No. 9

SURVEY REPORT
FOR
REHABILITATION
OF
THERMAL POWER PLANTS
IN METRO MANILA
IN THE REPUBLIC OF THE PHILIPPINES

VOLUME I

(MAIN REPORT)

NOVEMBER 1982

JAPAN INTERNATIONAL COOPERATION AGENCY

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82-150(1/2)

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JAPAN INTERNATIONAL COOPERATION AGENCY

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国際協力事業団
受入月日 58.8.5 84.9.21
登録No. 09779
118
64.3
MPN

PREFACE

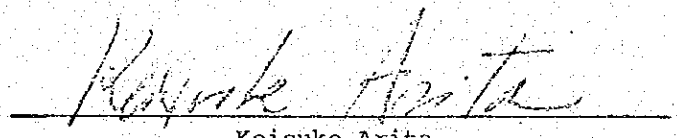
In response to the request of the Government of the Republic of the Philippines, the Government of Japan decided to conduct a survey on the rehabilitation project of thermal power plants in Metro Manila and entrusted the survey to the Japan International Cooperation Agency (JICA). The JICA sent to the Philippines a survey team headed by Mr. K. Iimura from 26 July to 30 September, 1982.

The team had discussions on the project with the officials concerned of the Government of the Philippines and conducted a field survey in Metro Manila area. After the team returned to Japan, further studies were made and the present report has been prepared.

I hope that this report will serve for developing a stable power supply in Metro Manila and contribute to the promotion of friendly relations between our two countries.

I wish to express my deep appreciation to the officials concerned of the Government of the Republic of the Philippines for their close cooperation extended to the team.

Tokyo, November, 1982

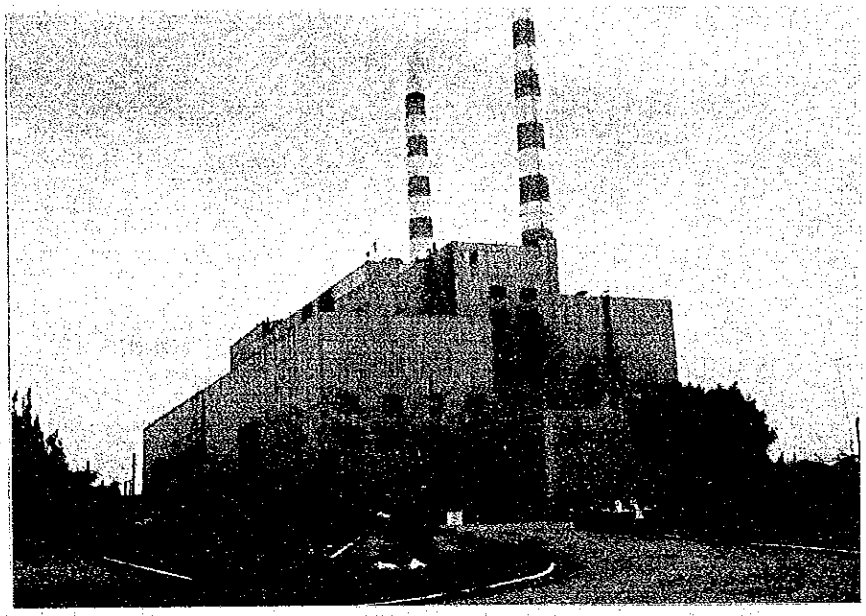


Keisuke Arita

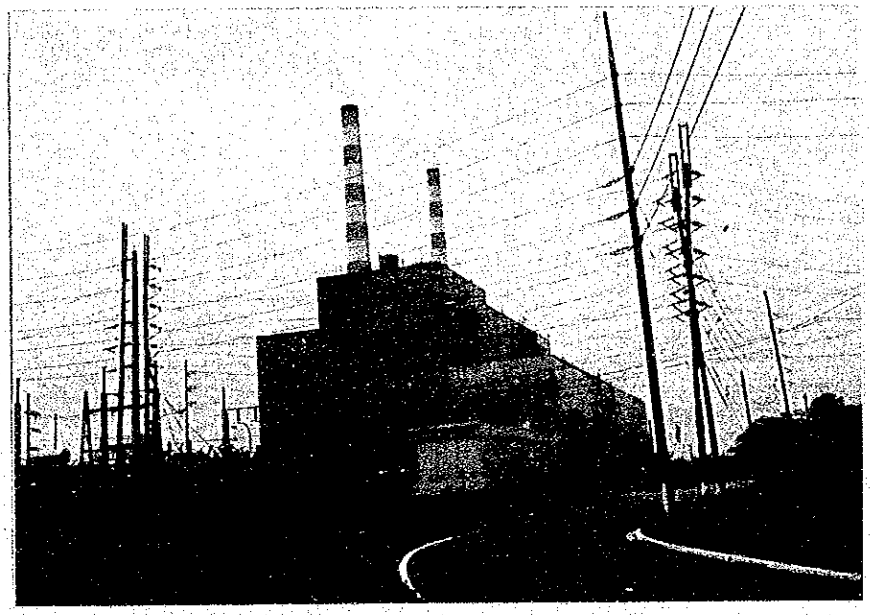
President

Japan International Cooperation Agency

PHOTOGRAPHS

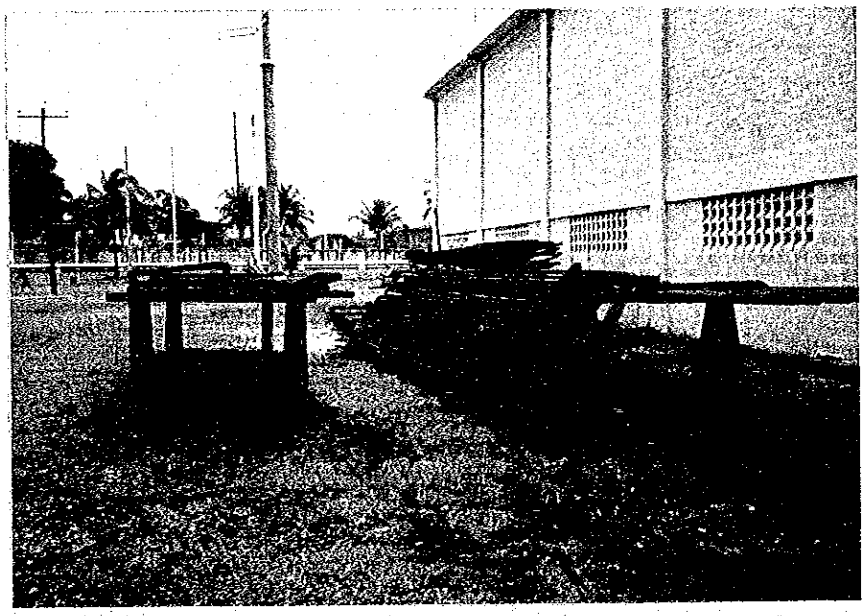


PERSPECTIVE OF GARDNER/SNYDER T.P. - SOUTH SIDE ELEVATION

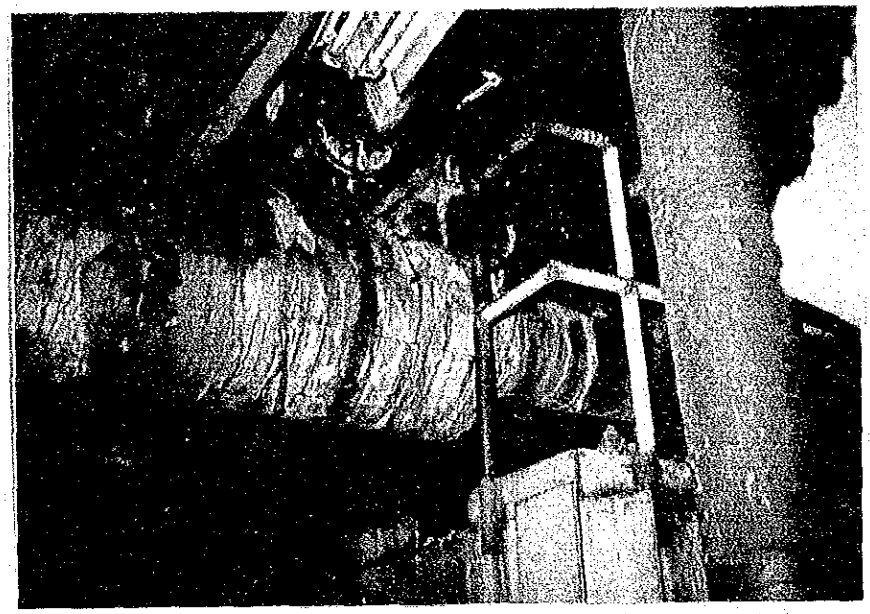


PERSPECTIVE OF GSTP - NORTH SIDE ELEVATION

G-2 SECONDARY SUPERHEATER TUBES
REMOVED DURING RECENT OVERHAULING

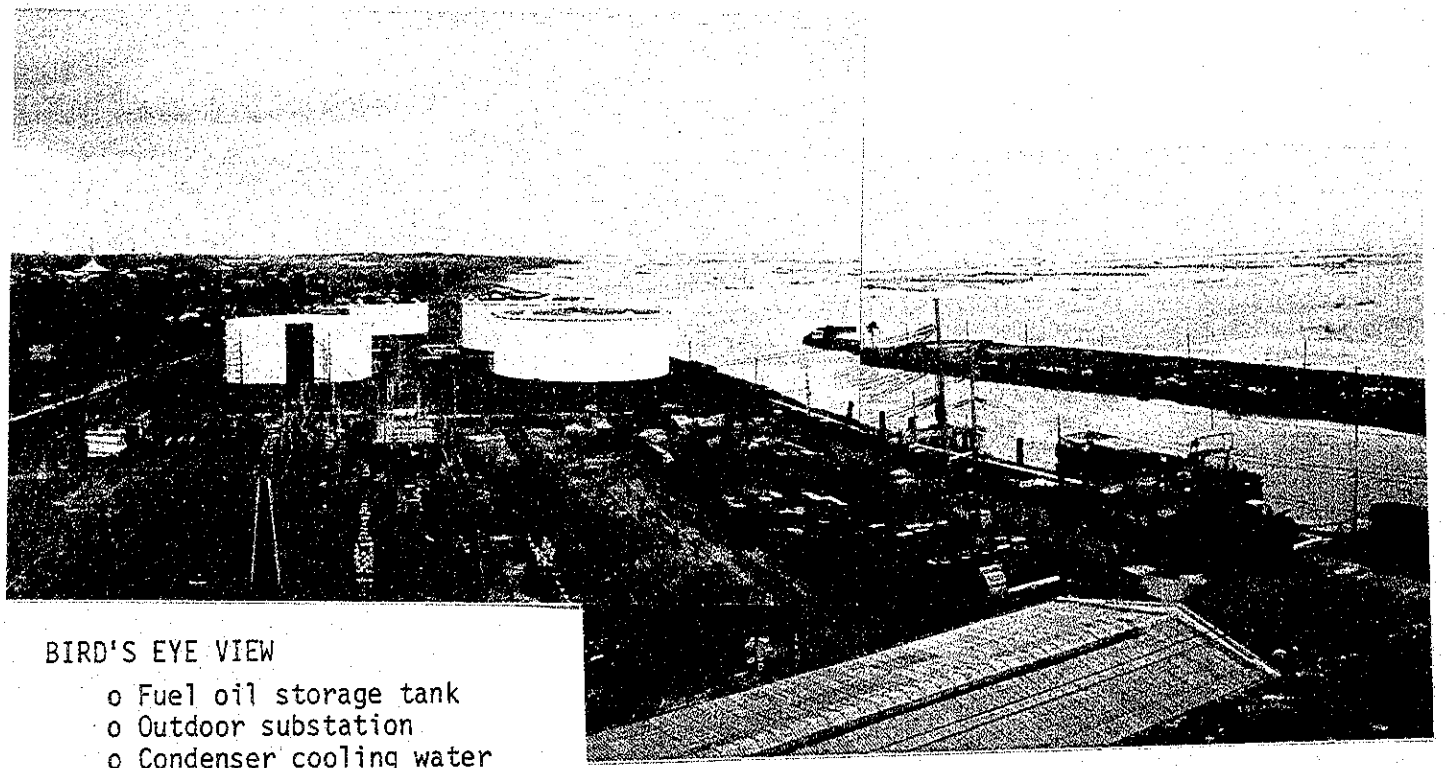


G-2 REMOVED SECONDARY SUPERHEATER TUBE



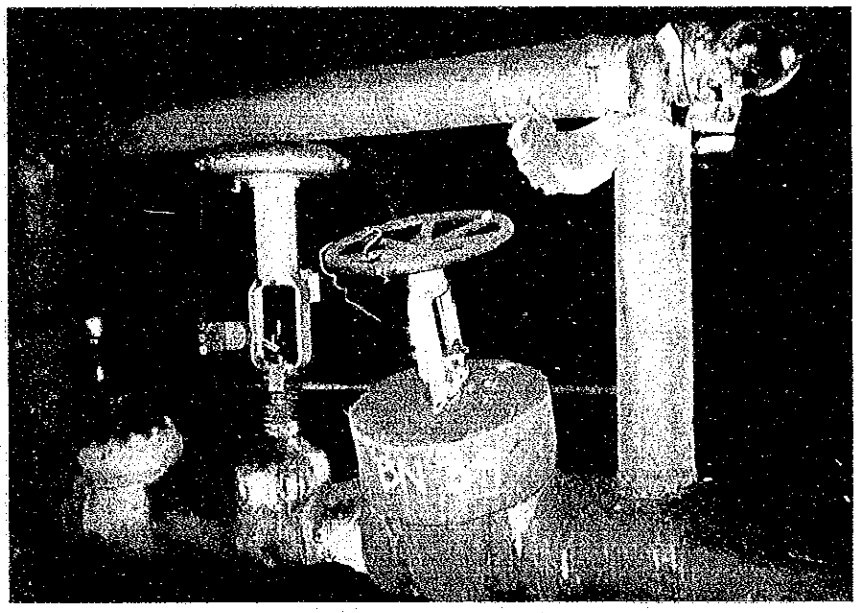
SITUATION OF PIPING INSULATION (note safety valve already at bent position)

