

GT 100/200

DO A 133748
CONFIDENTIAL

GT-100/200 SWITCHING LUBE OIL COOLERS

GT-300/400 SWITCHING LUBE OIL COOLERS

SWITCHING LUBE OIL COOLERS - UNITS 300/400

ALTHOUGH THE FOLLOWING PROCEDURE IS SIMPLE AND STRAIGHT FORWARD, IT IS TO BE DONE IN THE PRESENCE OF SUPERVISION. CLOSING A VALVE OUT OF SEQUENCE COULD RESULT IN LOSS OF OIL AND SEVERE DAMAGE TO THE TURBINE.

WHILE OPERATING VALVES IN THIS PROCEDURE, LISTEN FOR UNUSUAL NOISES (SUCH AS HIGH PRESSURE DROP ACROSS VALVES), AND RETURN THE VALVES TO THEIR FULL OPEN POSITION SHOULD THEY OCCUR.

DURING THESE OPERATIONS, AN OBSERVER SHOULD WATCH FOR LUBE OIL TEMPERATURE OR PRESSURE CHANGES WHILE THE BOARD OPERATOR OBSERVES LUBE OIL HEADER TEMPERATURE IN THE CONTROL ROOM.

PROCEDURE

1. SLOWLY OPEN THE 3/4" EQUALIZING VALVES AND ALLOW TIME FOR THE STANDING COOLER TO FILL (THESE VALVES SHOULD NORMALLY BE OPEN).
2. ASSURE THAT BOTH INLET AND OUTLET WATER VALVES TO THE COOLER ARE IN SERVICE.
3. VERY SLOWLY OPEN THE LUBE OIL INLET VALVE TO THE COOLER TO BE PUT IN SERVICE.
4. SLOWLY OPEN THE LUBE OIL OUTLET VALVE ON THE COOLER TO BE PUT IN SERVICE.
5. WHILE OBSERVING THE LUBE OIL TEMPERATURE TO THE FILTERS, VERY SLOWLY CLOSE THE LUBE OIL INLET VALVE ON THE COOLER BEING TAKEN OUT OF SERVICE.
6. IF LUBE OIL TEMPERATURE REMAINS CONSTANT, SLOWLY CLOSE THE OUTLET VALVE ON THE COOLER TO BE TAKEN OUT OF SERVICE.
7. IF COOLER CHANGE IS FOR MAINTENANCE, CLOSE EQUALIZING VALVE AND RED TAG EQUALIZING VALVE, INLET AND OUTLET LUBE OIL VALVES, AND INLET AND OUTLET WATER VALVES.

REVISION NO.
1/23/82
BLOCK #12

DO A 133749
CONFIDENTIAL

67-100-200

TEXT #43

PROCEDURE TO STARTUP A CHLORINE RECTIFIER

THIS PROCEDURE IS TO BE REVIEWED PRIOR TO THE STARTUP OF A CHLORINE RECTIFIER BY THE POWER 2 SHIFT SUPERVISOR AND BOARD SOS.

1. MAINTAIN COMMUNICATIONS WITH THE CHLORINE PLANT AND/OR POWER 1 AS TO WHAT CIRCUIT IS TO BE BROUGHT ON LINE AND WHEN. EMPHASIZE TO YOUR CONTACTS THAT POWER 2 NEEDS TO BE COMMUNICATED WITH JUST PRIOR (WITHIN 1 MINUTE) TO PLUG IN. MAKE SURE THAT THE CIRCUIT IS COMING UP ON THE LOWEST TAP.
2. COMMUNICATE CHLORINE'S INTENTIONS TO POWER 1 IN CASE THE CHLORINE PLANT HAS NOT MADE THAT COMMUNICATION. KEEP POWER 1 INFORMED OF THE CHLORINE PLANT'S STATUS.
3. REVIEW THE ELECTRICAL ONE-LINE DRAWING IN THE CONTROL ROOM TO SEE WHAT ELSE IS FED FROM THE BUS THAT THE UPCOMING CIRCUIT IS ON. CONSIDERATION SHOULD BE GIVEN TO THE GENERATORS THAT MAY BE DOWN. COMMUNICATE ANY CONCERNS TO POWER 1.
4. COMMUNICATION SHOULD BE MADE WITH ANY PLANTS WITH FEEDERS ON THE SAME BUS THAT MAY BE AFFECTED. WHENEVER STARTING RECTIFIER #1 OR #4 COMMUNICATION SHOULD ALWAYS BE MADE WITH POLY C.

