

Louisiana Division Consolidated Audit
LOSS PREVENTION

C. FIRED EQUIPMENT

**IF YOU DO NOT HAVE FIRED EQUIPMENT, CHECK BOX AND
LEAVE THE REST OF SECTION C BLANK. NA []**

References: Minimum Requirements, LPP 13

23. Has your unit had any Burner Management System (BMS) safety incidents in the last three (3) years?

Yes [] No [X]

Be prepared to discuss the incidents and corrective actions taken at the time of the audit.

24. Is the separation of fired equipment from the process in compliance with LPP 2.2? Yes [X] No []

If not, what protective features are used to address less than recommended distances?

25. Does your fired equipment adhere to LPP 13?

Yes [X] No []

If not, be prepared to discuss exceptions at the time of the audit.

26. Provide a copy of your startup and relight procedures for your fired equipment.

27. List the conditions that will result in the auto shutdown of the fired unit.

Low Gas Header Pressure, Low Drum Level, Burner Flame out
Furnace Pressure Trip(High and Low), Fan Trips(Two of the
same), Foxboro Power supply trip, Undervoltage and Manual
trip

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28. List the type (THROX, TOX, boiler, fired heater, furnace, etc.) and number of each.

4- FIELD ERECTED BOILERS

29. Have you had a burner management system audit?

Yes [X] No []

When? BOILER #2 12/91 BOILER #4 4/89, BOILERS #1 AND #3
- 1984. BOILER #1'S Burner management will be audited in
1992 as part of a NOx reduction modification project.

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BOILER #2 START-UP FROM COLD CONDITION
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BOILER NO.2 HAS BEEN FITTED WITH A NOX REDUCTION SYSTEM
AND THERE ARE SIGNIFICANT CHANGES TO THE PURGE AND
OPERATIONS SYSTEMS.
=====

POWER DEPARTMENT
APPROVED SAFE WORK PROCEDURE

I. BOILER CLOSE-UP AND PREPARATION:

- 1.) INSURE ALL PERSONNEL ARE OUT OF BOILER, YELL INTO EACH OPENING AND EXAMINE INTERIOR WITH FLASHLIGHT BEFORE CLOSING UP. ADVISE CRAFTSMEN SUPERVISOR OF THIS PROCEDURE AND THAT HE IS TO MAKE A HEAD COUNT OF HIS PEOPLE. POWER I SUPERVISOR IS TO DO THE SAME FOR POWER DEPARTMENT PERSONNEL.
- 2.) ASK AN INSTRUMENT PERSON TO MAKE SURE THAT ALL SWITCHES AND RELAYS RELATED TO THIS BOILER ARE ENABLED IN THE MODICON.
- 3.) START AT THE TOP OF THE BOILER, INSPECT EACH ACCESS DOOR INCLUDING TOP AND BACK OF ECONOMIZER SECTION, ACCESS TO SUPERHEATER SECTION, PENTHOUSE, ETC. FOR SCAFFOLDS, LADDERS, TOOLS. INSURE EVERYTHING IS REMOVED BEFORE BOILER ACCESS DOORS ARE CLOSED. INSURE ALL ACCESS DOORS ARE CLOSED AND TIGHTLY BOLTED.
- 4.) INSURE THAT ALL RED TAGS HAVE BEEN PROPERLY RELEASED, CLEARED, AND REMOVED.
- 5.) STROKE ALL AIR REGISTERS AND VISUALLY INSURE THAT THEY ARE WORKING PROPERLY.
- 6.) STROKE THE F.D. , I.D. , FGR, OFA, AND THE H.P.SUPERHEATER DAMPERS AND VISUALLY OBSERVE THEM FOR PROPER OPERATION.

NOTE: THE I&E ENGINEER WILL BE NEEDED TO STROKE THE FGR AND OFA DAMPERS BY MEANS OF THE MODICON.

- 7.) MAKE SURE ALL GAGS ARE REMOVED FROM SAFETY VALVES.