BY-PASS CV 101 A & B OF MAIN STEAM PIPE



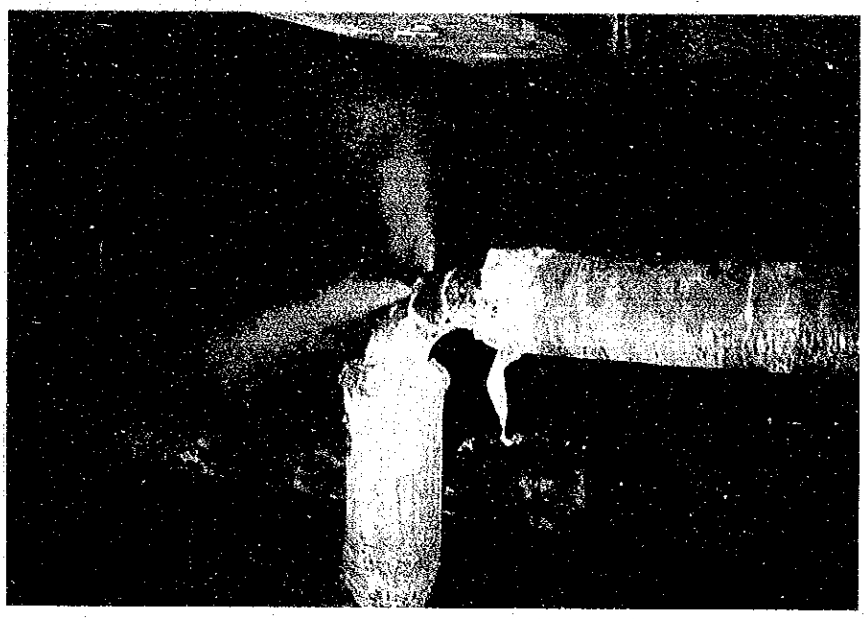
BIRD'S EYE VIEW

- o Fuel oil storage tank
- o Outdoor substation
- o Condenser cooling water discharge channel
- o Fuel oil loading and unloading facility

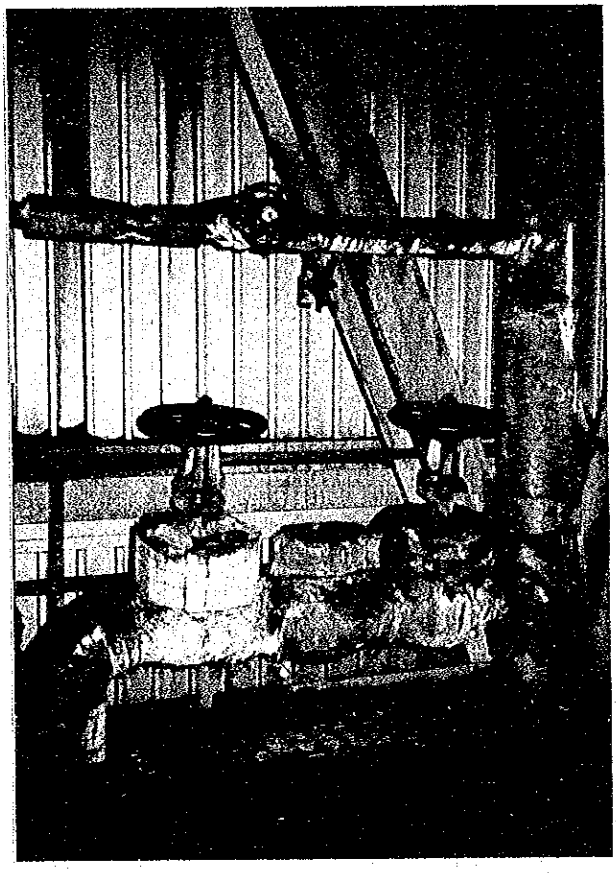


NON-OPERATIONAL AUXILIARY STEAM CONTROL VALVE

NON-OPERATIONAL AUXILIARY STEAM CONTROL VALVE

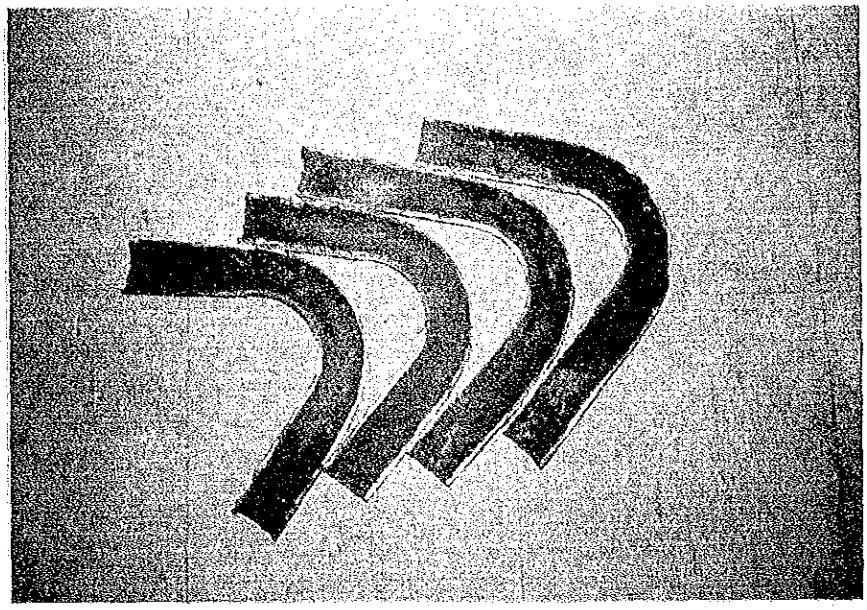


RUPTURED PORTION OF S-2 HPH DRAIN PIPE (during operation)

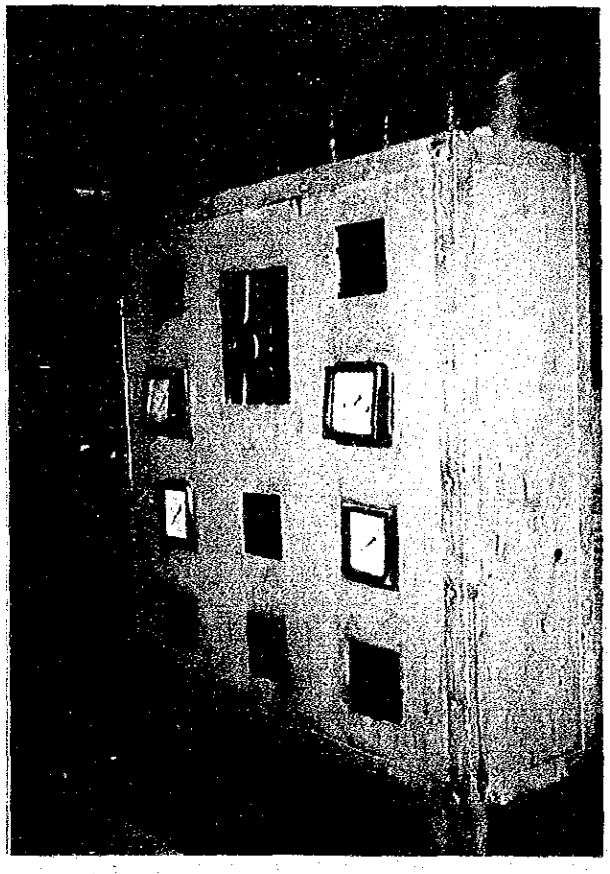


S-1 C.V. OF AUXILIARY STEAM PIPING

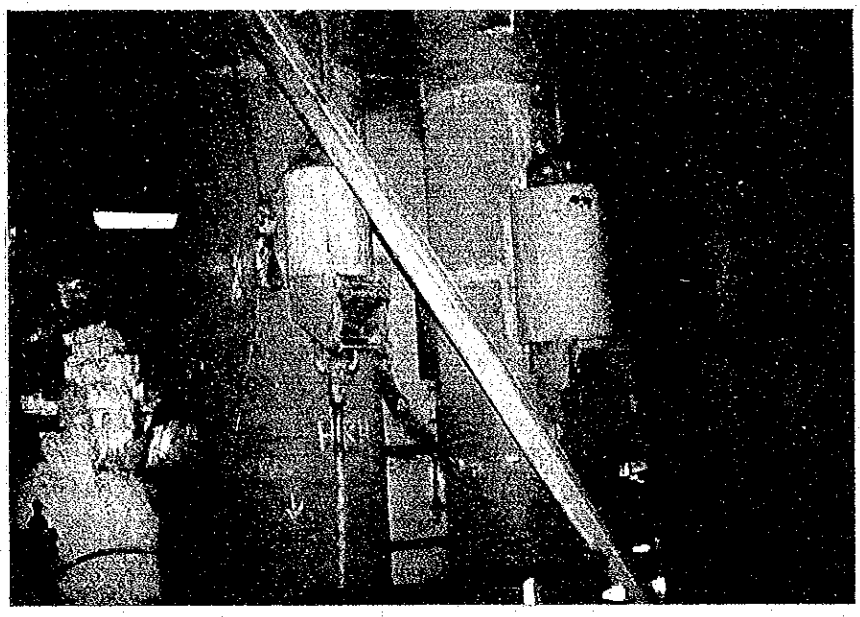
(Take out CV)



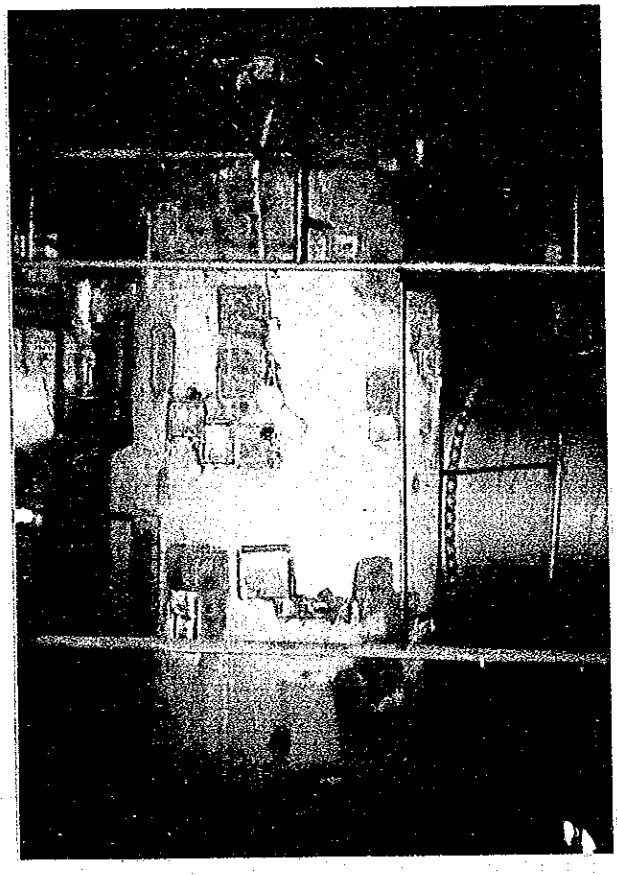
SECTION OF G-2 R/H BENT TUBES (Inside corrosion)



