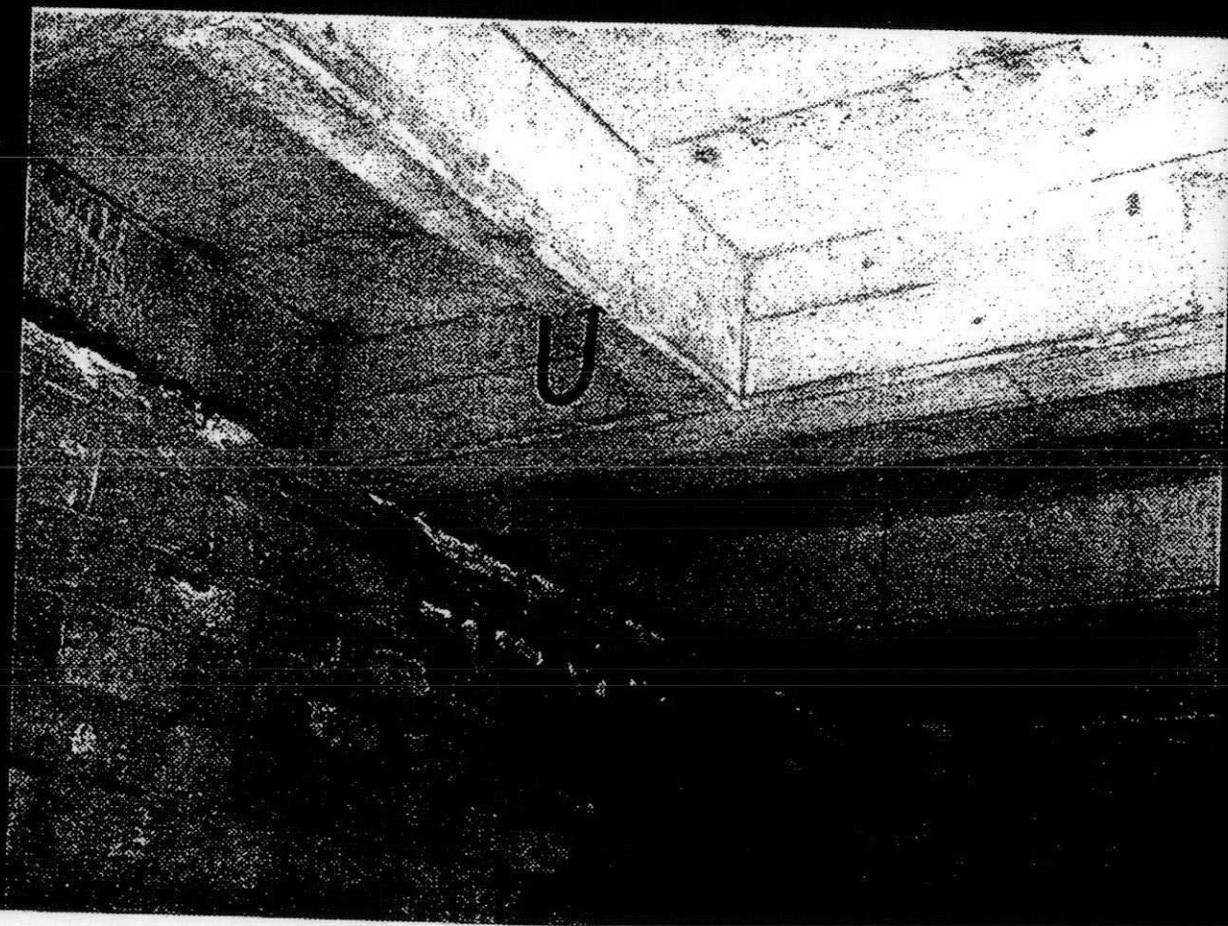
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Gate Valve Operator (to Remain)



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**1901-Y Ceiling Rigging Connection Point
- Do Not Use. Alternate Means of
Rigging Required**



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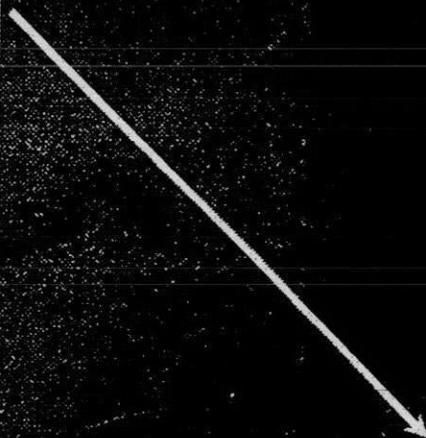
Typical Condition of Valve Foundations, Replace as Shown on Dwg's



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Gate Valves & Wye Tee

**Install
concrete floor
slabs and
support bases
as shown on
drawings (typ)**



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Gate Valve 5 – to be Removed (wt. 6,600 lbs)

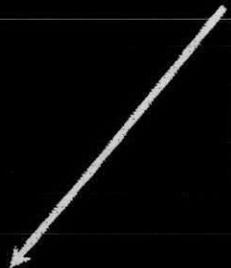


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Gate Valve 5 : Install Pressure Transmitter – Downstream Side