EDITED: NLC
1/22/92
BLOCK #43

DO A 133750
CONFIDENTIAL

TEXT BLOCK # 44

GT-100/200 SHELL BLASTING THE COMPRESSOR

SHELL BLASTING COMPRESSOR - UNIT 100/200

1. OPEN THE THREE BLEED VALVES ON THE NORTH SIDE OF THE UNIT (NEAR SEAL AIR PIPING).
2. INSURE VALVES 1, 6, 7, 8, AND 9 ARE OPEN.
3. OPEN VALVES 2 AND 4.
4. SLOWLY POUR 5 POUNDS OF PECAN SHELLS INTO HOPPER.
5. ALLOW THIS HOPPER TO EMPTY; THEN CLOSE VALVE 4.
6. ALLOW AIR TO BLOW THRU FOR A MINUTE OR SO TO CLEAR OUT LINES; THEN CLOSE VALVE 2.
7. OPEN VALVE 3 AND VALVE 5.
8. SLOWLY POUR 5 POUNDS OF PECAN SHELLS INTO HOPPER.
9. ALLOW THIS HOPPER TO EMPTY; THEN CLOSE VALVE 5.
10. ALLOW AIR TO BLOW THRU FOR A MINUTE OR SO TO CLEAR OUT LINES; THEN CLOSE VALVE 3.
11. COVER HOPPERS.
12. CLOSE BLEED VALVES ON THE NORTH SIDE OF UNIT.

RE-INSTALLED: JML
10/03/90
BLOCK #44

DO A 133751
CONFIDENTIAL

GT-100/200 STARTUP CHECKLIST

DATE: _____

UNIT _____

	YES	NO
1. ALL RED TAG MASTERS RELEASED AND PULLED	_____	_____
2. ALL AUXILIARY EQUIPMENT IS UNTAGGED AND RACKED IN	_____	_____
3. STARTING MOTOR RACKED IN	_____	_____
4. S&C SWITCHGEAR RACKED IN MECHANICALLY AND ELECTRICALLY	_____	_____
5. FUEL GAS AVAILABLE-PIPELINE, POWER 1 & CHLORINE NOTIFIED	_____	_____
6. FUEL GAS UNBLOCKED TO UNIT	_____	_____
7. DO WE HAVE ENOUGH CONDENSATE PUMPS RUNNING TO START UNIT	_____	_____
8. UNIT ON TURNING GEAR FOR ONE (1) HOUR PRIOR TO START	_____	_____
9. STEAM INJECTION LINE WARMING UP (CONTROLLER OPEN)	_____	_____
10. HYDROGEN PRESSURE IN GENERATOR AT 25 PSIG	_____	_____
11. HYDROGEN PURITY IN GENERATOR >95%	_____	_____