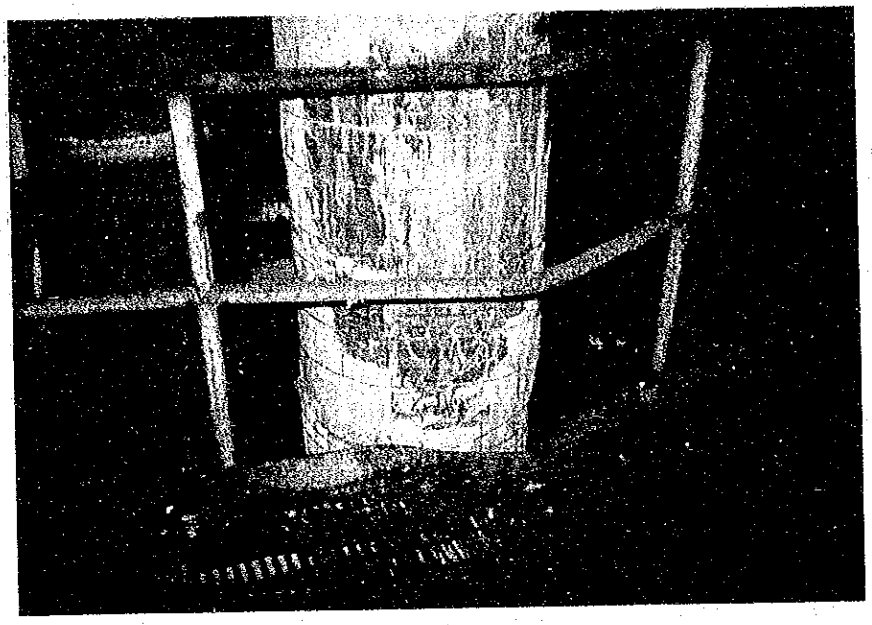
FUEL OIL LOCAL INSTRUMENT PANEL (during operation)



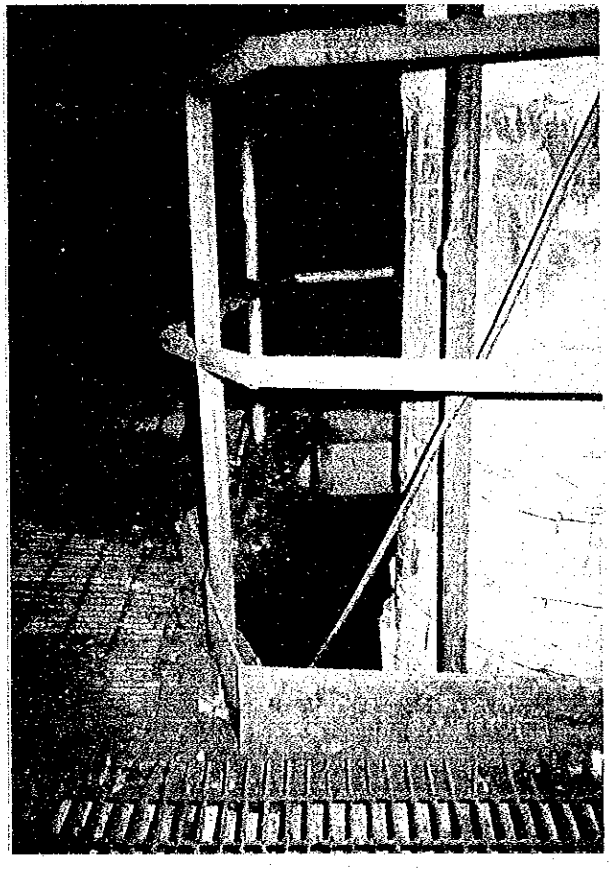
NON-FUNCTIONING CONSTANT LOAD HANGERS OF S-1 MAJOR PIPES



PRESENT CONDITION OF S-1 CWP DISCHARGE PIPE TO MAIN CONDENSER

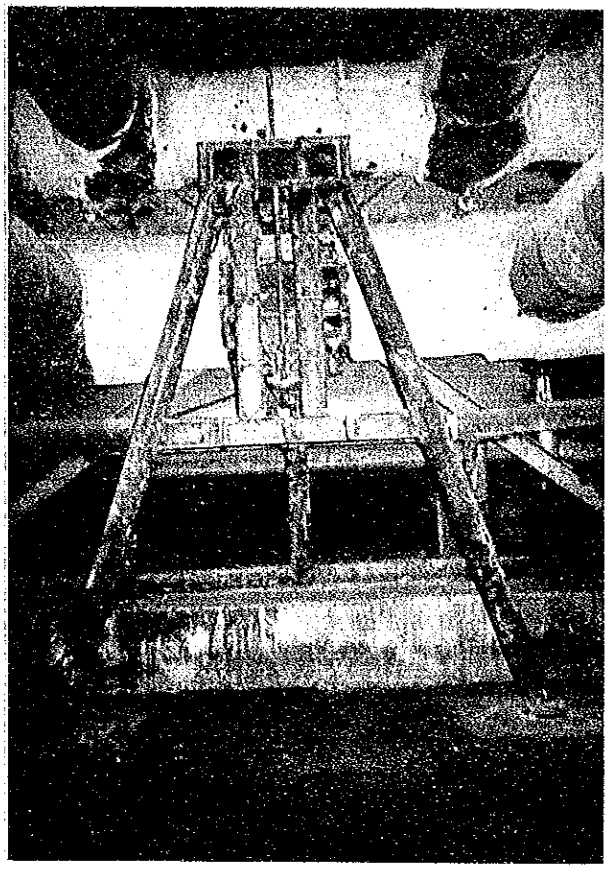


S-1 CRH PIPE & DAMAGED GRATING AT MEZZANINE FLOOR

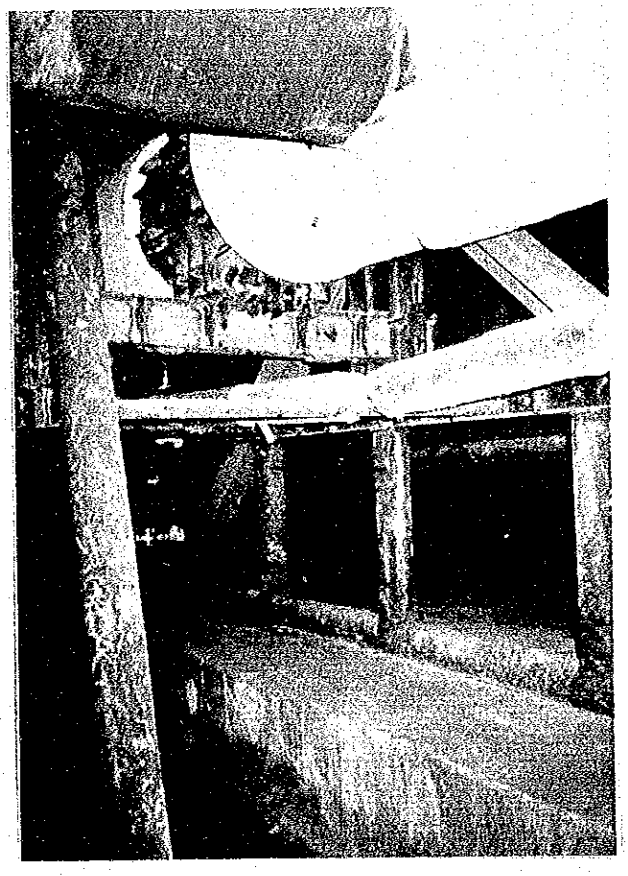


ANOTHER VIEW OF DAMAGED GRATING

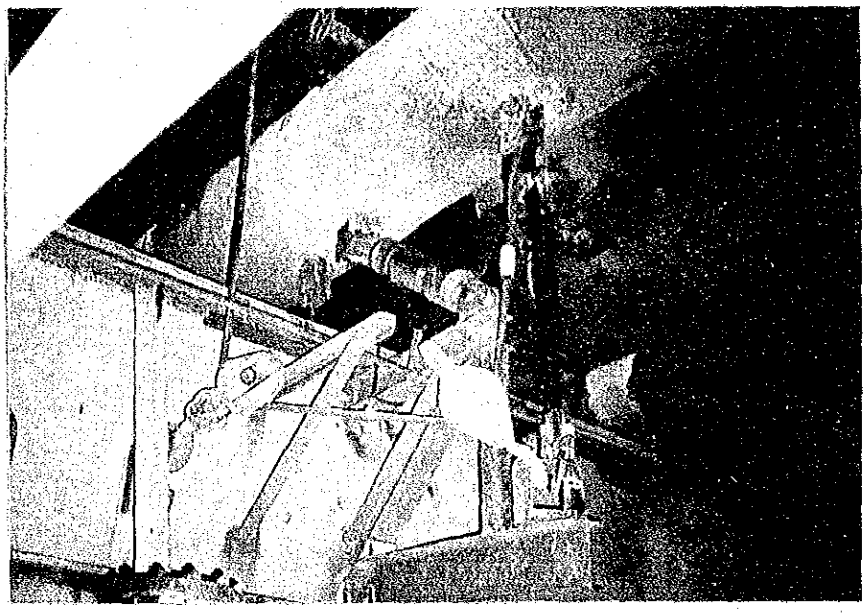
BENT I-BEAM OF S-1
MEZZANINE FLOOR
NEAR CRH PIPE