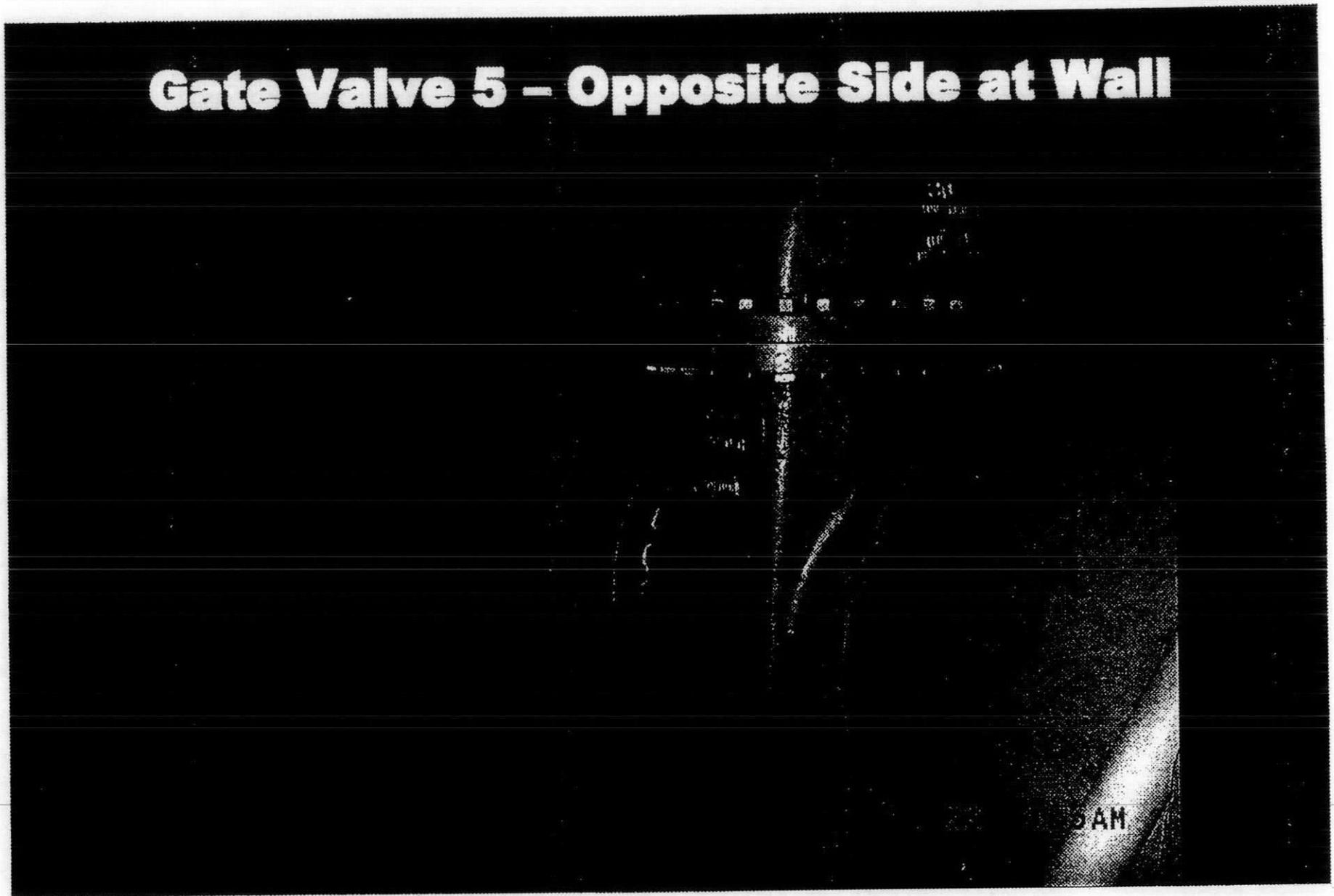


**Install
Pressure
Transmitter**



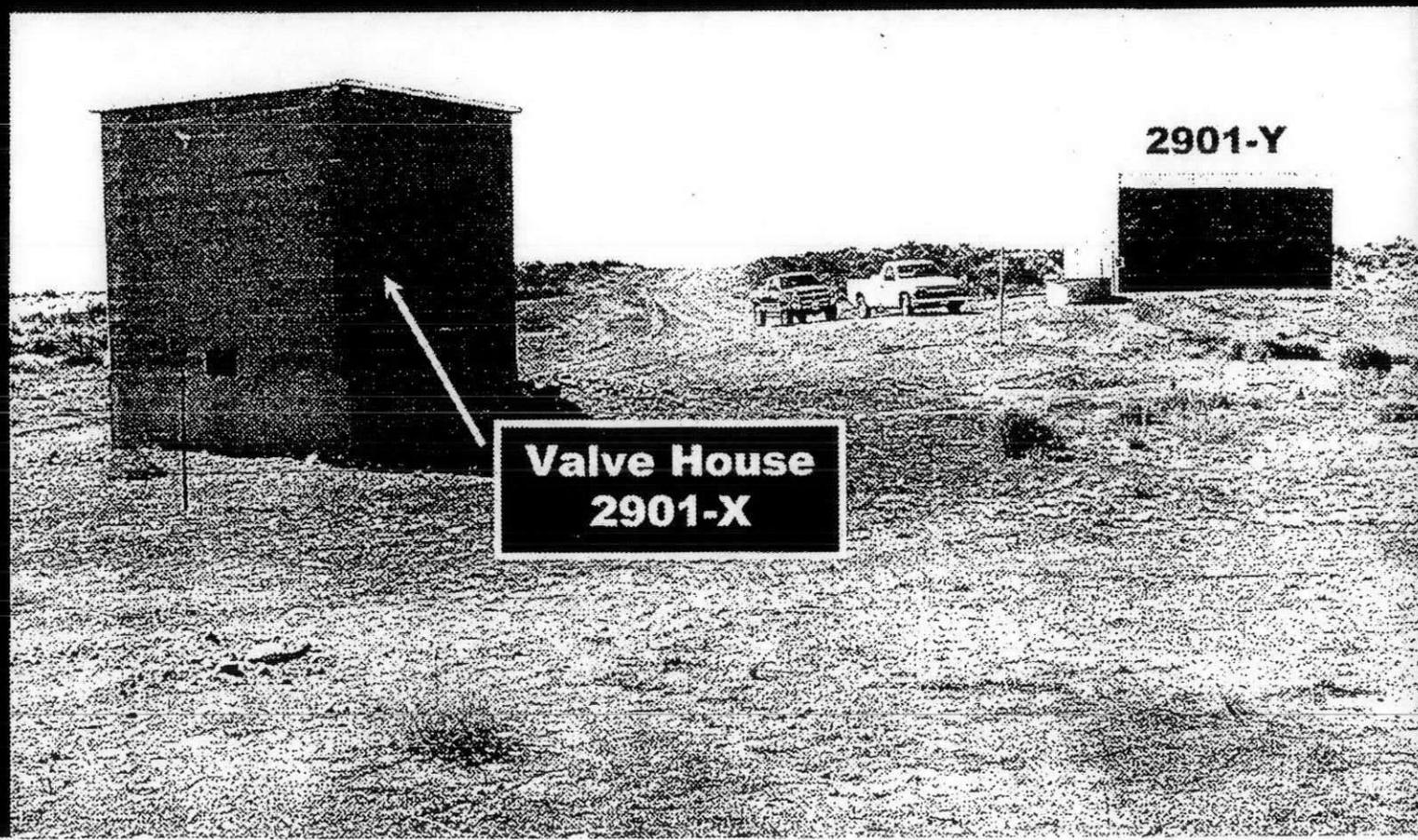
12 75105

Gate Valve 5 – Opposite Side at Wall



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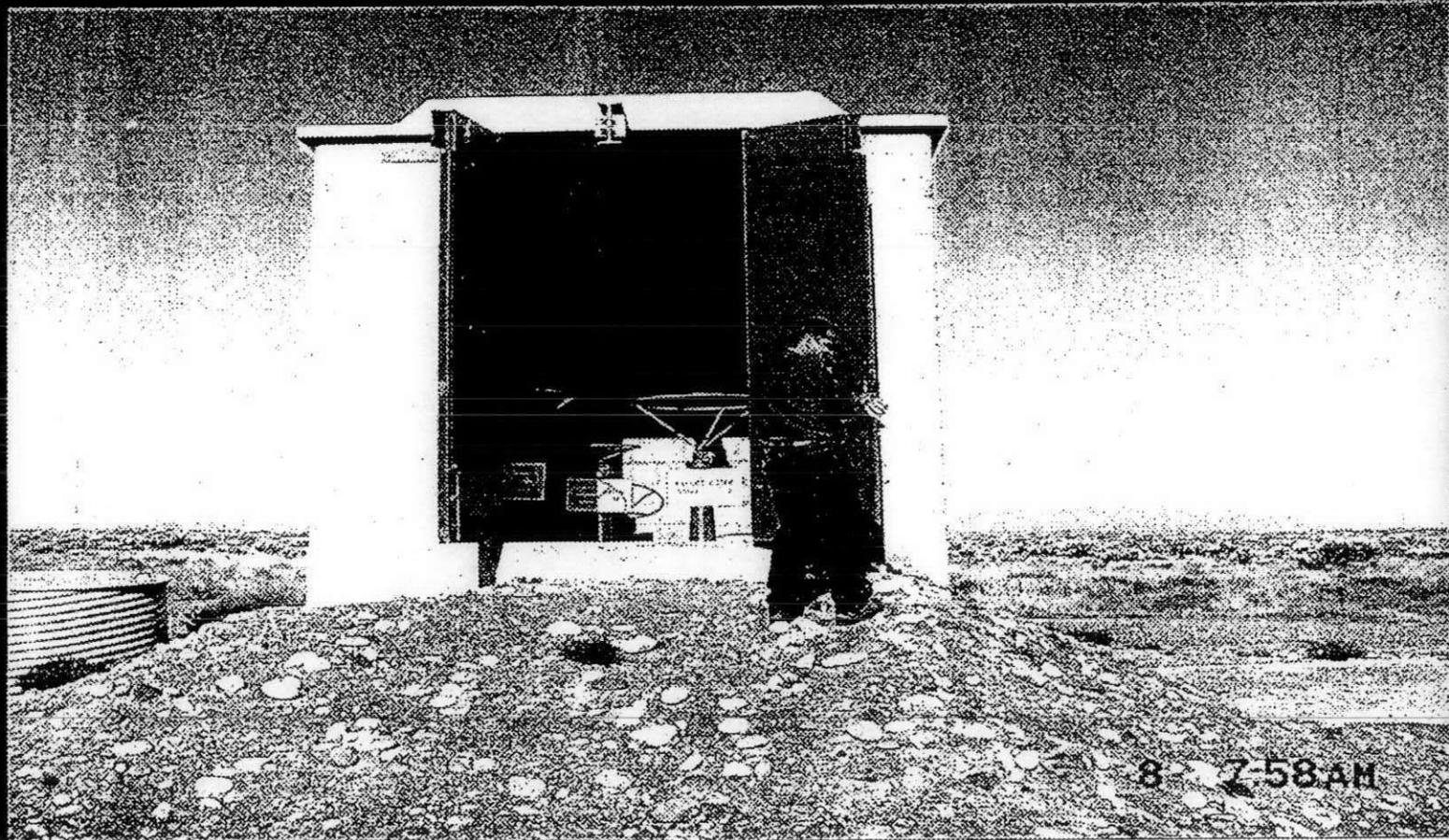
Valve Houses 2901-X for R/R Actuators on 30" BF Valves



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(Ref H-6-15440)