12. SEAL OIL EVACTOR RUNNING >2" AND SEAL OIL
SYSTEM ON LINE

13. LUBE OIL SYSTEM:

A. OIL TEMP > 95 DEGREES

B. LUBE OIL EVACTOR RUNNING > 2" VACUUM ON

C. OIL PUMPS RUNNING (AC L. O. PUMP & JACKING
OIL PUMP)

D. POWER OIL FILTER IN SERVICE

E. LUBE OIL FILTER IN SERVICE

F. LUBE OIL COOLER IN SERVICE AND WATER
OPEN

G. OIL LEVELS NORMAL (STARTING MOTOR &
RESERVOIR)

H. CHECK FOR OIL LEAKS AFTER OIL SYSTEM
IS RUNNING

I. D. C. COOLING OIL BLOCK VALVE OPEN TO
JACKING, HOT END AND TC

J. LUBE OIL HEADER & RESERVOIR VALVES OPEN
TO SEAL OIL SUCTION

14. HRU SECTION:

A. DA AT 70% LEVEL AND VENT OPEN (DA DUMP
UNBLOCKED)

B. STEAM TO DA UNBLOCKED AT TOP OF UNIT

C. STEAM TO DA PRESSURE CONTROLLER UNBLOCKED
UPSTREAM AND DOWNSTREAM AND DRAINS OPEN

D. BFP'S UNBLOCKED AND READY TO RUN

E. 2" CONDENSATE TO HIGH PRESSURE BFP SEAL
COOLERS UNBLOCKED TO ALLOW FLOW TO
DA AND GLAND COOLERS

- | | | | |
|----|--|-------|-------|
| F. | RECIRCULATION LINE ON LOW PRESSURE BFP'S
UNBLOCKED | _____ | _____ |
| G. | BOILERS AT FIRING LINE | _____ | _____ |
| H. | ALL BLR. LEAD LINE AND NON-RETURN BLOCK
VALVES OPEN | _____ | _____ |
| I. | HIGH AND MEDIUM PRESSURE SUPERHEATER VENTS
OPEN | _____ | _____ |
| J. | LOW PRESSURE DRUM VENT OPEN | _____ | _____ |
| K. | HIGH, MEDIUM AND LOW PRESSURE BLR. LEAD
LINE WARM UP VENTS OPEN | _____ | _____ |
| L. | HP & MP SUPERHEATER DRAINS OPEN AND
UNPLUGGED (TO DETERMINE IF UNPLUGGED,
CHECK TO INSURE STEAM FLOW OUT OF
DRAINS AFTER MACHINE HAS FIRED) | _____ | _____ |
| M. | GT-200 ONLY - INSURE H. P. SUPERHEATER
DRAIN LOCATED NORTH SIDE OF SOUTH TRAIN
IS OPEN | _____ | _____ |
| N. | GT-200 ONLY - AUTOMATIC BLOWDOWN VALVES
MANUALLY UNBLOCKED | _____ | _____ |
| O. | AWC'S AT 70% LEVEL | _____ | _____ |
| P. | TURBINE ENCLOSURE VENT FANS IN AUTO | _____ | _____ |
| Q. | DRAIN FROM INTERNAL STEAM LOOP IN DA
OPEN | _____ | _____ |
| R. | FEEDWATER REGULATORS UNBLOCKED, BY-PASSES
AND H. P. TRICKLE FEED CLOSED | _____ | _____ |
| S. | GAUGE GLASSES IN SERVICE | _____ | _____ |
| T. | ALL CASING, EXHAUST, AIR INLET AND
AWC DOORS CLOSED | _____ | _____ |
| U. | U-DUCT DRAIN IS CLOSED. CONFINED SPACE ENTRY
PERMIT REQUIRED TO ENTER SUMP | _____ | _____ |
| | 1. INSURE INSTRUMENT AIR PURGE TO BLEED
VALVE CONDUIT IS OPEN | _____ | _____ |
| | 2. COMPRESSOR DRAINS (3) ARE CLOSED | _____ | _____ |
| | 3. PUT IN ALARM SERVICE PROGRAM ON
COMPUTER | _____ | _____ |

- V. INSTRUMENT AIR AND BACK-UP AIR TO BLEED VALVES OPEN. ALSO CHECK AIR PURGE TO BLEED VALVE CONDUIT. _____
- W. GT-200 ONLY - PYROMETER BLOCKED AND COOLING AIR ON (AFTER TURBINE IS SYNCHRONIZED, CRACK VALVE TO WARM UP 1/2 HOUR BEFORE OPENING B/V). _____
- X. SNUFFING STEAM TO HOT END MANUALLY UNBLOCKED _____
- Y. CONDENSATE TO BLR. FLASH TANK CLOSED _____
- Z. COOLING WATER SUPPLY AND RETURN OPEN TO BLR. SAMPLE COOLERS _____
- AA. OPEN DRAIN ON MP LEAD LINE ON WEST END OF UNIT, (GROUND LEVEL) TO ASSURE NO WATER HAS ACCUMULATED. _____
- BB. CHECK STEAM INJECTION WARM-UP VALVE TO ASSURE THAT THE STEAM HAS NOT BEEN LOCKED DOWN WITH THE HAND WHEEL. _____
- CC. OPEN 1" DRAINS ON HIGH PRESSURE BOILER FEED PUMP DISCHARGE LINES AND MAINTAIN FLOW _____
- DD. SULFITE PUMP RUNNING _____
- EE. HOLD GT LOAD AT 40 MW UNTIL BOILERS COME ON LINE _____
- FF. CHECK LOW POINT BLEED ON FEED GAS LINE (WEST SIDE OF FUEL GAS CABINET) _____
- GG. CHECK FUEL GAS LINE FOR ANY OPENED VENTS OR DRAINS _____