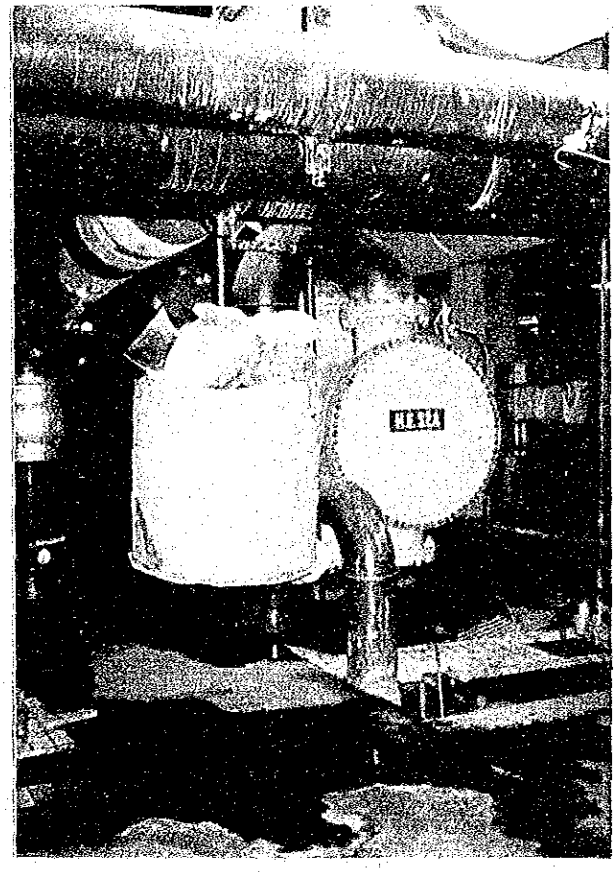
MAIN STEAM PIPE MOVEMENT LIMITER



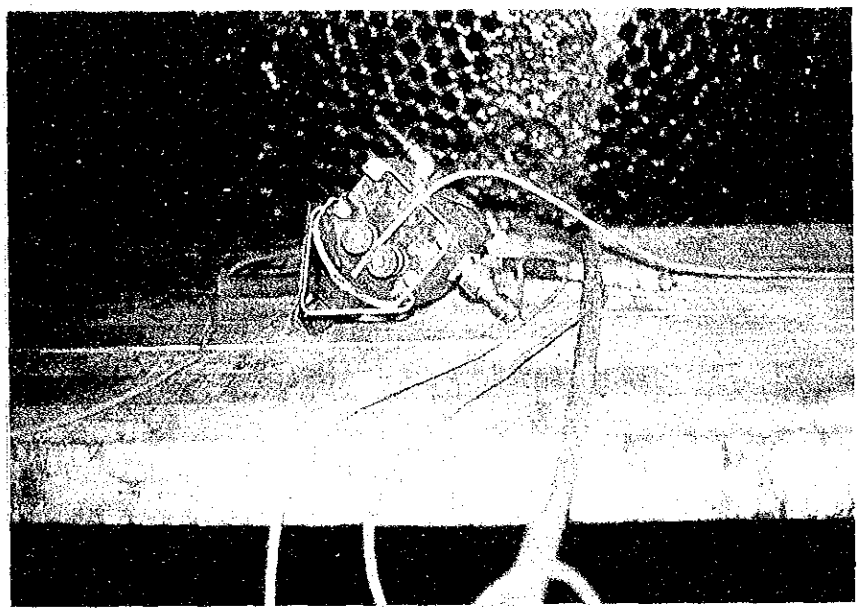
CRH PIPE MOVEMENT LIMITER



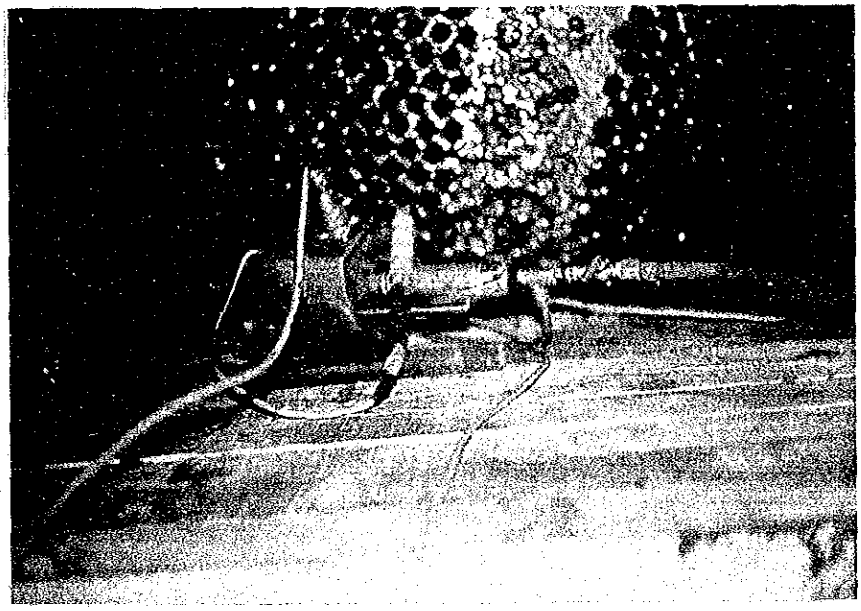
S-2 CRH
PIPE
TEMPORARY
HANGER

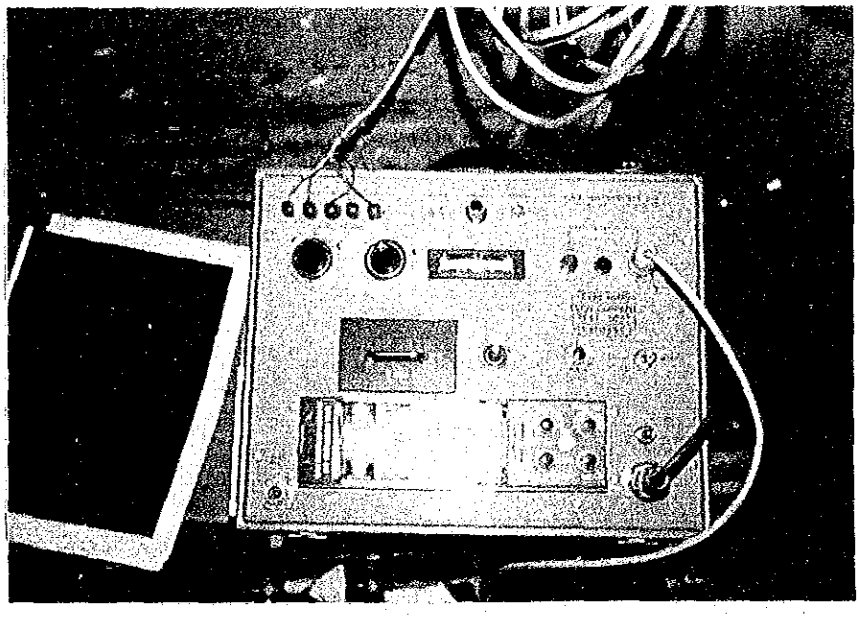


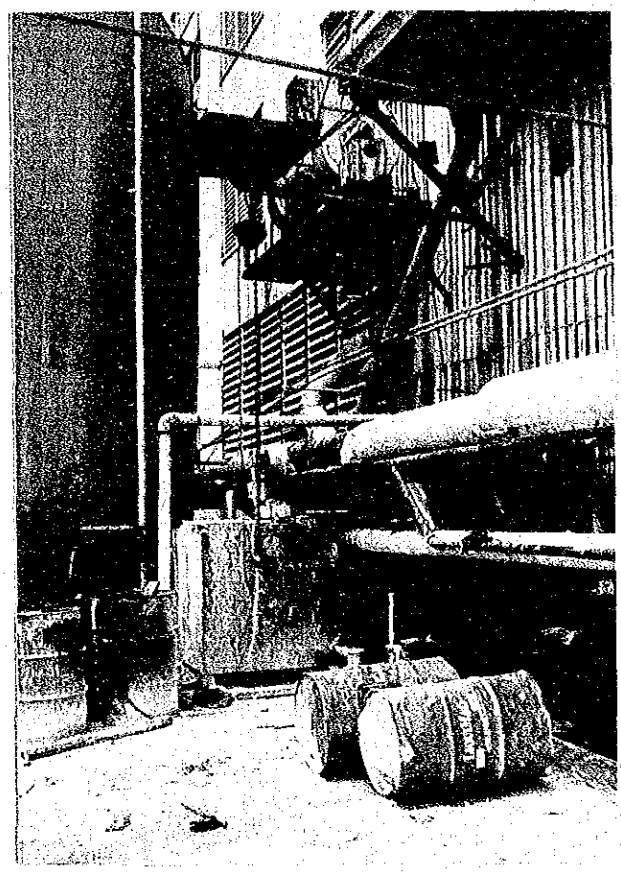
S-2 CRH PIPE
TEMPORARY
HANGER



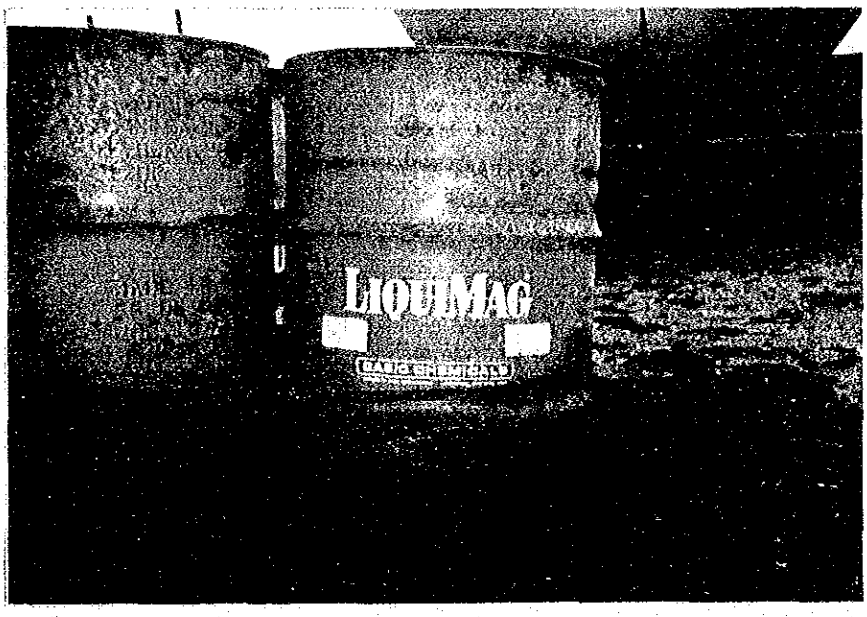
EDDY CURRENT
MEASURING
INSTRUMENT



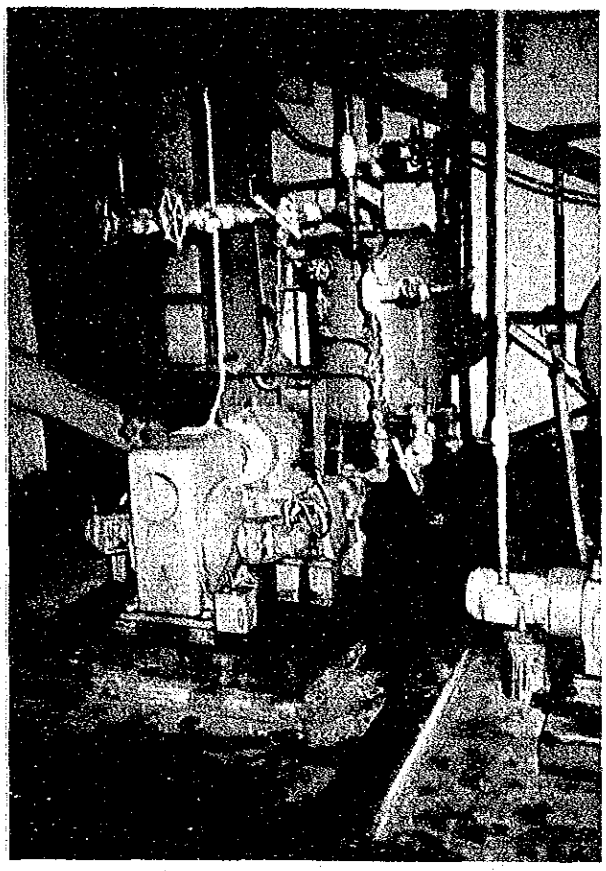




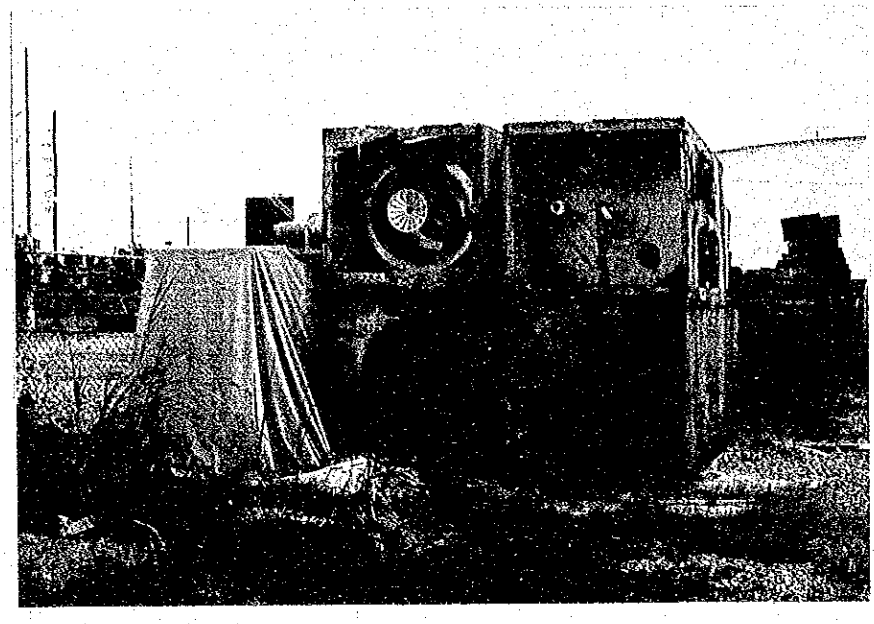
LIQUIMAG LOADING AREA



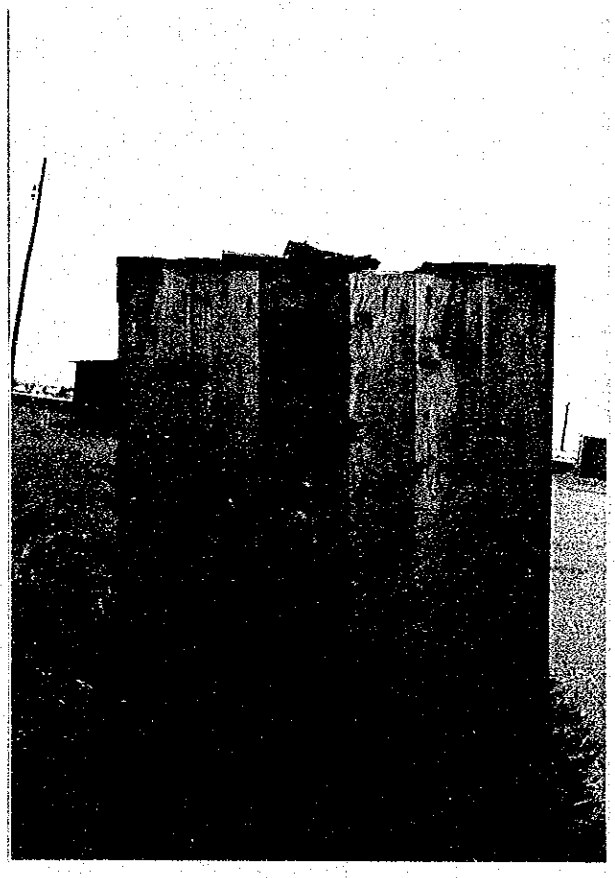
LIQUIMAG CONTAINER DRUMS