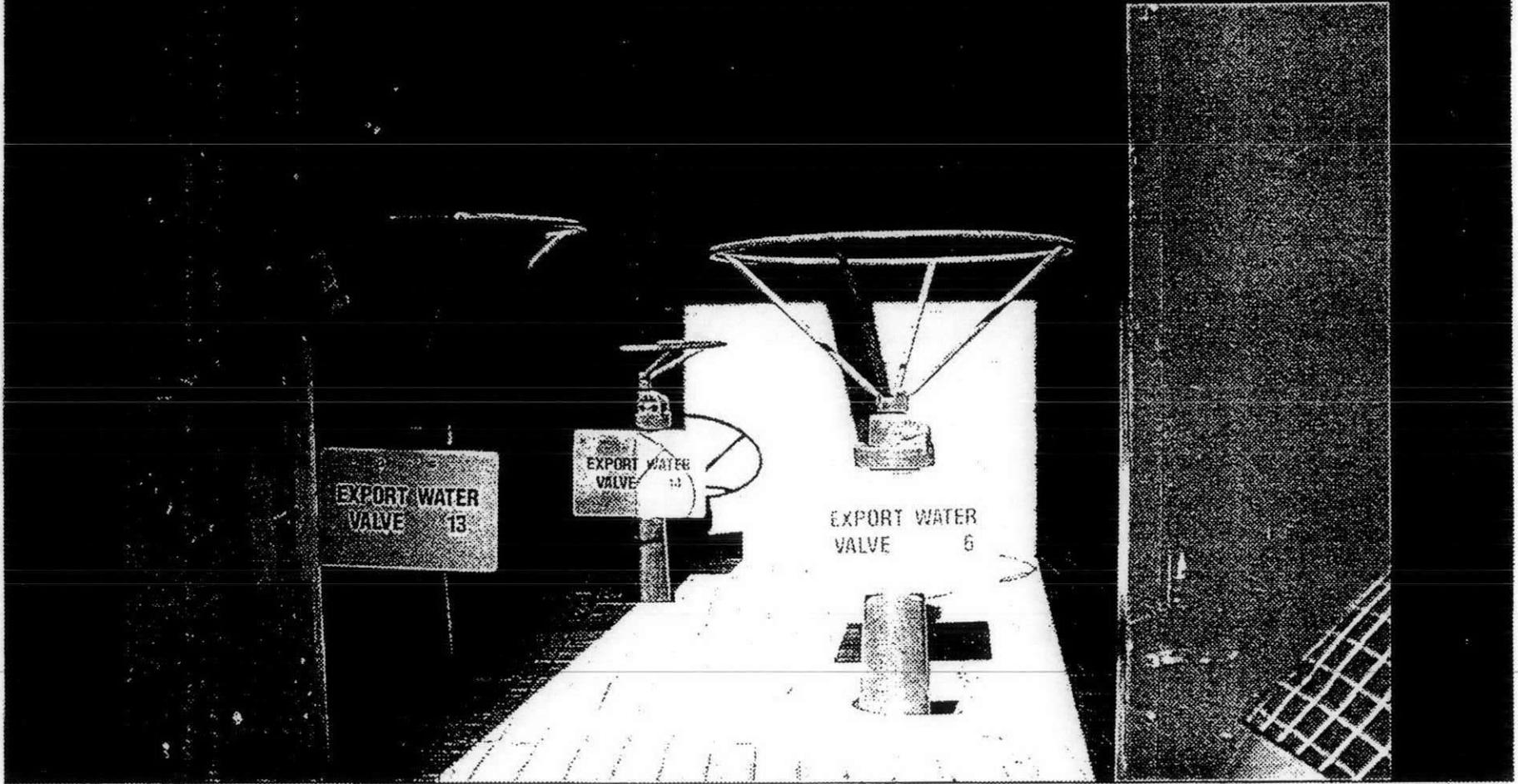
2901-X Valve House for BF Valves 6,13 & 14



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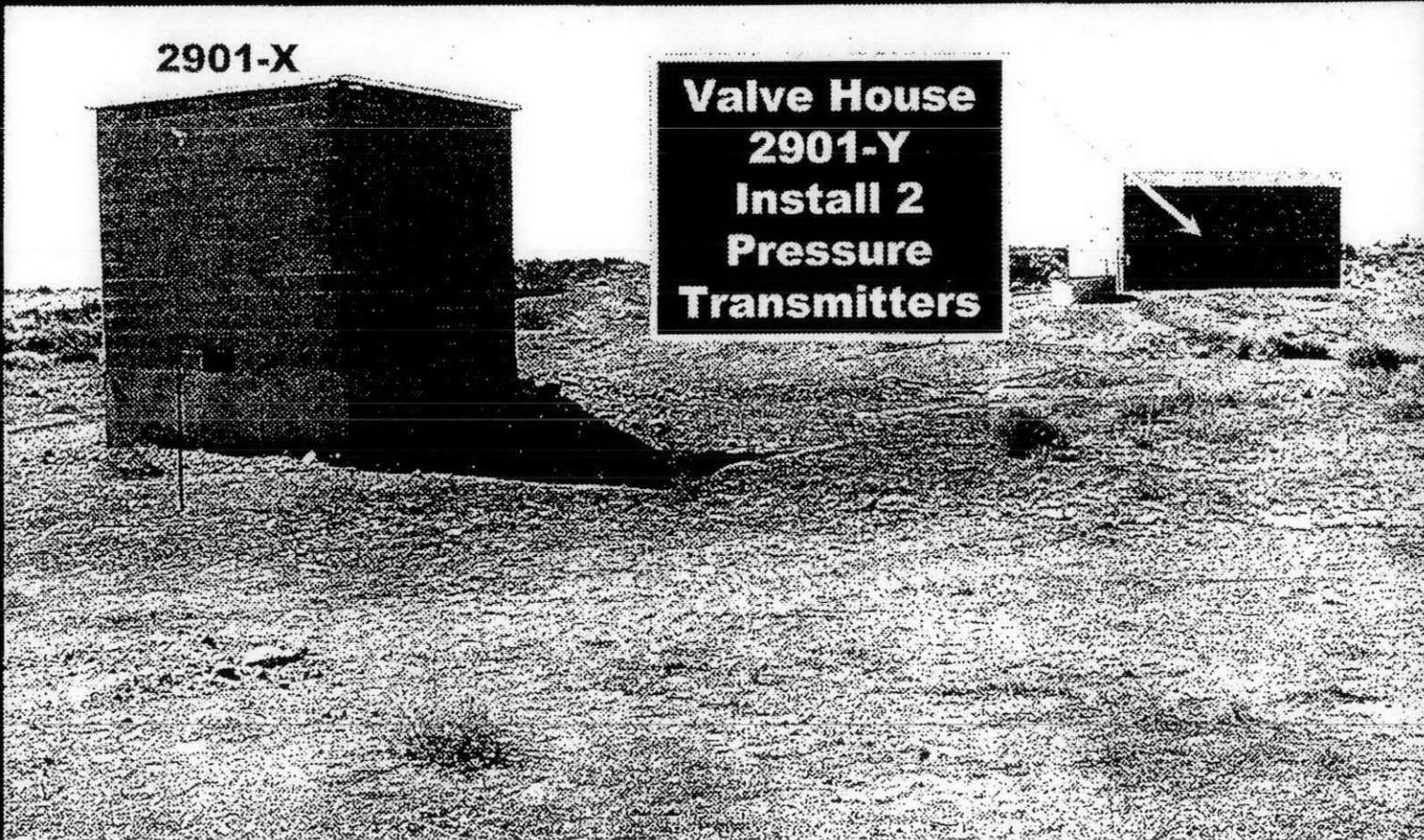
(Ref H-6-15440)

Remove & Replace BF Valve Operators on 6 & 13



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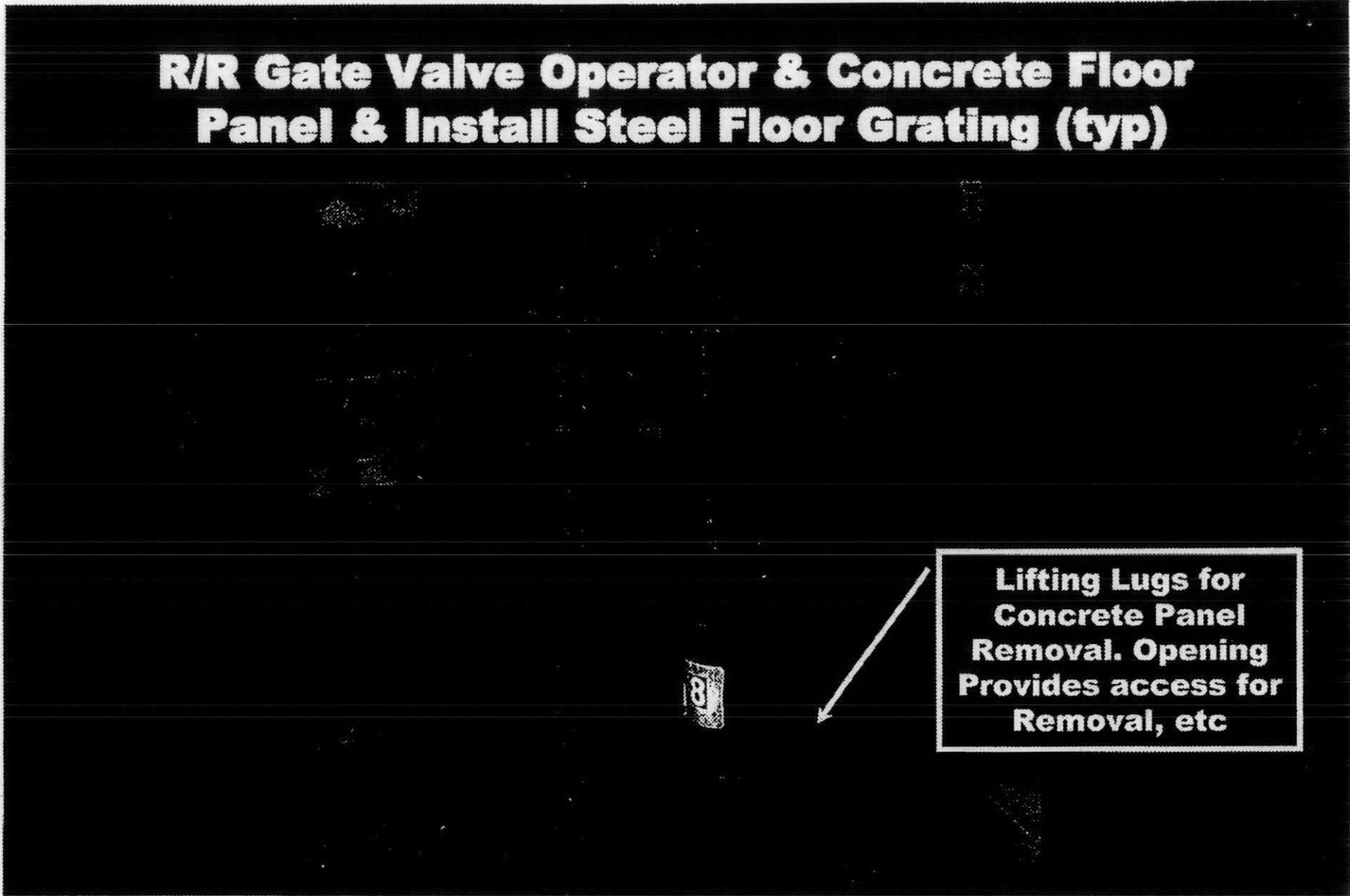
Valve Houses 2901-Y for R/R Gate Valve 8 & Installation of 2 Pressure Transmitters