II. SAFETY CONSIDERATIONS FOR BOILER START-UP:

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- 1.) ABOVE PROCEDURES COMPLETED.
- 2.) ALWAYS TRICKLE FEED BOILER WHEN BRINGING IT UP. OVERHEATING THE ECONOMIZER FROM LACK OF FLOW COULD CAUSE A RUPTURE. CAUTION IS ALSO NEEDED WHEN BEGINNING TO TRICKLE FEED TO PREVENT HAMMERING OF THE ECONOMIZER INLET HEADER FROM EXCESSIVE FLOW.

- 3.) ALWAYS USE IGNITORS FOR LIGHTING BURNERS. NEVER TRY TO IGNITE FROM HOT BRICK WORK OR ADJACENT BURNERS.
- 4.) OBSERVE FIRES CLOSELY DURING PRESSURE RAISING.

NOTE: PERSONNEL SHOULD NOT BE AT THE BOILER FRONT DURING PILOT OR MAIN BURNER LIGHT OFF.

- 5.) ONCE PILOTS OR BURNERS ARE LIT, A BURNER SUIT IS REQUIRED WHEN OPENING INSPECTION PORTS. VERIFY WITH THE BOARD OPERATOR THAT THE BOILER IS IN A STABLE CONDITION. SEE LOSS PREVENTION PRINCIPLES *****
- 6.) ONCE THE BOILER IS ON LINE, TRIP THE BOILER ANY TIME WATER LEVEL DROPS OUT OF SIGHT IN GAUGE GLASS.

III. PRIOR TO LIGHT OFF:

- 1.) FILL BOILER TO TWO GREEN PORTS, OR -2 ON EYE-HYE. THIS ALLOWS FOR NATURAL SWELLING OF WATER ON HEATING AND WILL LESSEN BLOWING DOWN TO HOLD WATER LEVEL UPON CONTINUED HEATING. (NOTE: FILL WITH MAKE-UP, NOT DEMIN. MAKE-UP WATER HAS A LOWER O2)
- 2.) OPEN THE FOLLOWING VALVES;
 - _____ A. EYE-HYE WATER COLUMN AND DRAIN BLOCK VALVES. (AT THE DRUM)
 - _____ B. DRUM VENTS.
 - _____ C. SUPERHEATER OUTLET VENT (FULLY OPEN)
 - _____ D. EAST AND WEST SUPERHEATER DRAIN VALVES ON DRAIN MANIFOLD.
 - _____ E. DRUM PRESSURE GAUGE.
 - _____ F. CONTINUOUS BLOWDOWN VALVE (AT DRUM)
 - _____ G. CHEMICAL FEED VALVES.
 - _____ H. FLOW AND PRESSURE TRANSMITTERS.
 - _____ I. ECONOMIZER INLET.
 - _____ J. DRAIN ON BOILER SIDE OF M.O.V. FOR BOILER STEAM LEAD LINE.
 - _____ K. FLASH TANK BY-PASS.
 - _____ L. DRUM LEVEL TRANSMITTERS.
 - _____ M. ALL BOTTOM BLOWDOWN VALVES.
 - _____ N. AUTO BLOWDOWN B.V.'S
 - _____ O. H.P.H. FEEDWATER B.V.'S

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3.) CLOSE THE FOLLOWING VALVES:

- _____ A. EYE-HYE AND GAUGE GLASS DRAINS & WATER COLUMNS
(AT DRAIN MANIFOLD)
- _____ B. ECONOMIZER DRAIN (AT DRAIN MANIFOLD)
- _____ C. FEEDWATER M.O.V. SHUTOFF VALVE.
- _____ D. 2" MANUAL FEEDWATER BY-PASS VALVE.
- _____ E. FEEDWATER M.O.V. BY-PASS.
- _____ F. AUTO BLOWDOWN VALVE AND SHUTOFF (IN C/R)
- _____ G. 4" FILL VALVE ON S.H. OUTLET HEADER.
- _____ H. C.B.D. GRADUATED VALVE.
- _____ I. FLASH TANK B.V. AND STEAM B.V. TO DEAERATORS.
- _____ J. STEAM B.V. TO DEAERATORS IF BOILER #1 IS DOWN.