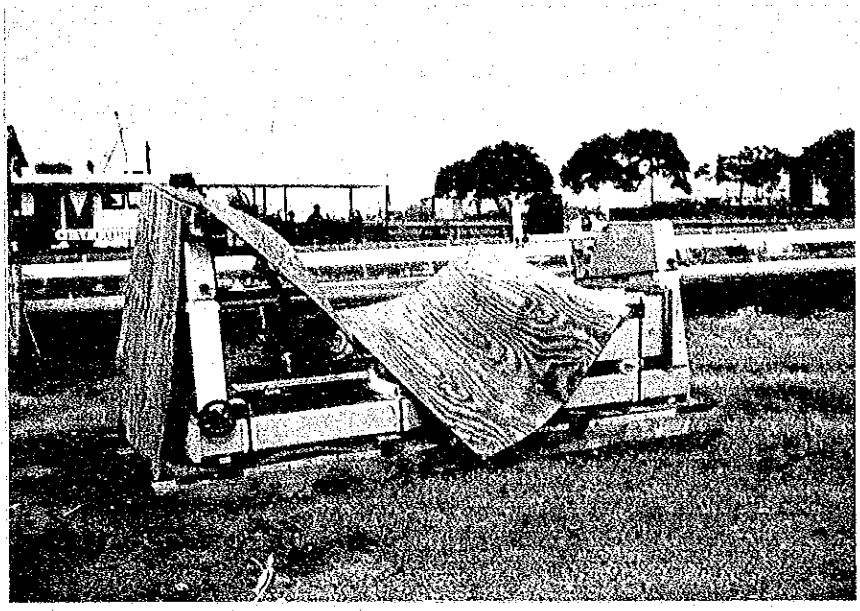
LIQUIMAG INJECTION PUMP



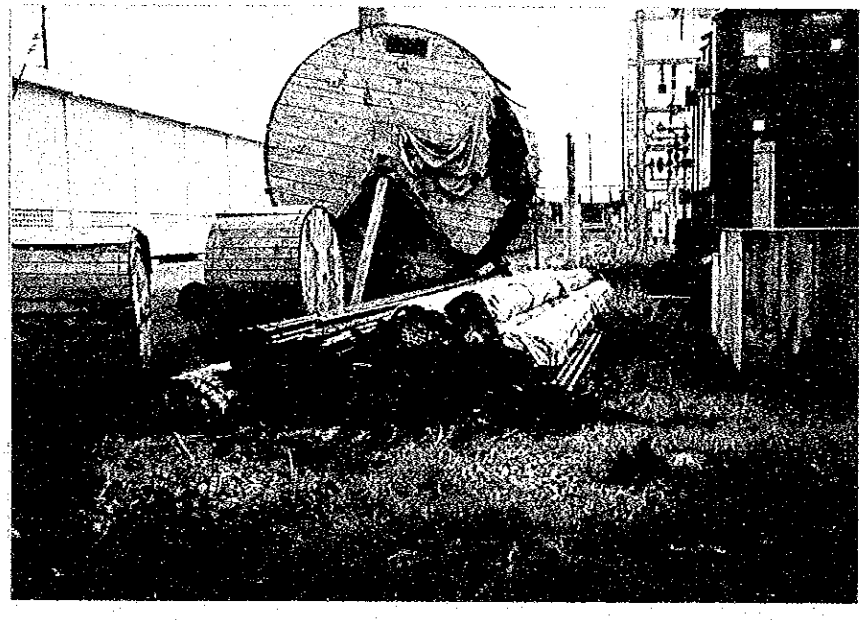
SITUATION AT MATERIALS/EQUIPMENT OUTDOOR STORAGE AREA



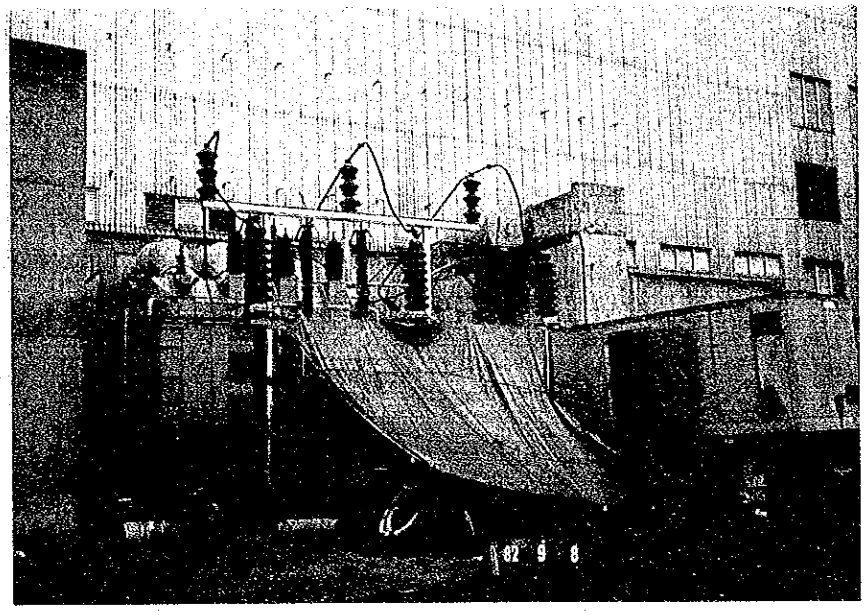
ANOTHER SITUATION AT OUTDOOR STORAGE AREA



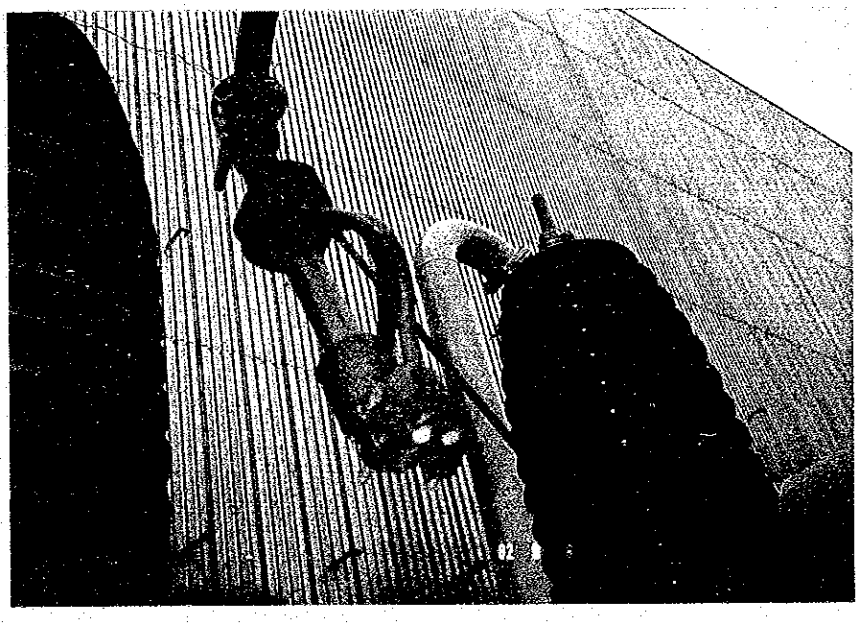
SITUATIONS AT THE MATERIALS/EQUIP-MENT OUTDOOR STORAGE AREA



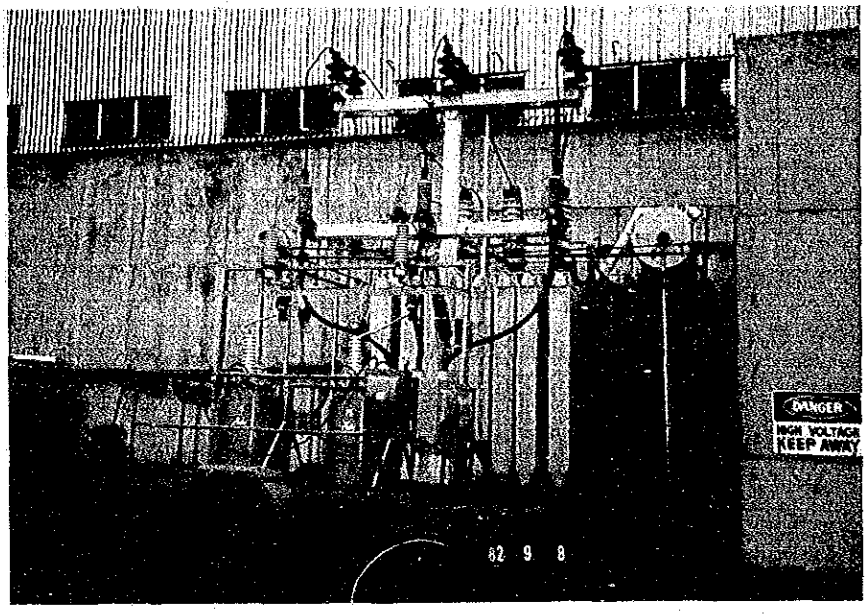
G-2 Oil filtering works during annual overhaul.



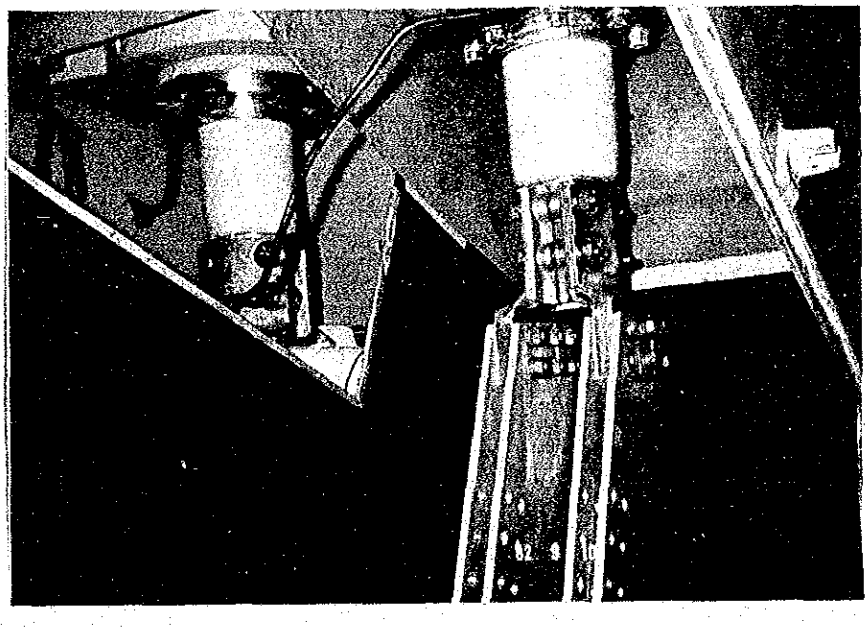
Servicing of terminal.



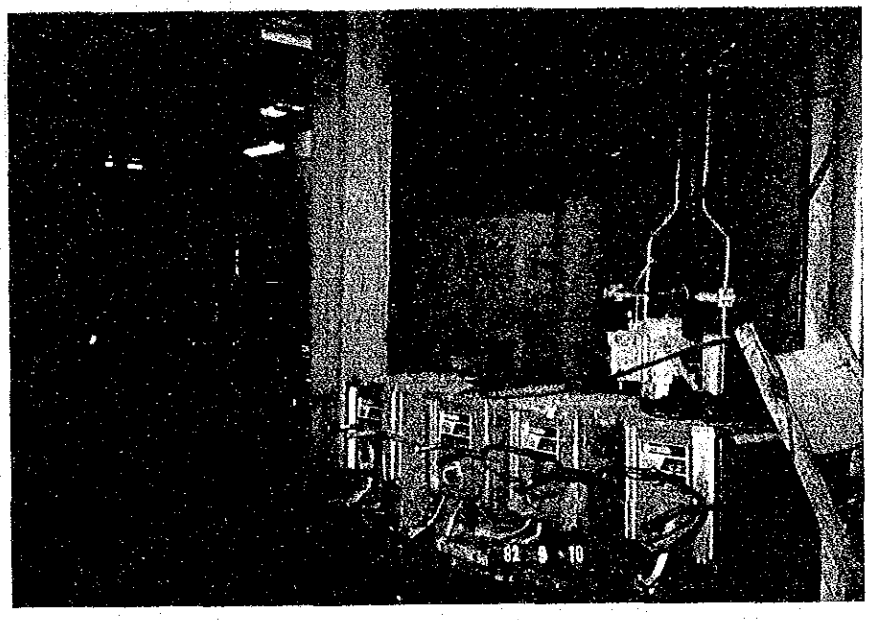
Temporary transformer is connected to the emergency transformer. Dangerous!