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(Ref H-6-15440)

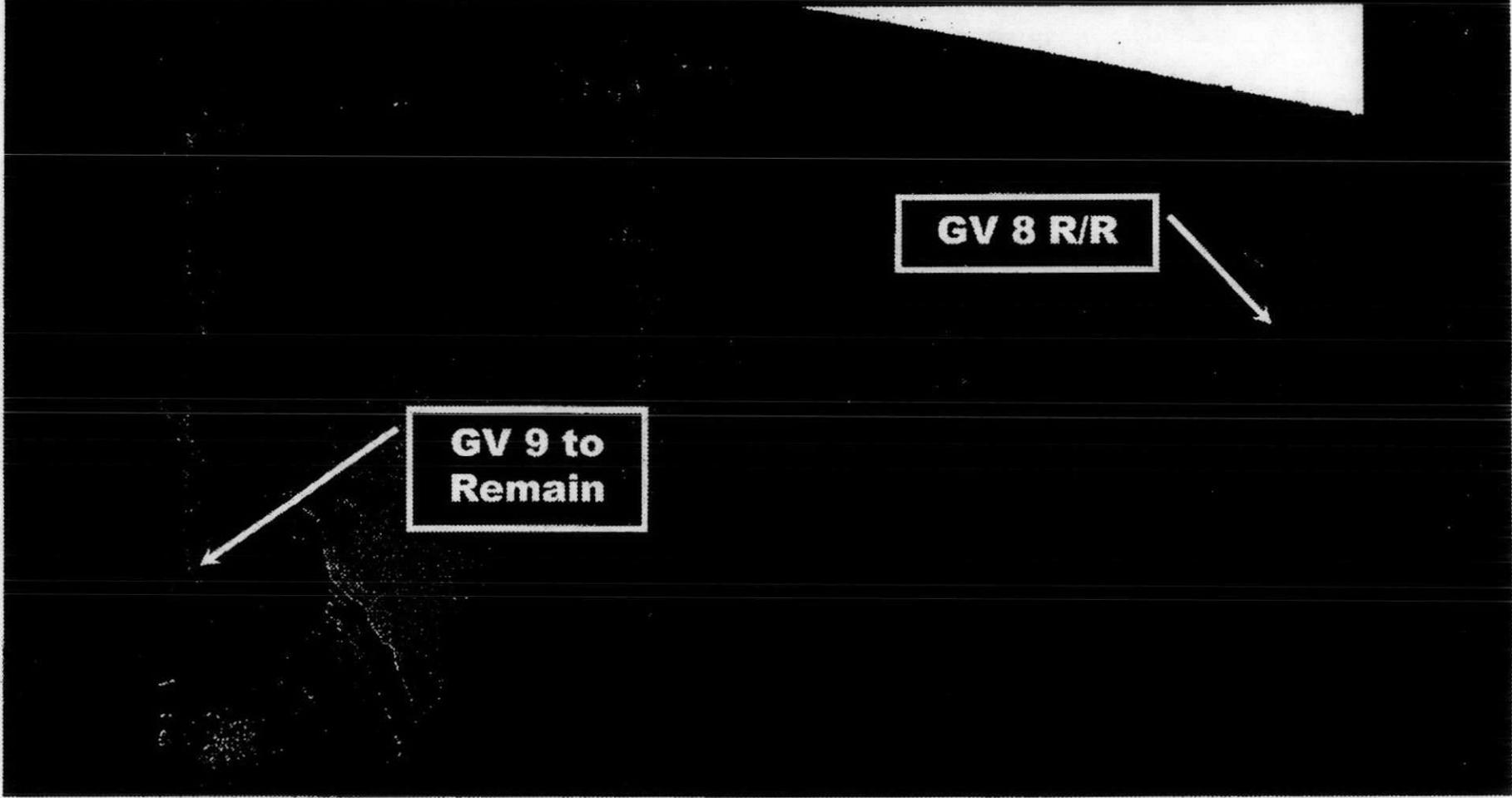
R/R Gate Valve Operator & Concrete Floor Panel & Install Steel Floor Grating (typ)



**Lifting Lugs for
Concrete Panel
Removal. Opening
Provides access for
Removal, etc**

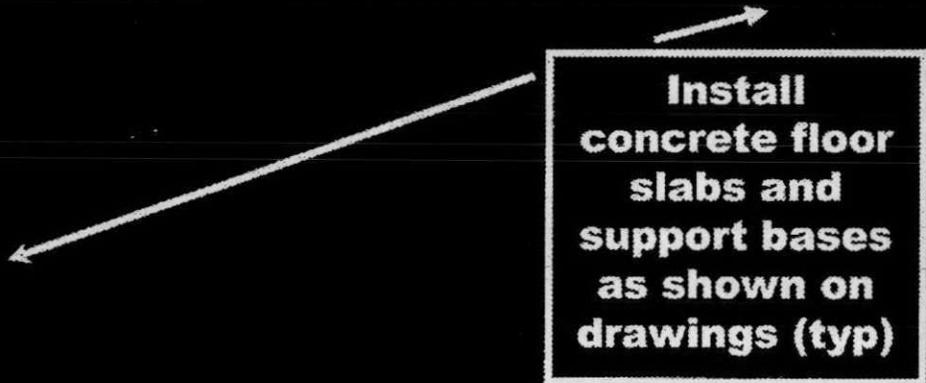
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Valve House 2901-Y Gate Valves & Wye Tee



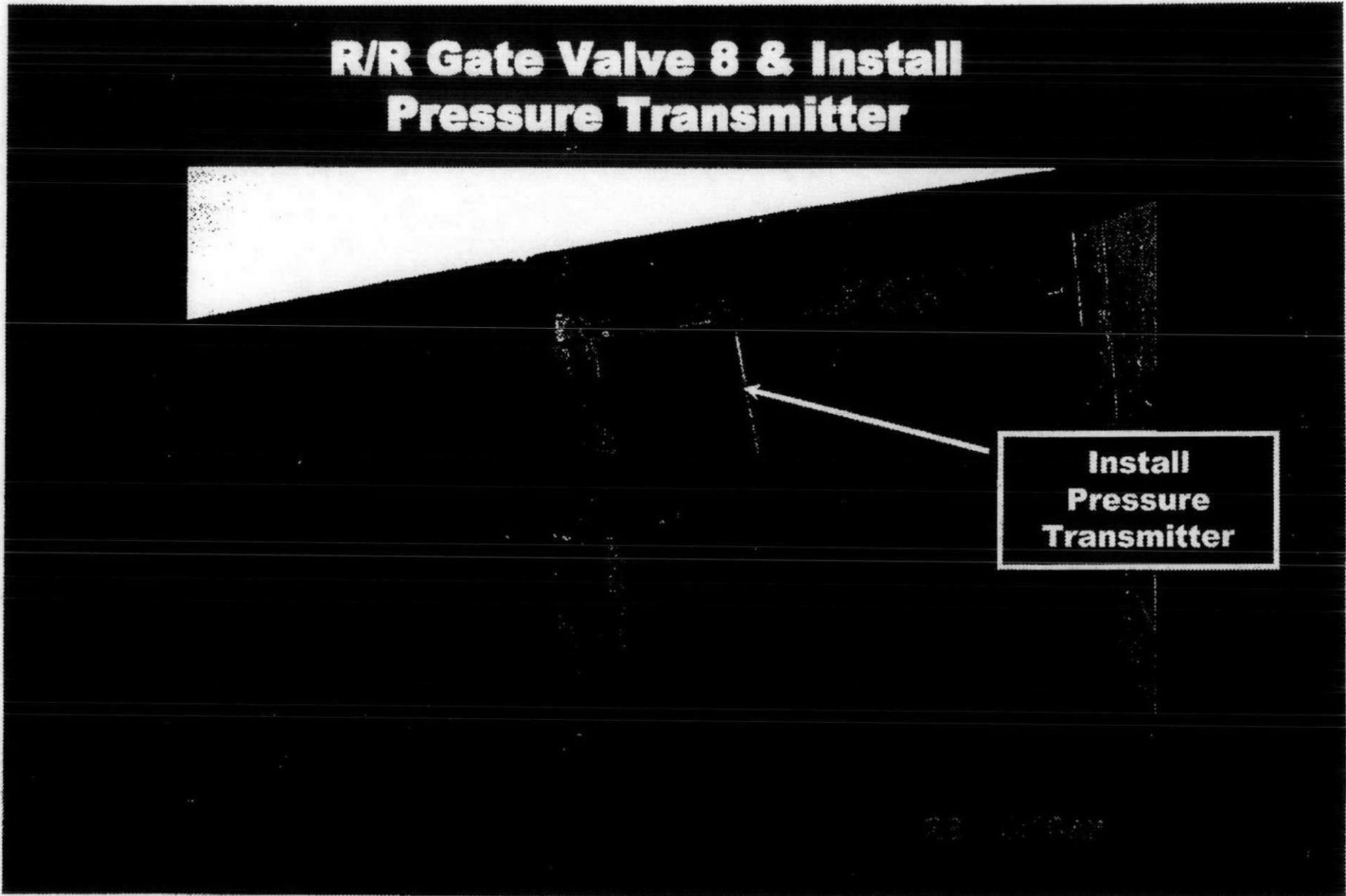
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R/R 24" Gate Valve 2" By-Pass Piping (to Remain) (wt 3,100 lbs)