- 4.) PLACE SUPERHEATER DAMPER IN 100% POSITION. (ALL FLUE GAS THROUGH THE PRIMARY SUPERHEATER)
- 5.) PLACE AIR PREHEATER BY-PASS DAMPERS IN OPEN POSITION.
- 6.) INSURE ALL BURNER AIR REGISTERS ARE OPEN.
- 7.) INSURE THAT OUTLET DAMPERS ON F.D. FANS ARE OPEN AND LOCKED IN POSITION. INSURE ALL (3) FLUE GAS RECIRCULATION ISOLATION DAMPERS ARE SHUT, THE (2) SEAL AIR DAMPERS OPEN, AND ALSO THE CONTROL DAMPER CLOSED. THIS MUST BE CHECKED VISUALLY IN THE FIELD AND VERIFIED ON THE METRA.
- 8.) INSURE THAT FLEXIBLE CONNECTOR IS REMOVED FROM S.H. OUTLET HEADER FILL VALVE AND PLUG IS INSTALLED IN GRALOCK FITTING PRIOR TO LIGHTING OFF BOILER.
- 9.) INSURE THAT INSTRUMENT AIR IS TURNED ON TO ALL FAN VANE OPERATORS AND ANY ACCUMULATED WATER IS BLOWN OUT.
- 10.) STROKE FAN VANES, GAS VALVE AND FEEDWATER VALVE.
- 11.) CHECK OIL LEVEL IN BEARINGS ON I.D., F.D AND F.G.R FANS AND START AN I.D. THEN AN F.D. ONE AT A TIME. ONCE BOTH ARE RUNNING, START THE REMAINING I.D. FAN THEN THE F.D. FAN. DO NOT START THE FGR FAN AT THIS TIME.
- 12.) INSURE THE "FGR-2 SYSTEM TRIP" SWITCH IS IN THE "ON" POSITION.

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IV. PURGE CYCLE AND TRIP CHECKS (PHASE I):

- 1.) ESTABLISH NECESSARY AIR FLOW FOR PURGING (APPROX. 30%) READ AIR FLOWS ON THE METRA. THE BOILER WILL TRIP AT 25% TOTAL AIR FLOW AND ALARM AT 30% TOTAL AIR FLOW.
- 2.) OPEN THE OVER FIRE AIR SYSTEM AT THIS TIME. THIS IS DONE BY PLACING THE SPEC 200 CONTROLLER IN MANUAL "M" AND RAISING THE OUTPUT TO 100%. THE PROGRAM PERMISSIVE IS THAT THE OFA FLOW RATE MUST BE MAINTAINED ABOVE 15 MLBS/HR.
- 3.) INSURE SWITCHES AT THE BOILER FRONT ARE NOW IN THE "ON" POSITION. LEAVE IN THE "ON" POSITION AFTER THE BURNERS ARE LIT OR THE BURNERS WILL TRIP.
- 4.) THE FOLLOWING VALVES SHOULD BE CLOSED;

H2 BURNER SSO'S
GAS BURNER SSO'S
IGNITOR SSO'S
GAS HEADER SSO'S
IGNITOR HEADER SSO'S

NOTE: ALL VENTS SHOULD BE OPENED.

- 5.) DISABLE DRUM LEVEL TRIP SWITCH "LOW DRUM TRIP" LIGHTS SHOULD FLASH. THE METRA TRIP SCREEN SHOULD SHOW THIS TRIP DISABLED.
- 6.) ESTABLISH AND MAINTAIN APPROX. 40# FUEL GAS PRESSURE.

NOTE: CAUTION MUST BE USED WHEN OPENING THE FUEL GAS VALVES AS NOT TO RELEASE ANY FUEL GAS THROUGH THE SAFETY VALVES. IF A RELEASE SHOULD OCCUR, NOTIFY GATE #1 IMMEDIATELY AND CONTACT THE POWER I/UTILITIES ENVIRONMENTAL CONTACT.