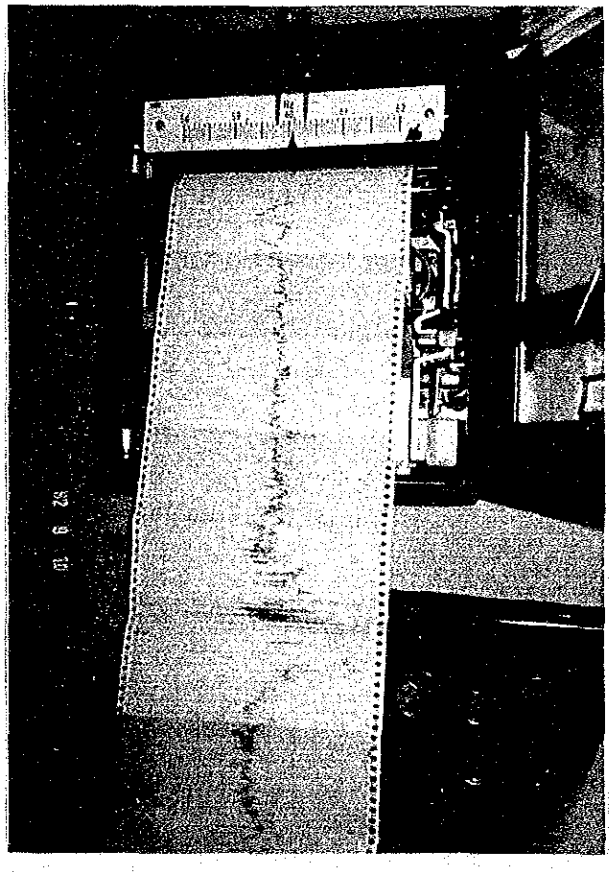
G-2 Servicing of generator bushing.

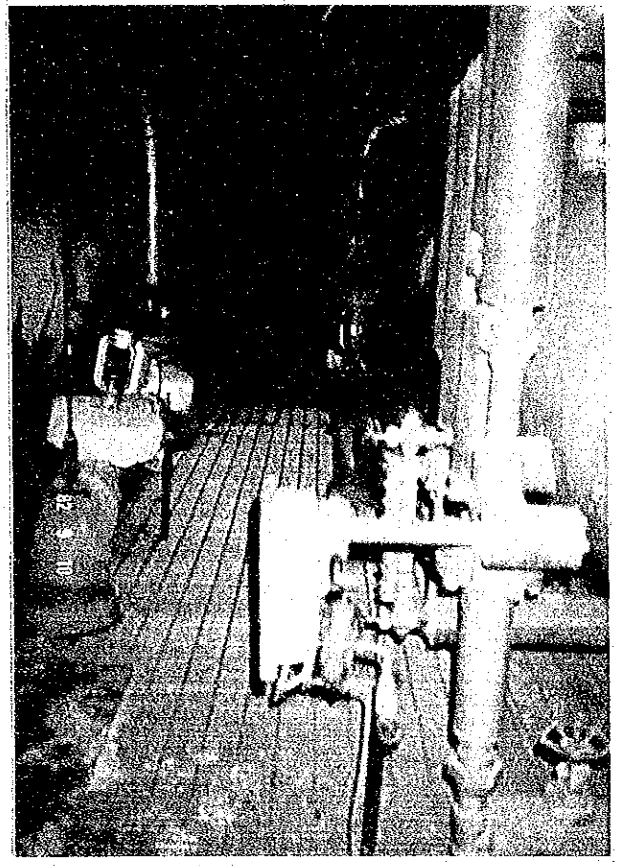


G - 2 Power for overhauling is taken from another unit which is in operation. Dangerous!



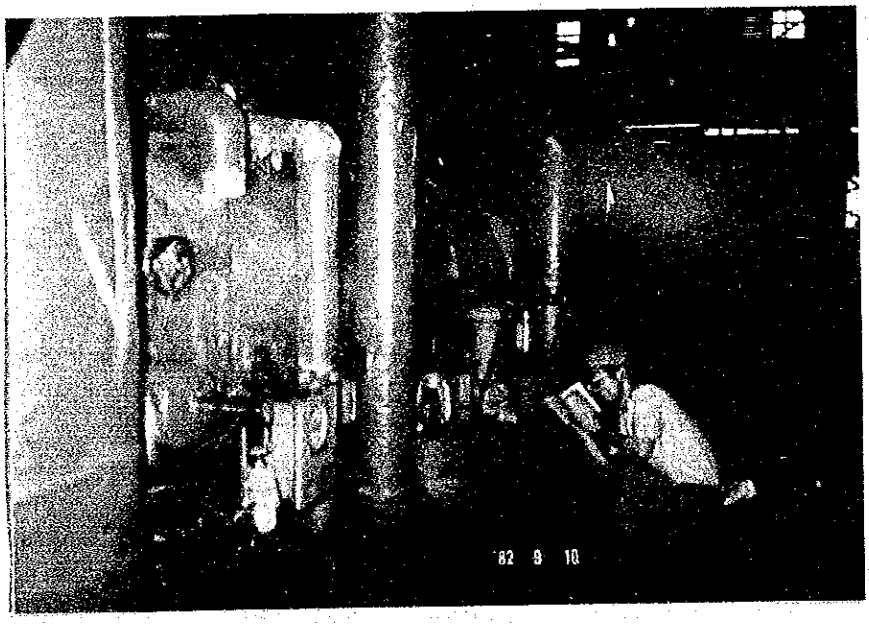
Frequency fluctuation on Sept. 9, 1982 due to typhoon.



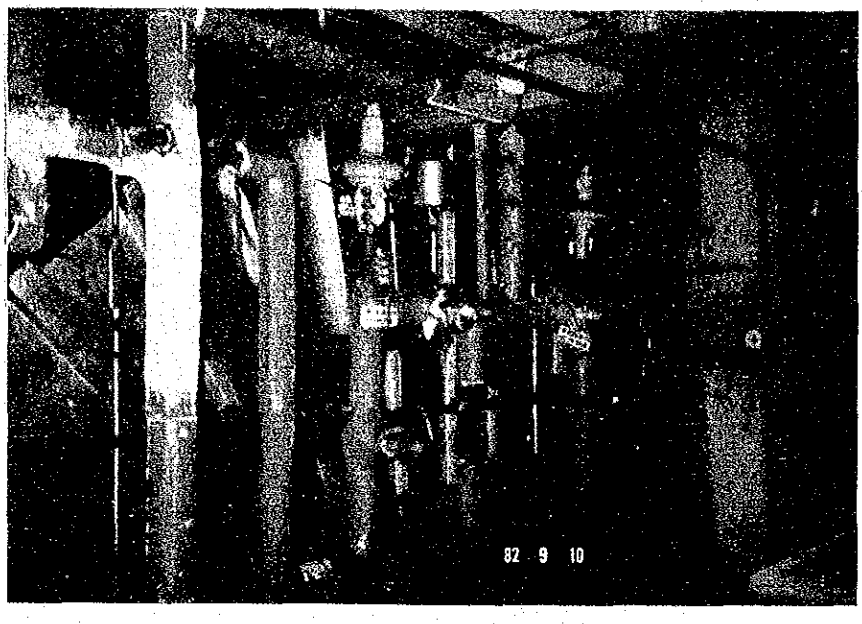


G-1 L.P.H. drain valve. No by-pass valve is installed.

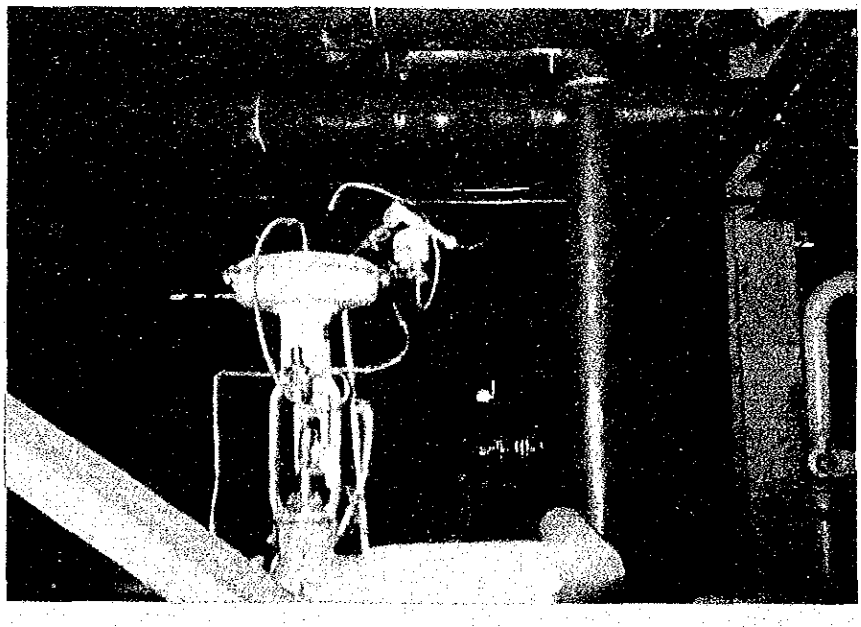
Leaking steam at G-1



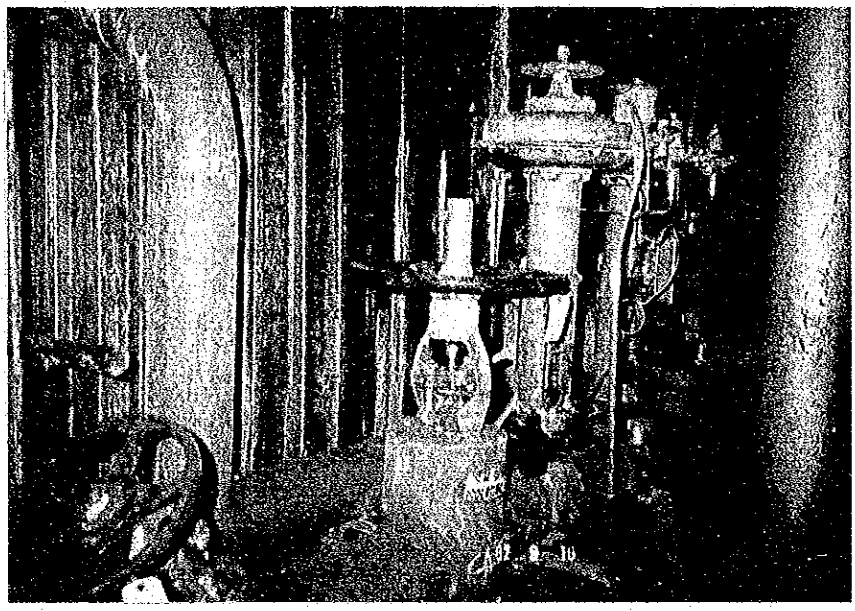
G-1 Auxiliary steam under manual operation.



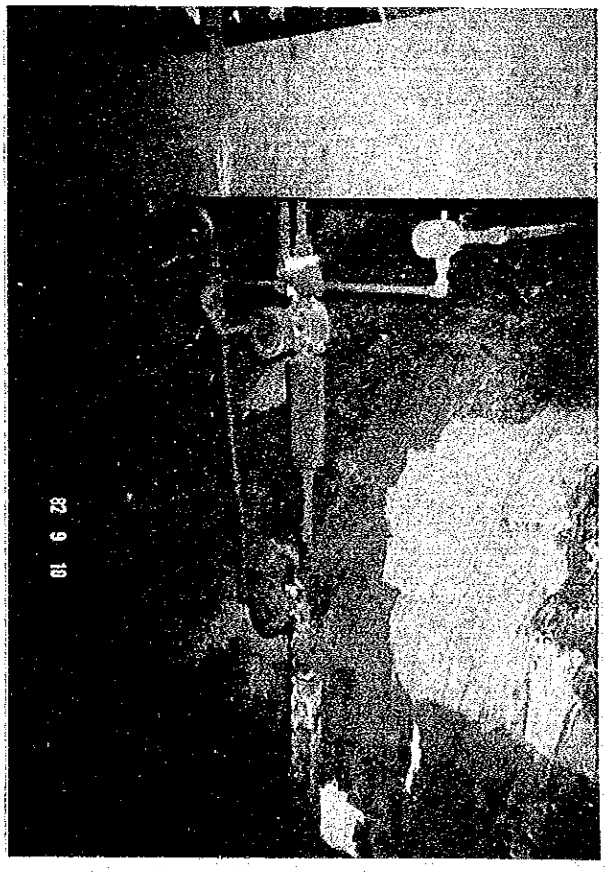
G-1 Boiler feed pump minimum flow valve is locked at open position. Save energy!