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R/R Gate Valve 8 & Install Pressure Transmitter



**Install
Pressure
Transmitter**

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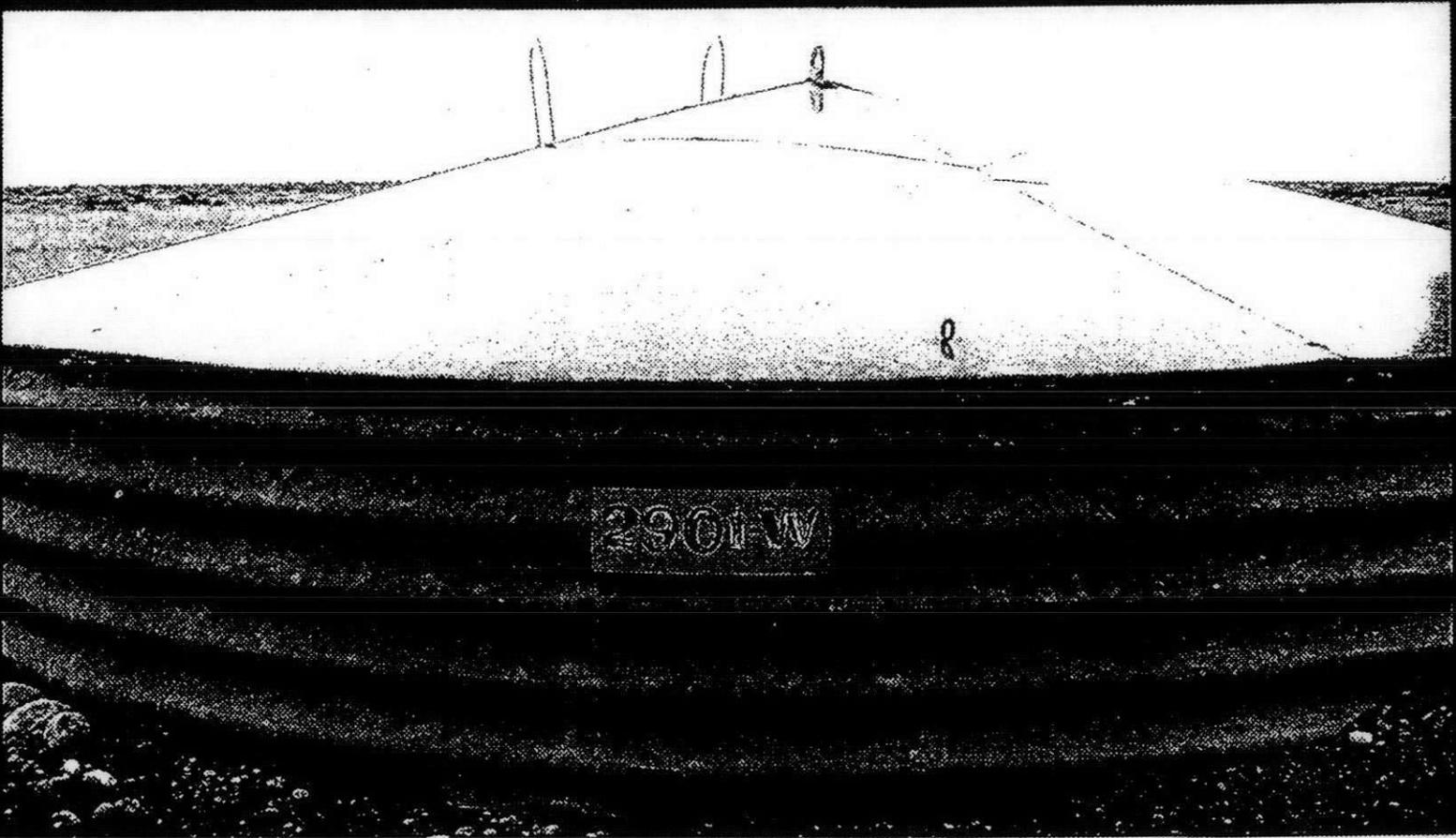
Gate Valve 9 & By-Pass Piping (to Remain) Install Pressure Transmitter – Downstream Side



Install Pressure Transmitter in Similar Manner as for Gate Valve 8

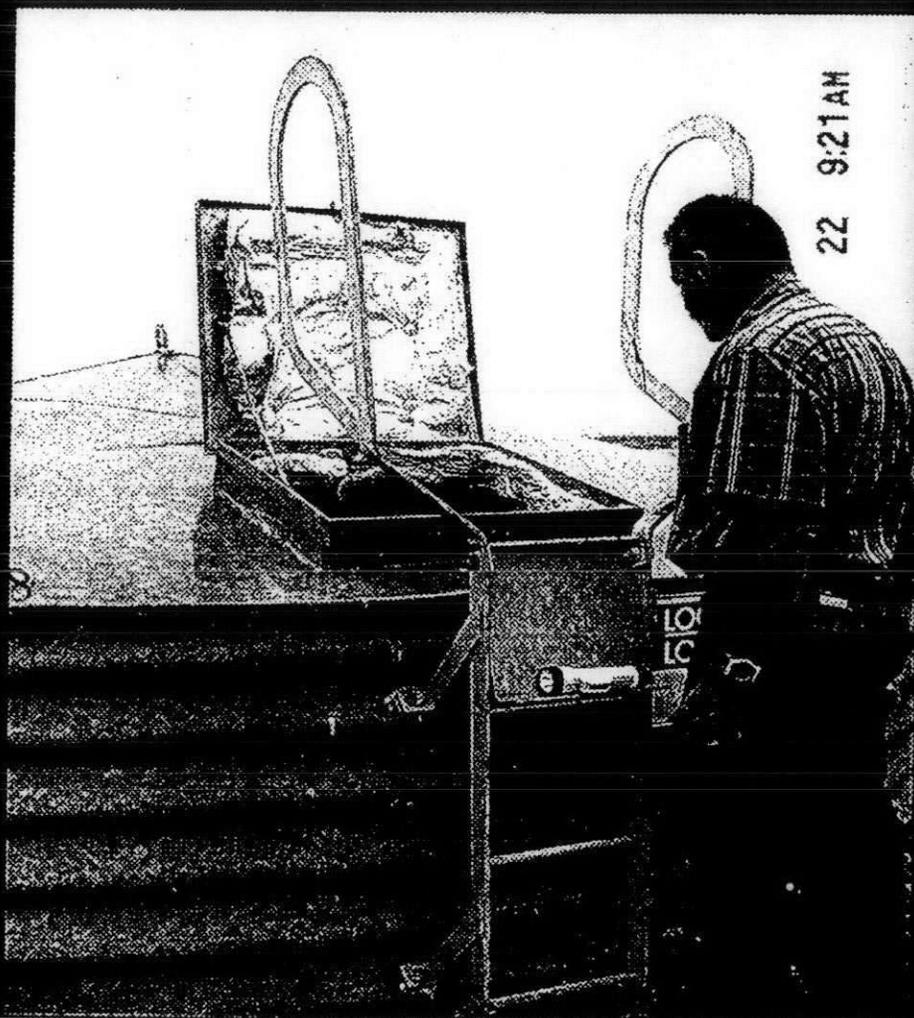


Valve Pit for Gate Valve 10 (to remain) Install Pressure Transmitter



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2901-W Valve Pit Entry Hatch