- 7.) "OPEN C.V." LIGHT FLASHING.
- 8.) OPEN GAS CONTROL VALVE AND OPEN MIN FLOW CONTROLLER.
- 9.) "OPEN SSO" LIGHT FLASHING.
- 10.) OPEN GAS SSO VALVE BY PUSHING THE "THINK" BUTTON AND THE "GAS SSO" BUTTON.
- 11.) "GAS SSO OPEN" LIGHT ON.
- 12.) A BURNER HEADER PRESSURE OF AT LEAST 25# MUST BE ESTABLISHED WITHIN 2 MINUTES OR THE GAS SSO VALVE CLOSSES AUTOMATICALLY.
- 13.) CLOSE GAS CONTROL VALVE USING THE FUEL GAS CONTROLLER OUTPUT.
- 14.) "PRESSURE TEST ON" LIGHT ON; HEADER PRESSURE PROVING; AIR PURGE ON; GAS HEADER PRESSURE MUST REMAIN ABOVE 23 PSIG FOR 5 MINUTES TO CONTINUE.

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NOTE: THIS IS ONLY PHASE ONE OF THE FURNACE PURGE, PHASE TWO MUST BE COMPLETED BEFORE A PILOT CAN BE LIT.

- 15.) AFTER A 5 MINUTE DELAY, "OPEN SSO" LIGHT FLASHING.
- 16.) OPEN FUEL GAS SSO VALVE.
- 17.) "GAS SSO OPEN" LIGHT ON.
- 18.) FUEL GAS BURNER HEADER WILL PURGE FOR 2 MINUTES.

THE BURNER HEADER VENT WILL OPEN DURING A GAS PURGE. IT WILL CLOSE AT END PURGE. THE VENT WILL OPEN AGAIN WHEN A LIGHT OFF IS REQUESTED (THINK BUTTON AND A GAS BURNER BUTTON ARE PUSHED SIMULTANEOUSLY) THE BURNER WILL LIGHT OFF WHEN THE GAS HEADER PRESSURE IS AT OR BELOW 10#. THE BURNER HEADER VENT VALVE WILL OPEN ON THE FIRST BURNER LIGHT OFF AND UNLESS THE HEADER PRESSURE STARTS DROPPING IN 60 SECONDS, THE VENT WILL CLOSE AND BURNER LIGHT OFF WILL BE ABORTED.

NOTE: THE FURNACE WILL PURGE FOR 5.2 MINUTES DURING THE FIRST ATTEMPT TO PURGE. THE OVER FIRE AIR SYSTEM PURGE HAS BEEN ADDED AND WILL BE IN OPERATION UNTIL THE FIRST PILOT IS REQUIRED. ON COMPLETION OF THE MAIN FURNACE PURGE THEN THE FLUE GAS SYSTEM MUST BE PURGED FOR A FIVE (5) MINUTE PERIOD.

FLUE GAS RECIRCULATION PURGE (PHASE II):

NOTE: TO PREVENT MULTIPLE FGR FAN STARTS THE PROGRAM IS SET UP TO ALLOW ALL TRIP CHECKS TO BE COMPLETED WITHOUT RE-PURGING THE FGR SYSTEM.

- 1.) ADJUST TOTAL AIR FLOW TO 30%. IF AIR FLOW IS ALLOWED TO DROP BELOW 25%, THE BOILER WILL TRIP. THERE ARE REDUNDANT FLOW TRANSMITTERS, AND THE A & B MODICONS READ THEIR VALUES AND DISPLAY THEM ON THE METRA.
- 2.) THE MODICON WILL GIVE A PROMPT START THE FGR FAN. AN OPERATOR WILL THEN, AT HIS CONVENIENCE, CHECK THE BEARINGS FOR OIL, COOLING WATER, ALL DAMPERS IN THE PROPER POSITION. WHEN ALL CHECKS HAVE BEEN MADE AND THE FAN IS READY TO BE STARTED; --- START THE FAN.

NOTE: THE THREE ISOLATION DAMPERS WILL OPEN AND THE SEAL AIR DAMPERS WILL CLOSE. THE CONTROL DAMPER WILL NOT OPEN. THE EIGHT MIXER DAMPERS WILL OPEN.