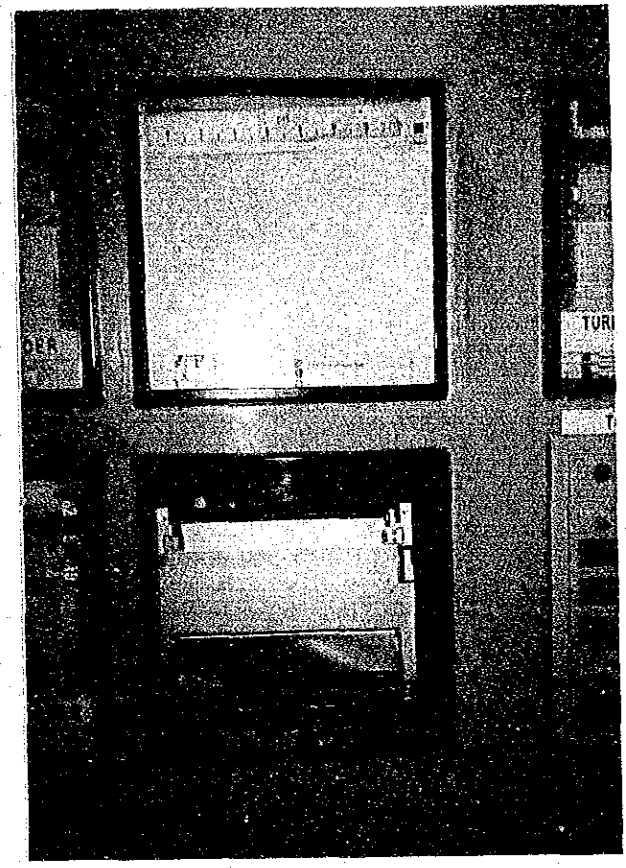


G-1. Spray control valve.



G-1. Deaerator level switch which initiates plant tripping.





All parts have been removed from pH meter. Important recorder! S-1

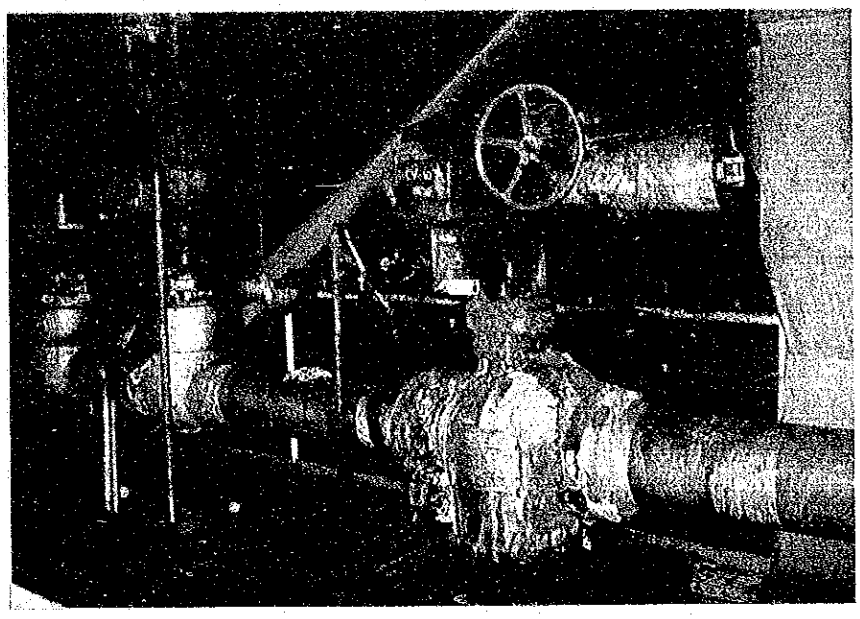
Emergency back-up valve for control air has been isolated. G-1.

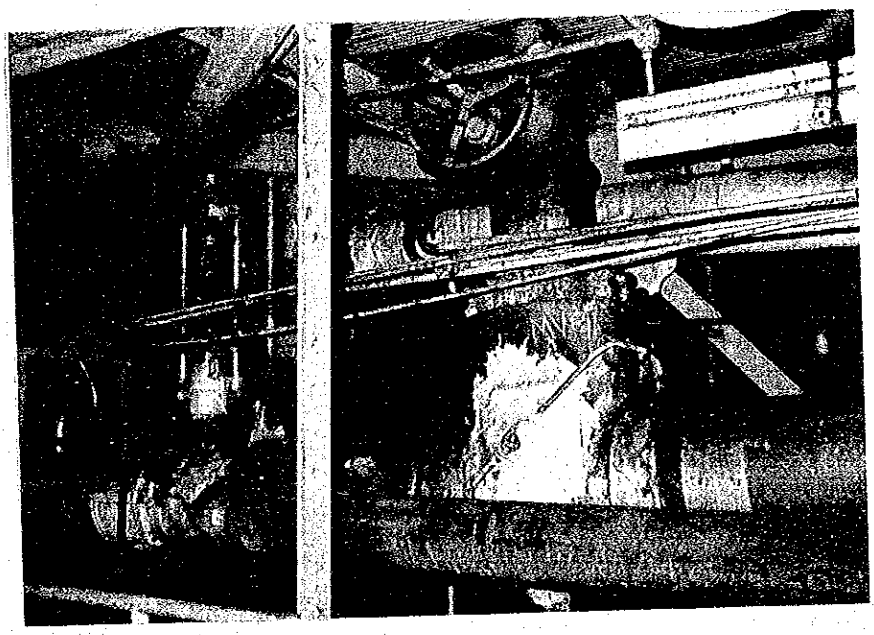
MALAYA THERMAL PLANT

Black smoke due to low excess air caused by air heater clogging during load-up.

M - 1 CV-103

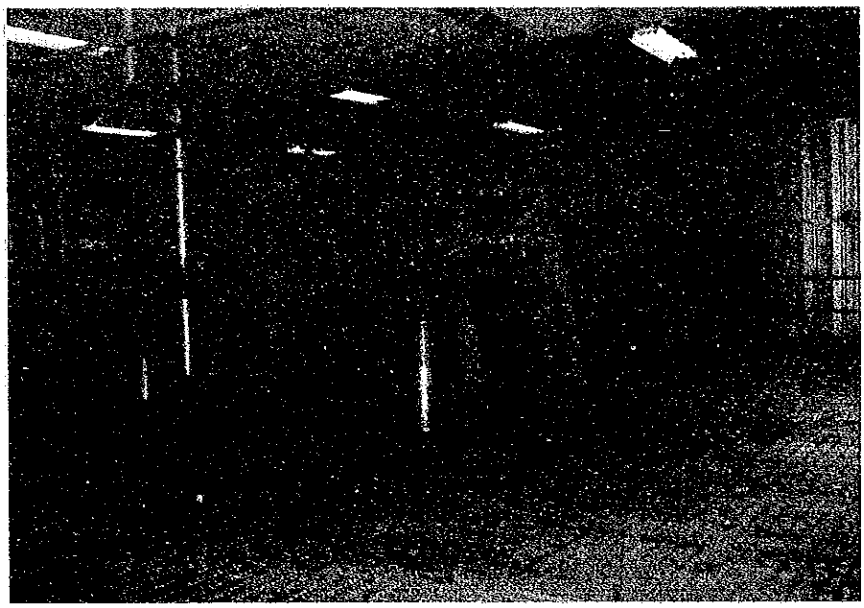
Valve and its accessories are corroded by flue gas leak

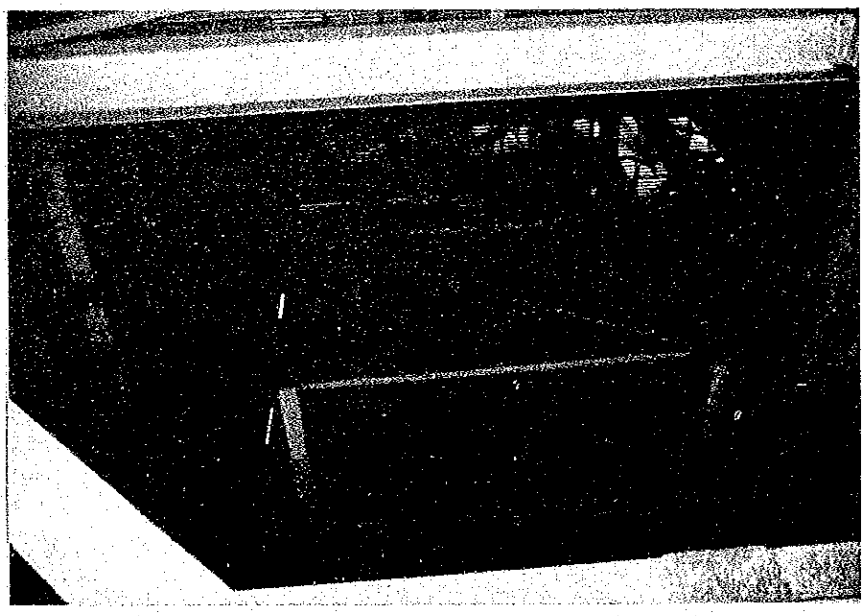




M - 1 MV - 1A

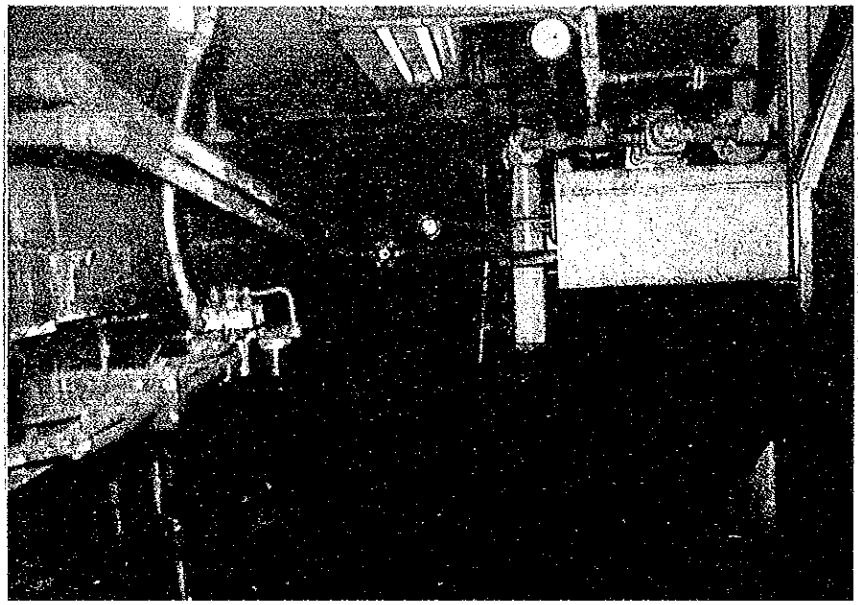
M - 2 RACK SOOTBLOWER. There are much gas leaks at seal points.