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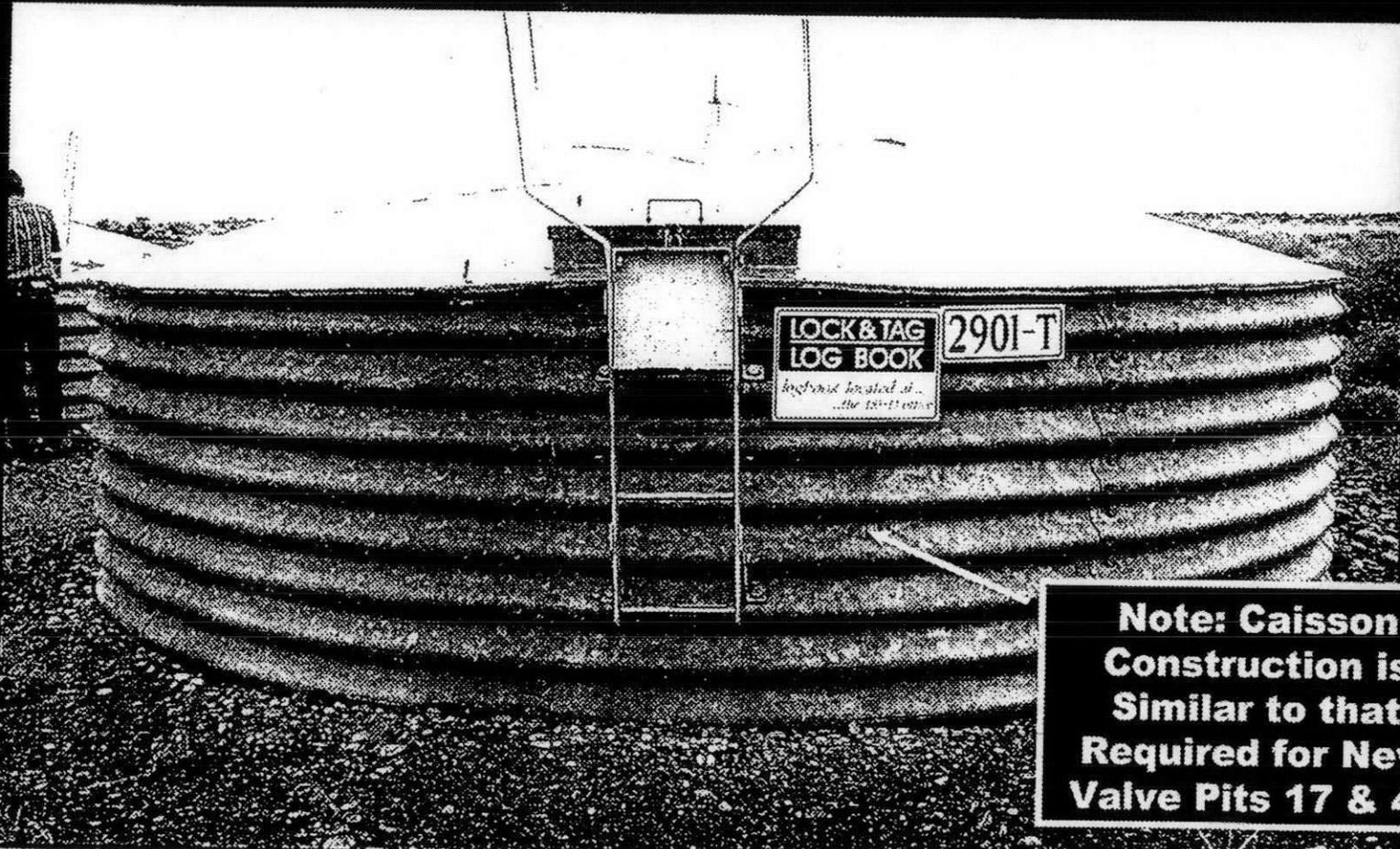
Gate Valve 10 (to remain) Install Pressure Transmitter

Install
Pressure
Transmitter



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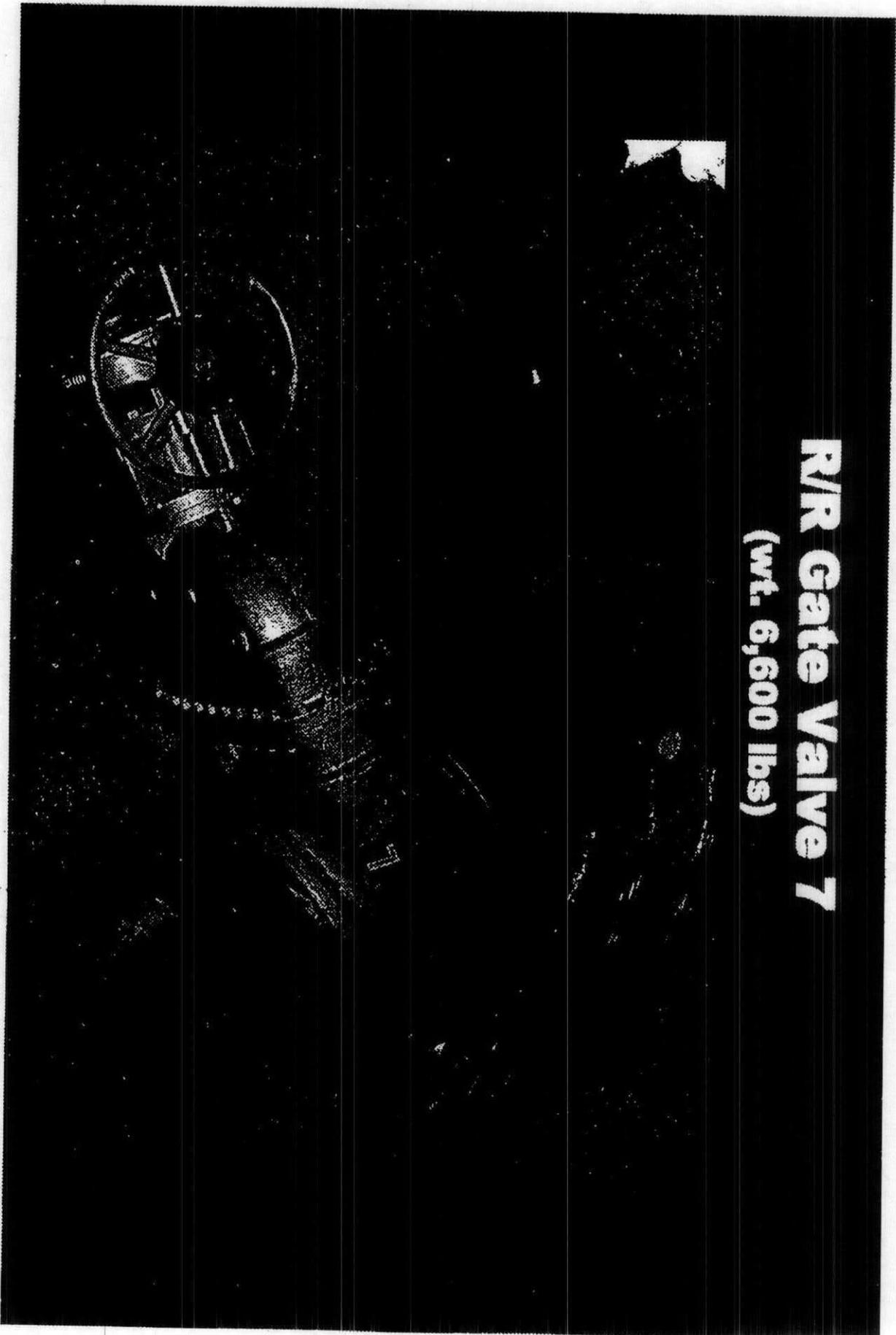
Valve Pit for Gate Valve 7 – R/R with 30" BF



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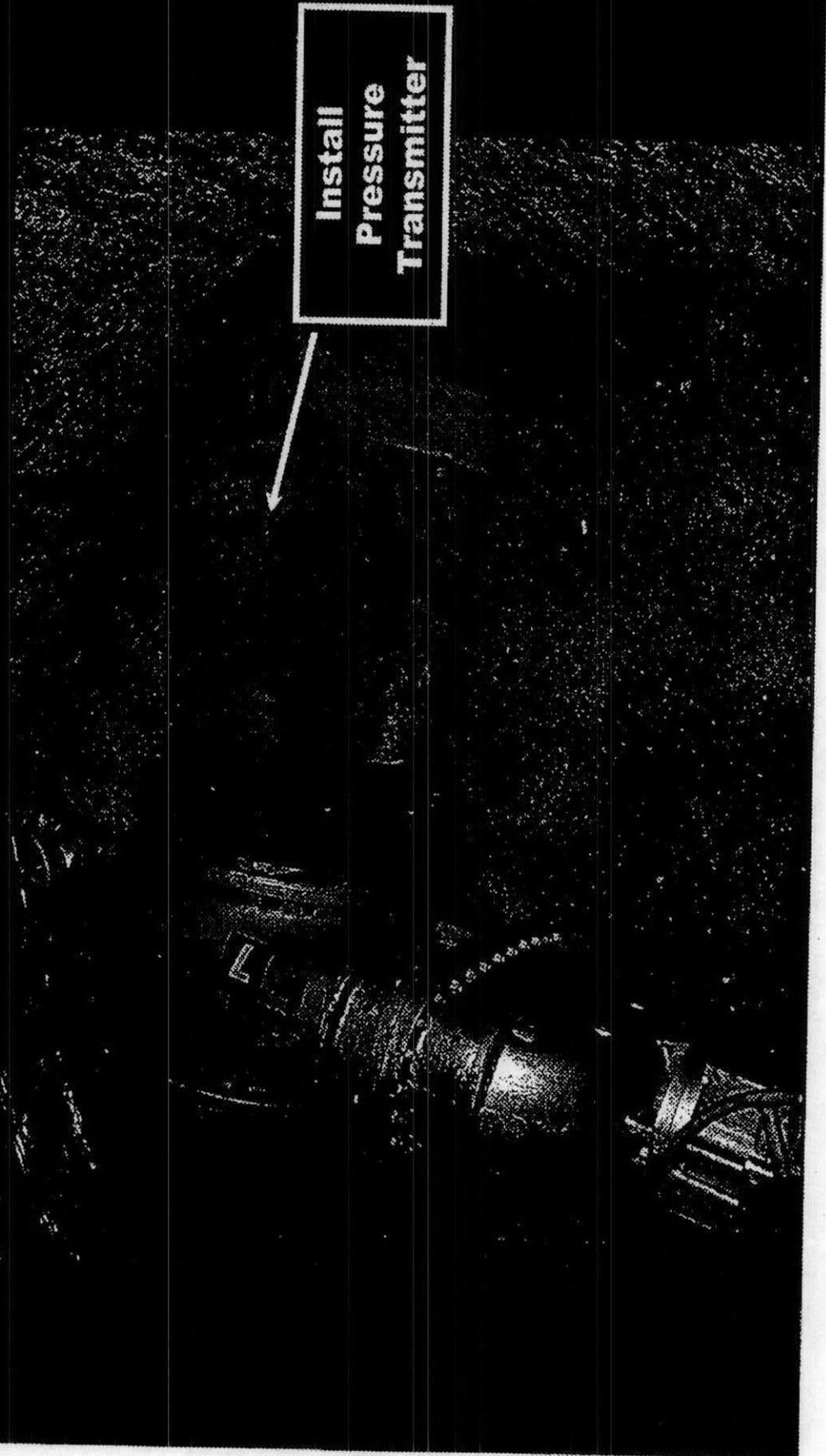
(Ref H-6-15440)