- 3.) WHEN ALL THIS ACTION HAS BEEN PROVEN, THE MODICON WILL ALLOW THE OPERATOR TO MANUALLY CRACK OPEN THE CONTROL DAMPER TO START THE PURGE OF THE FGR SYSTEM. TO BEGIN THE PURGE, THE FGR FLOW RATE MUST EXCEED 30 MLBS/HR, AND WILL TRIP OFF OF PURGE IF IT DROPS BELOW 25 MLBS/HR. THIS CAN BE ACCOMPLISHED BY OPENING THE CONTROL DAMPER APPROX 5%.

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CAUTION: THE FGR CONTROL DAMPER MUST BE OPENED SLOWLY SO THAT THE FGR MOTOR DOES NOT OVER AMP. THIS MAXIMUM SAFE MOTOR CONTINUOUS OPERATING AMPERAGE IS 69 AMPS.

- 4.) WHEN THE TWO MINUTE TIMER HAS TIMED OUT AND THE FLUE GAS RECIRCULATION SYSTEM HAS COMPLETED PURGE, THE SYSTEM WILL BE ISOLATED AUTOMATICLY BY THE MODICON. THIS INVOLVES THE CLOSING OF THE THREE (3) ISOLATION DAMPERS, THE CLOSING OF THE EIGHT (8) MIXER DAMPERS, AND THE OPENING OF THE SEAL AIR DAMPERS. THE FGR FAN WILL CONTINUE TO RUN UNTIL IT IS MANULLY SHUT DOWN. THE PROGRAM WILL KEEP THE FGR SYSTEM OUT OF SERVICE UNTIL A BOILER LOAD OF 200 MLBS/HR STEAM FLOW.
- 5.) CLOSE THE FGR CONTROL DAMPER.
- 6.) SHUT DOWN THE FGR FAN.
- 7.) "END PURGE" LIGHT ON.
- 8.) ADJUST MIN FLOW CONTROL VALVE FOR LIGHT OFF. BOTTOM STOP IS SET AT 10% OPEN.
- 9.) RESET ALARMS AND TRIPS BY PRESSING THE "ALARM RESET" BUTTON.
- 10.) OPEN IGNITOR SSO HEADER VALVE BY PRESSING "IGN SSO" AND "THINK" BUTTONS.
- 11.) OFA DAMPERS WILL AUTOMATICALLY CLOSE
- 12.) "L.O. READY" LIGHT ON.

NOTE: THE BOILER WILL TRIP IF "END PURGE" LIGHT IS ON AND 24 HOURS HAVE ELAPSED WITHOUT A LIGHT OFF ATTEMPTED.

VI. SAFETY TRIP CHECKS (ROUTINE)

NOTE: USE MODICON TRIP LIST. (CHECK PURGE TRIP HAS BEEN OMITTED.) IF MODICON PROGRAM CHANGES WERE NOT MADE AND ALL BOILER TRIPS WERE CHECKED WITHIN ONE YEAR, THEN ONLY ONE TRIP IS REQUIRED.

1.) TRIP BOILER

NOTE: THE MODICON WILL GO THROUGH A COMPLETE PURGE CYCLE ON THE GAS HEADER, FURNACE, OVER FIRE AIR AND THE FGR SECTION ONLY DURING THE INITIAL PURGE. THE MODICON WILL THEN SKIP THE GAS PRESSURE TEST AND FGR PURGE FOR THE NEXT 24 HOUR PERIOD. THE MODICON WILL REQUIRE A COMPLETE FUEL GAS, FURNACE, OFA AND FGR PURGE ONLY IF THE BOILER TRIPS AFTER A MAIN BURNER IS LIT AND A TOTAL FLAME OUT OCCURS.

VII. OPTIONAL

SAFETY TRIP CHECKS (NON-ROUTINE)

LOW DRUM TRIP:

- 1.) SHUT OFF TRICKLE FEED TO DRUM AND OPEN BLOWDOWN VALVES.
WHEN DRUM LEVEL DROPS TO -10", GAS SSO VALVE SHOULD CLOSE.
- 2.) REPURGE.