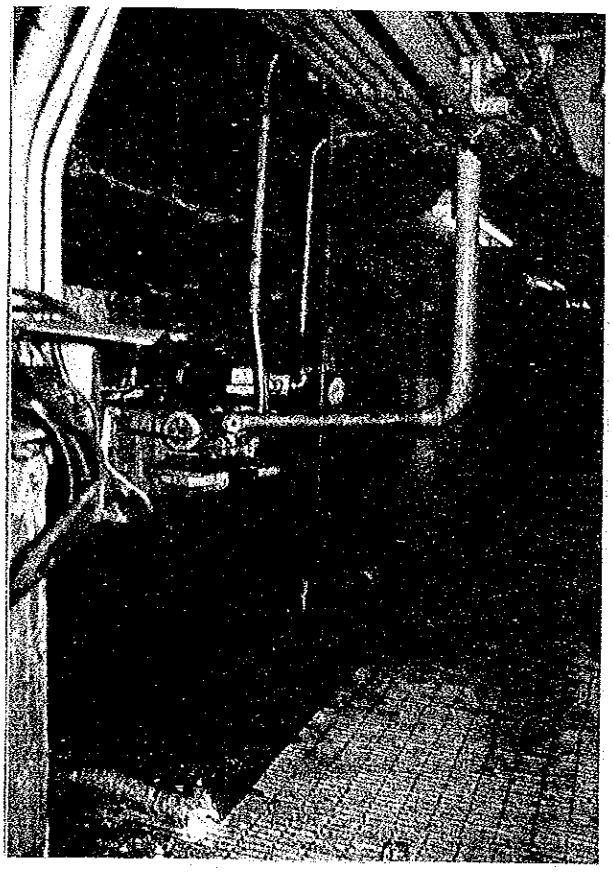




M - 2 FDF AIR SUCTION
Poor visibility due to gas leak at AH casing

M - 2 Surrounding air heater is filled with flue gas.
M - 2



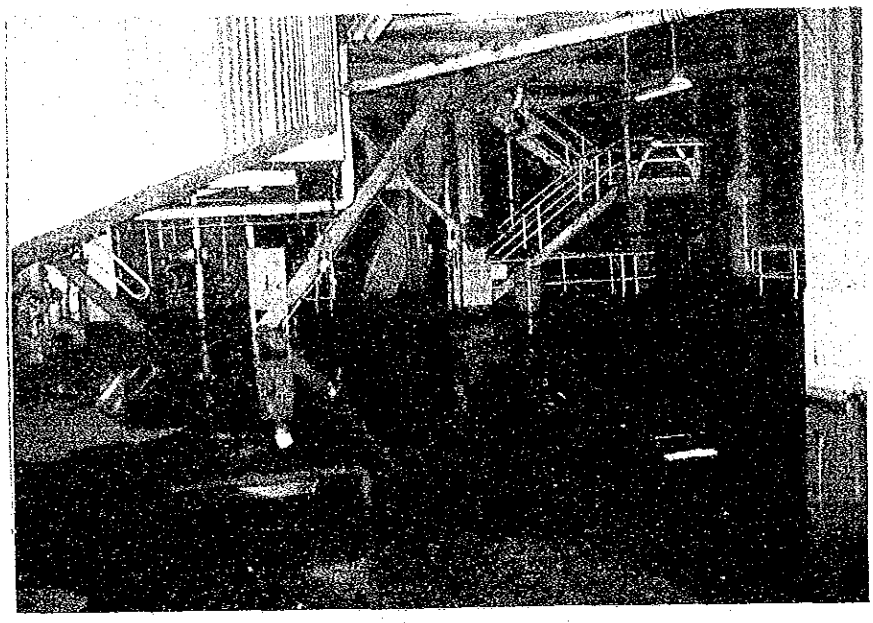


M - 2 2A-AH

Corroded AH accessories

FLUE GAS LEAK
There are much gas leak but also roof drain leak

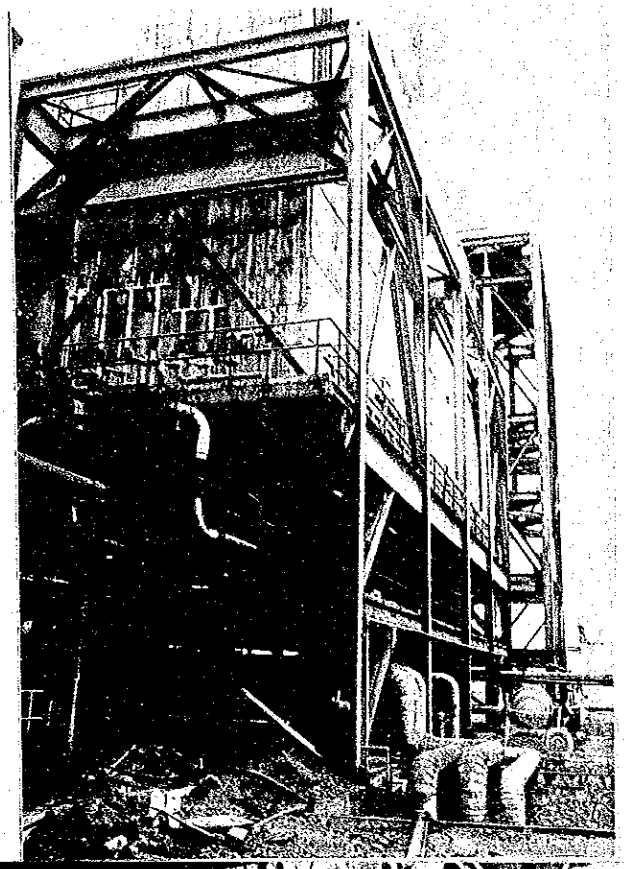
M - 2 3FL Right side of boiler

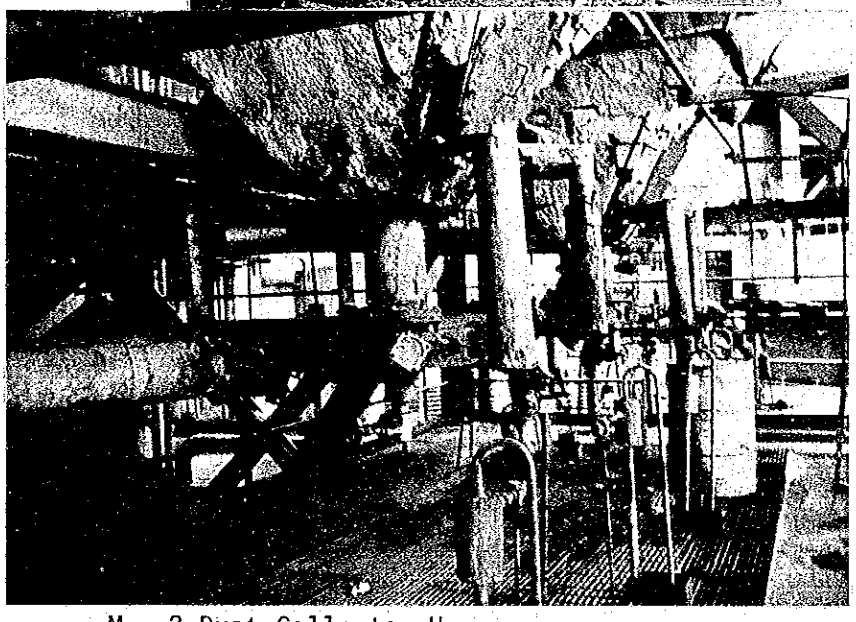


M - 2
Around air heater with brownish and corrosive water coming from roof drain leak

M - 1 Dust Collector

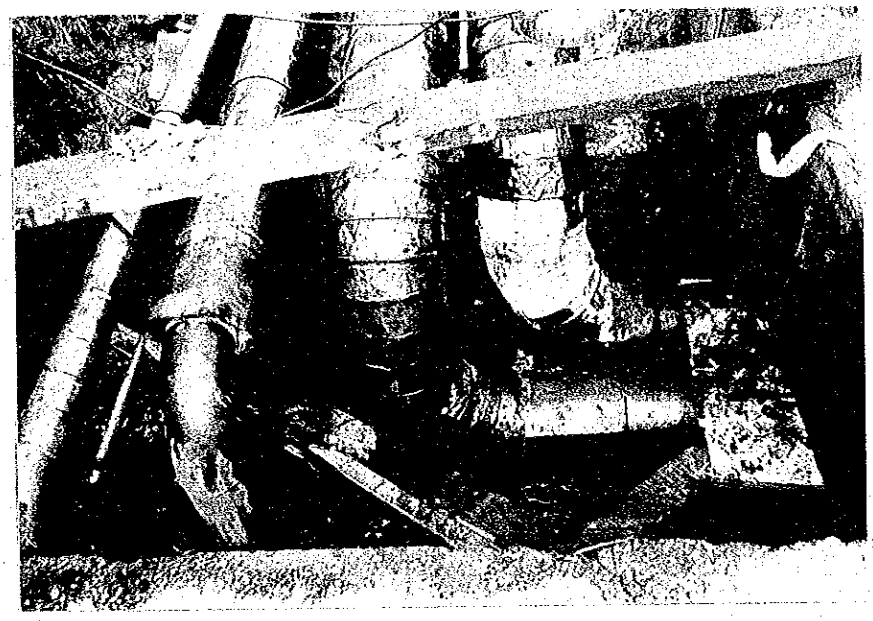
Flue gas leaks attack also the dust collector

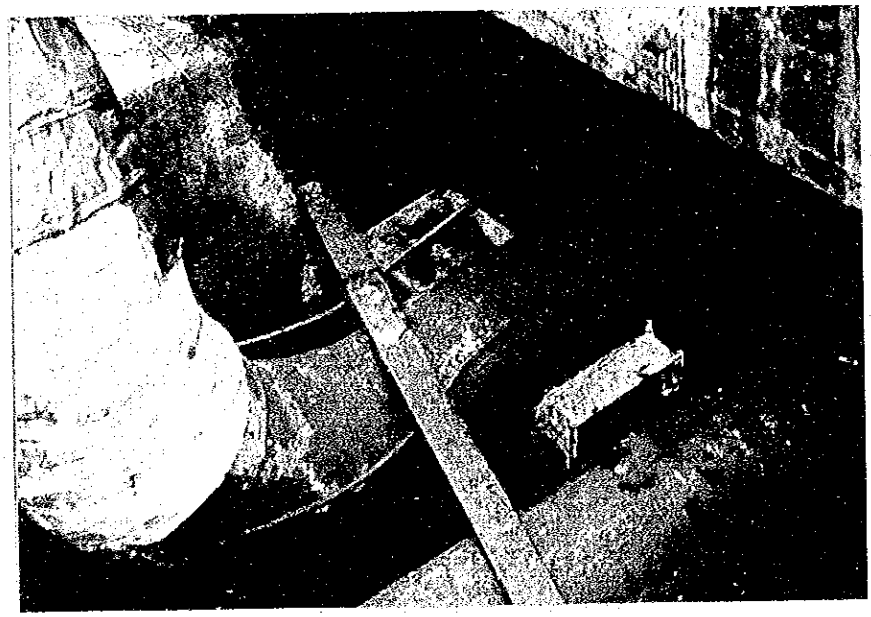




M - 2 Dust Collector Hopper

Out door Residual oil supply pipe
Oil drain pipe is leaking



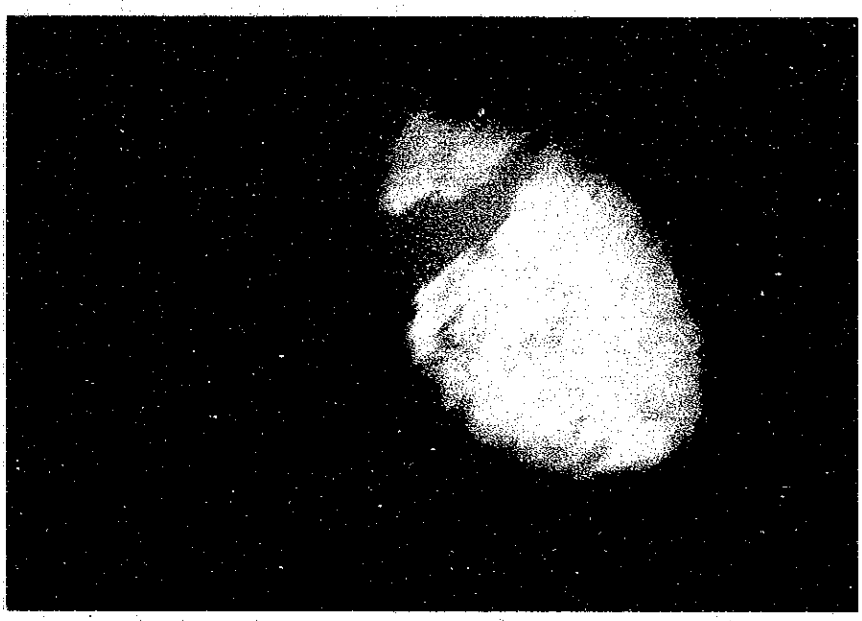


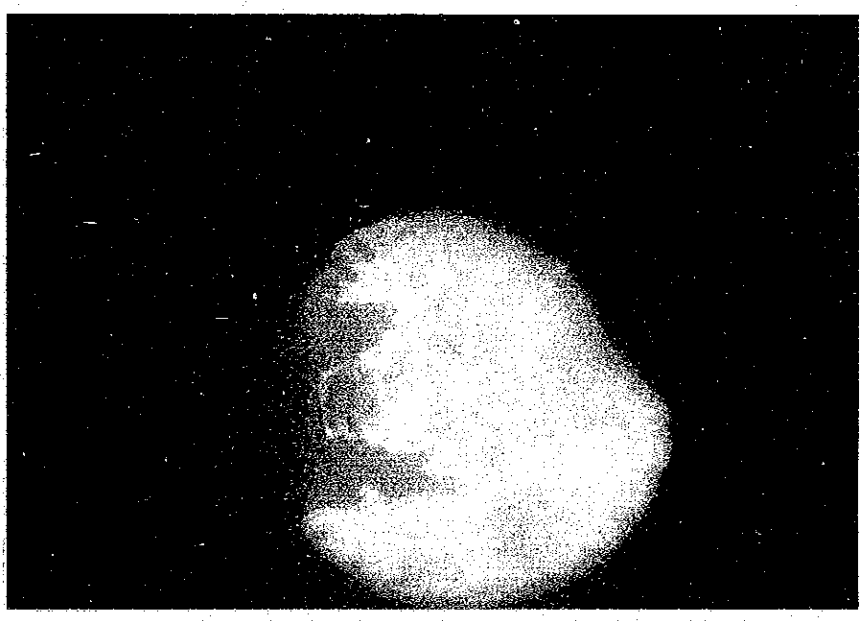
Leaking point was covered by box

Combustion should be maintained in good condition and it is an important job for operations.
Strict observation should be done and if some abnormal condition is found, inspection and counter measure should be taken.

Combustion condition is not so good, no constant differential pressure pump operation

M - 2 condition of firing. There is unstable flame.





M - 2 There is black skirt at burner portion.