R/R Gate Valve 7
(wt. 6,600 lbs)



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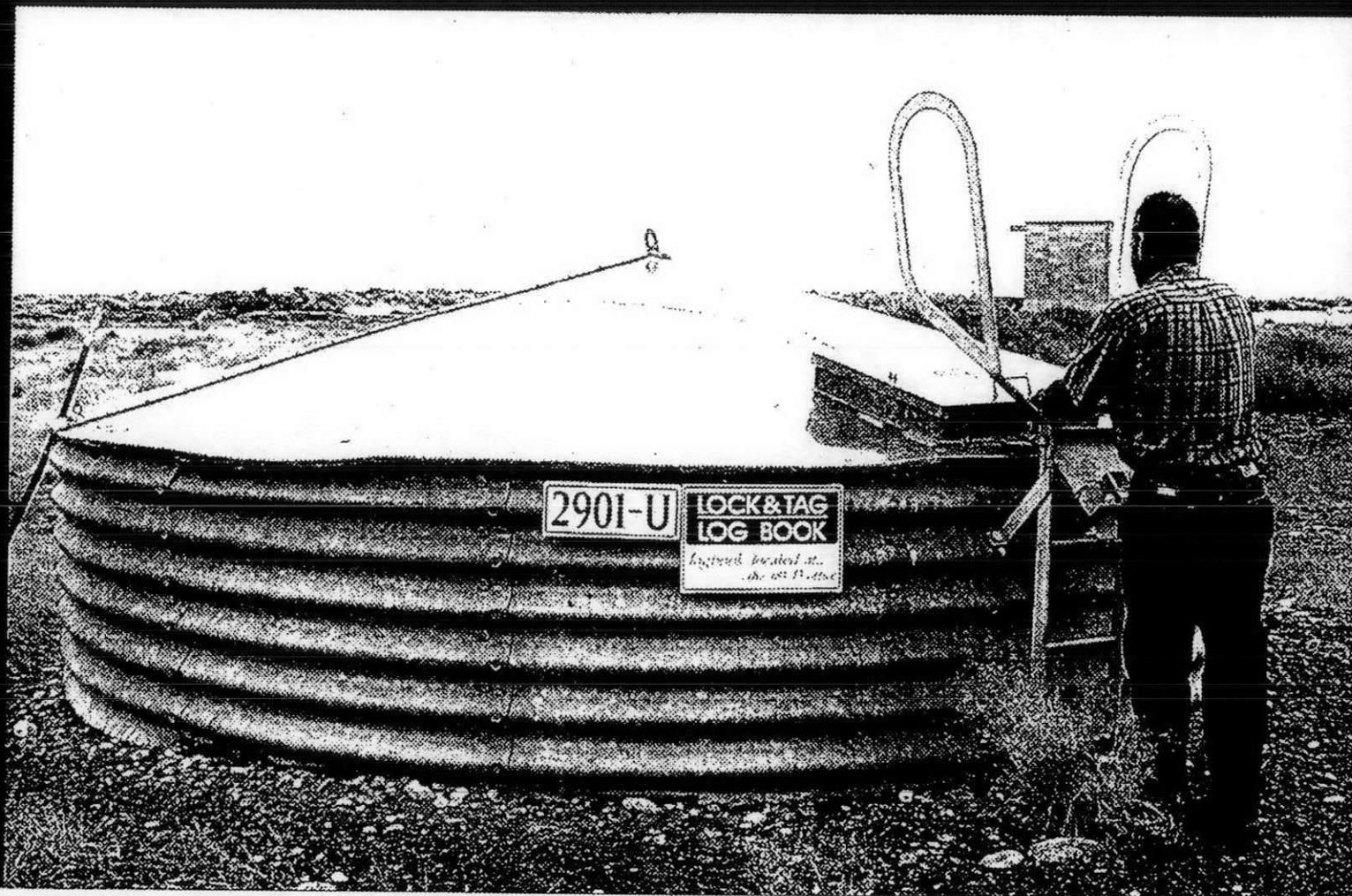
Gate Valve 7 - Install Pressure Transmitter



Install
Pressure
Transmitter

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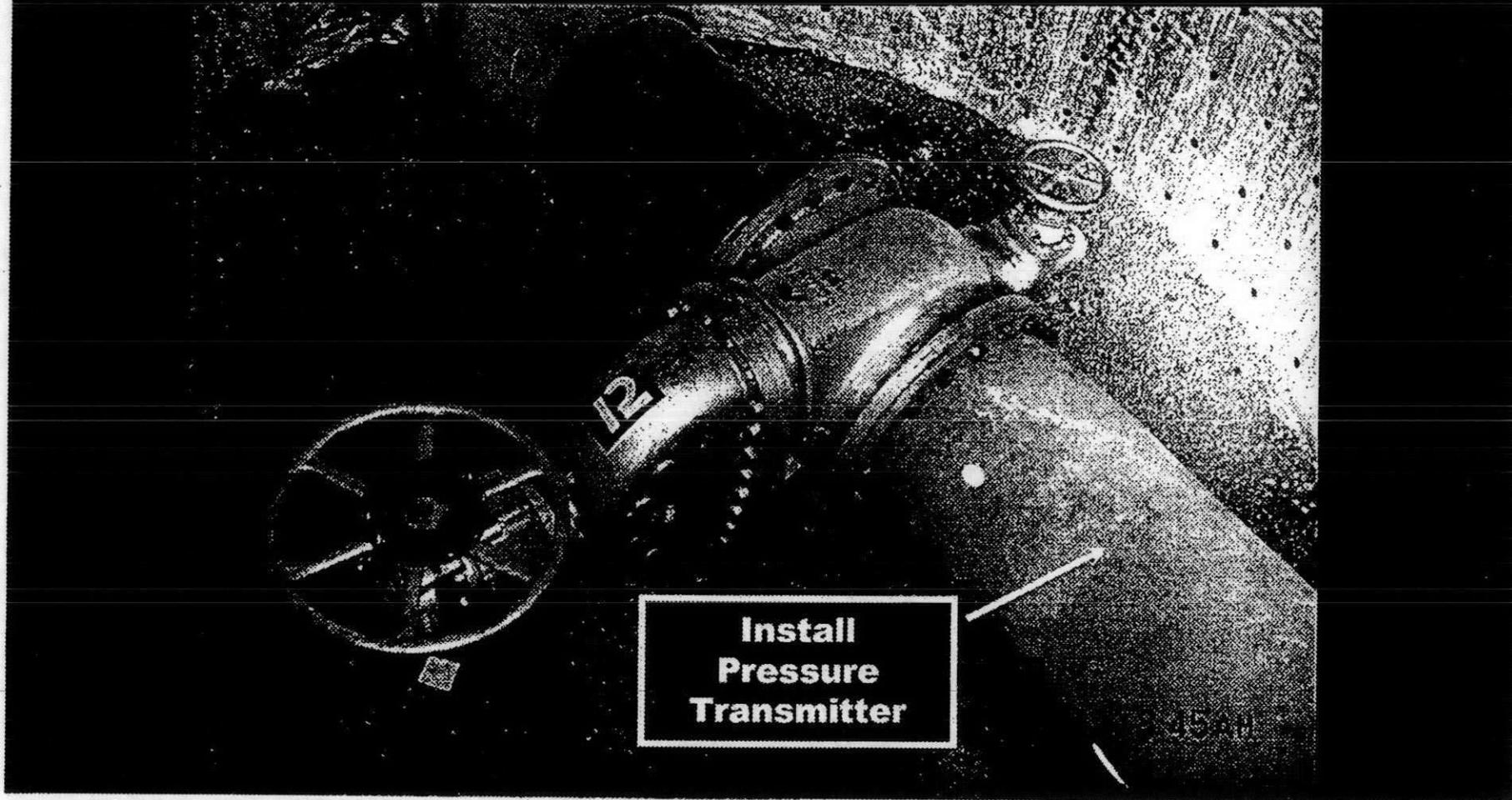
Valve Pit for Gate Valve 12 (to remain)