VIII. IGNITOR LIGHT-OFF:

- 1.) "L.O. READY" LIGHT ON.
- 2.) TOTAL AIR FLOW SHOULD BE AT OR ABOVE 30%. ALL AIR REGISTERS ON BURNERS WILL BE OPEN. WHEN THE FIFTH BURNER IS LIT, ALL AIR REGISTERS ON SHUTDOWN BURNERS (5) WILL CLOSE, AND THE FIVE REGISTERS ON LIT BURNERS WILL REMAIN OPEN.
- 3.) ON BOILER BOARD, PUSH IGNITOR BUTTON AND THE BUTTON FOR THE IGNITOR YOU WISH TO LIGHT. THE IGNITOR GAS HEADER SHOULD BE AT 3# DOWNSTREAM OF THE CONTROL VALVE. A FLASHING IGNITOR LIGHT INDICATES IGNITOR FLAME. IF A IGNITOR FAILS TO LIGHT, A ONE MINUTE PURGE IS REQUIRED BEFORE "L.O. READY" LIGHT IS ON AND ANOTHER IGNITOR IS READY TO BE TRIED.

NOTE: IGNITOR LIGHT WILL REMAIN ON AS LONG AS IGNITOR FLAME IS PROVEN. ONCE METHANE BURNER IS LIT, THE IGNITOR TRIPS WITHIN 10 SECONDS. THE AIR REGISTER MUST PROVE OPEN FOR BURNER TO LIGHT. THE REGISTER IS OPEN WHEN HANDLES ARE CLOSEST TO THE BURNER FRONT.

IX. BURNER LIGHT-OFF:

- 1.) SET MIN FLOW CONTROL VALVE TO 10% OPEN.
- 2.) AFTER IGNITOR FLAME IS PROVEN, PUSH THE METHANE BUTTON AND THE BUTTON FOR THE BURNER YOU WISH TO LIGHT. (WHICH SHOULD BE FLASHING.)
- 3.) IF FLAME FROM BURNER IS NOT PROVEN WITHIN 10 SECONDS, BURNER SSO VALVE WILL CLOSE. IF FLAME IS PROVEN, THE BURNER LIGHT WILL STOP FLASHING AND REMAIN ON. THE IGNITOR WILL EXTINGUISH ITSELF.
- 4.) AS ADDITIONAL BURNERS ARE LIT, ADJUST MIN FLOW CONTROL VALVE TO MAINTAIN 2-3 PSIG ON BURNER HEADER.

X. AFTER LIGHT-OFF:

- 1.) FOLLOW THE CURRENTLY APPROVED (14-16 HR) PRESSURE RAISING CURVE BY THROTTLING THE SUPERHEATER VENT AND/OR ADJUSTING THE BURNER HEADER PRESSURE WITH THE MIN. FLOW CONTROLLER.

- 2.) INSPECT FURNACE FREQUENTLY FOR PROPER COMBUSTION.
- 3.) TRICKLE FEED BOILER WITH 1-1/2" BY-PASS AND CONTINUE UNTILL BOILER IS ON THE LINE TO PREVENT WATER FLASHING IN THE ECONOMIZER.
- 4.) BLOW DOWN FRONT AND SIDE HEADERS EVERY 20 MINUTES FOR FIRST TWO HOURS OF FIRING AND EVERY 30 MINUTES THEREAFTER UNTIL BOILER IS ON THE LINE. (OPEN AS FAST AS POSSIBLE AND CLOSE AS FAST AS POSSIBLE)
- 5.) AS BOILER STARTS TO STEAM, SNUG UP ON HANDHOLE AND MANHOLE COVERS IF GASKETS HAD BEEN REPLACED.