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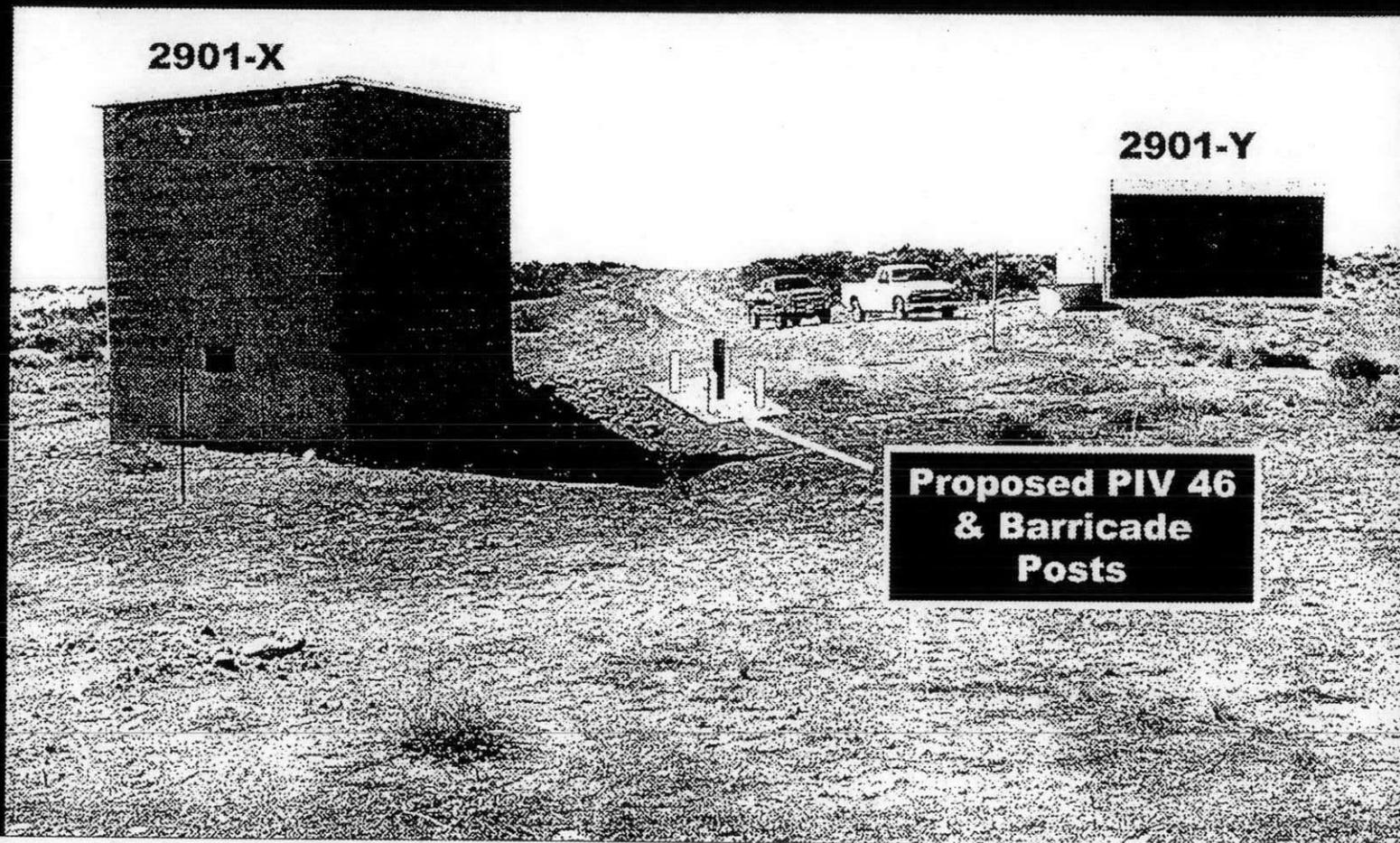
(Ref H-6-15440)

Gate Valve 12 (to remain) – Install Pressure Transmitter



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Bid Option 1: Install BF Valve 46 & PIV Operator



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Open Drain Line Ports



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(Ref H-6-15438 & 15441)

Remove Wood Plate Drain Covers



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Remove Wood Plate Cover



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Examples of Existing Concrete Reinforced Pipe



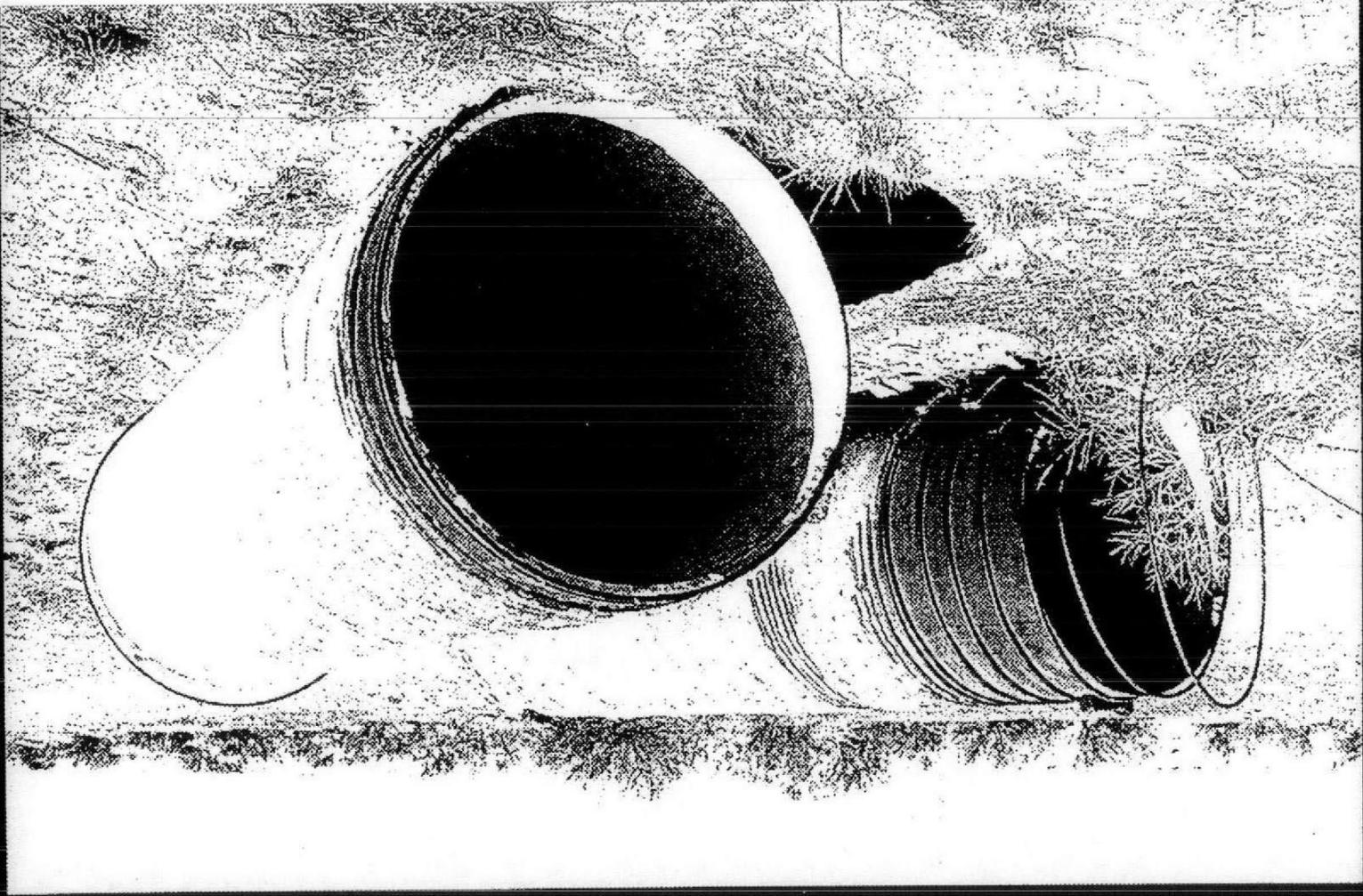
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Note: Continuous Steel Band Reinforcement



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Concrete Reinforced Pipe

Sequence of Events

1. Complete Submittals on Valves and other long lead items. Order materials.
2. Prepare & Pour concrete floor slabs and pipe supports in Valve Houses 1901-Y & 2901-Y.
3. Export Water being pumped from 182-B. Isolate 182-D Pump Station and complete construction as follows:
 - a. Remove & replace valve no. 2
 - b. Excavate & install valve no. 17Note: Construction duration not to exceed 7 days
4. Return service to 182-D and complete construction as follows:
 - a. Remove & replace valve no. 7
 - b. Excavate & install valve no. 45
 - c. Remove & replace valve no. 8
5. Shift pumping Export Water from 182-D and complete construction as follows:
 - a. Remove & replace valve no. 5
6. Return pumping from 182-B and complete construction on the following:
 - a. Replace operators on valves no. 6 & 13
 - b. Install Pressure Transmitters
 - c. Install Drain pipe covers
 - d. Perform RF signal strength study
 - e. Install communication system/RTU antennas
 - f. Install solar charging stations
 - g. Install conduit and wiring
 - h. Miscellaneous construction – stabilization, painting, clean-up