XI. RAISING STEAM PRESSURE:

- 1.) SET EDTA PUMP STROKE AT MANUAL PROJECTED BOILER LOAD AND START PUMP.
- 2.) AT 25 PSIG, CLOSE DRUM VENTS AND THROTTLE SUPERHEATER VENTS.
- 3.) WHEN BOILER REACHES 500# AND AT 100# INTERVALS THEREAFTER CLOSE SUPERHEATER VENT FOR 15 SECONDS AND THEN OPEN WIDE FOR SURGING THE SUPERHEATER TUBES TO AID IN REMOVAL OF CONDENSATE.
- 4.) BEGIN WARMING BOILER STEAM LEAD LINE FROM HEADER TO NON-RETURN, THROUGH LEAD LINE WARM-UP BY-PASS AND LEAD LINE VENT. PUT ALL BOILER METERING, ON CRT, IN SERVICE.
- 5.) ROTATE #1, #2, #3, #4, AND #5 BURNERS EVERY HALF HOUR TO CLEAR CONDENSATE IN SUPERHEATER TUBES.
- 6.) WHEN FLOW OF STEAM EMITTING FROM LEAD LINE APPEARS TO BE DRYING OUT, ADJUST VENT VALVE TO MINIMIZE FLOW ALLOWING LEAD LINE TO PRESSURE UP.
- 7.) PUT POWER ON M.O.V. ON BOILER LEAD LINE AND FEEDWATER LINE. OPEN LEAD LINE M.O.V.
- 8.) WHEN DRUM PRESSURE REACHES 1200 PSIG, HAVE LEAD LINE PRESSURED AND WARMED UP AND OPEN NON-RETURN. INSURE ALL TUBES ARE CLEAR OF CONDENSATE. TUBE METAL TEMPERATURES SHOULD NOT EXCEED 875-900 DEGREES F.
- 9.) RAISE BOILER PRESSURE BY INCREASING GAS OR CUTTING BACK ON SUPERHEATER VENT. HOLD BOILER LOAD AT 50 TO 60M#/HR FOR 15-30 MINUTES AS A PRECAUTION AGAINST CONDENSATE REMAINING IN THE SUPERHEATER TUBES THAT DO NOT HAVE THERMOCOUPLES.

XII. BOILER ON THE LINE:

- 1.) CLOSE DRAIN AND VENT VALVES. CLOSE SUPERHEATER DRAINS.
- 2.) GO TO MAIN FEEDWATER REGULATOR AS SOON AS PRACTICAL. ENABLE DRUM LEVEL TRIP.
- 3.) ADJUST SUPERHEATER DAMPER TO OBTAIN MAXIMUM OUTLET STEAM TEMPERATURE NOT TO EXCEED 950 DEGREES F.

- 4.) CLOSE AIR PREHEATER BY-PASS DAMPERS WHEN OUTLET FLUE GAS TEMPERATURE FROM THE PREHEATER REACHES 212 DEGREES F.
- 5.) AFTER ALL T.C.'S INDICATE THAT THE SUPERHEATER ELEMENTS ARE CLEAR OF CONDENSATE, INCREASE BOILER LOAD TO 100M#/HR AND RUN AT THIS LOAD FOR AT LEAST TWO HOURS BEFORE INCREASING LOAD.
- 6.) INSPECT BOILER THOROUGHLY FOR LEAKS, SIGNS OF UNEVEN EXPANSION, PROPER COMBUSTION, ETC.
- 7.) AS SOON AS PRACTICAL, PUT COMBUSTION CONTROLS ON AUTO.
- 8.) INSURE THAT BLOCK VALVES IN FEEDWATER M.O.V. BY-PASS LINE ARE OPEN AND ALSO THAT STAND-BY GAS REGULATOR IS READY FOR SERVICE.
- 9.) OPEN THE CONTINUOUS BLOWDOWN GRADUATED VALVE 2-3 TURNS.
- 10.) OPEN BLOCK VALVE TO FLASH TANK AND CLOSE BY-PASS.
- 11.) CLOSE IGNITOR SSO VALVE AS SOON AS ALL BURNERS ARE LIT, OR AT LEAST ONE IGNITOR IS NO LONGER REQUIRED.

XIII. UPDATE PROCEDURE

REVISED 2/92

DO A 118001
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