(AFTER START-UP)

- HH. TAKE A COMPLETE SET OF READINGS ON UNIT INSIDE/OUTSIDE AND COMPARE TO READINGS PRIOR TO SHUTDOWN _____
- II. FILE THIS CHECKLIST IN THE START-UP CHECKLIST FOLDER. THIS FILE IS KEPT IN THE SAME FILE CABINET AS THE SAFEWORK PERMITS. RECORDS RETENTION IS FOR ONE WEEK. _____

REVISED: JML
11/03/92
BLOCK 45

UPDATED: JMC
04/14/94

DO A 133756
CONFIDENTIAL

AUTOMATIC SPRINKLER SYSTEM Q. T. 100/200

THE PURPOSE OF THIS PROCEDURE IS TO INFORM YOU OF PROPER OPERATION OF THE AUTOMATIC SPRINKLER SYSTEM AND ITS KEY CHECK POINTS.

- 1. LOCATE THE AUTO SPRINKLER BLOCK VALVE AND INSURE INDICATION IS IN THE "OPEN" POSITION FOR FIRE WATER SUPPLY.**

NOTE: INDICATOR IS LOCATED AT BOTTOM WEST SIDE OF SPRINKLER SUPPLY LINE.

- 2. LOCATE AUTO SPRINKLER SUPERVISORY AIR SUPPLY PRESSURE GAUGE. GAUGE SHOULD READ 25-28 OZ. OF PRESSURE (10 OZ. MIN.) THIS PRESSURE IS TO GIVE INDICATION THAT SYSTEM IS SEALED AND FREE OF LEAKS.**

- 3. LOCATE THE MERCURY CHECK-VALVE, IT IS MADE OF GLASS AND SHOULD BE VISUALLY INSPECTED FOR CRACKS OR OTHER DAMAGE.**

NOTE: THIS SYSTEM IS ACTIVATED BY "RATE OF CHANGE" IN SYSTEM PRESSURE FROM AUTO SPRINKLER VALVE TO HEAT DETECTOR HEADS, THEREFORE MAINTAINING AIR PRESSURE IS VERY IMPORTANT.

**EDITED: JML
08/11/93
BLOCK #48**

**UPDATED: JML
10/11/93**

**DO A 133752
CONFIDENTIAL**

GT-10 200 AIR INLET DUCTS ENTRY SUPPLEMENT

COMPLETION OF THIS SUPPLEMENT COVERS ITEMS PECULIAR TO THIS EQUIPMENT AND NOT NECESSARILY INCLUDED IN THE MULTI-PERMIT. IN ADDITION TO AND AS ATTACHMENT TO THIS CHECKLIST, THE CONFINED SPACE ENTRY FORM MUST BE ISSUED WITH AREAS NOTED THAT BE APPLICABLE.

CONDITIONS: UNIT IS SHUT DOWN

NOTE: CONFINED SPACE ENTRY FORM AND MULTI-PERMIT MUST BE COMPLETED AS APPLICABLE.

	YES	NO
1. BOARD OPERATOR HAS BEEN NOTIFIED OF ENTRY AND APPROPRIATE RED TAGS SIGNED.	_____	_____
2. STARTING MOTOR RACKED OUT AND RED TAGGED (E-STOP FOR MOTOR FEEDBACK AND WATER-WASH).	_____	_____
3. FUEL GAS SUPPLY LINE IS BLOCKED IN, PLED DOWN, AND TAGGED.	_____	_____
4. LOW VOLTAGE (OR OTHER) FAULT PROTECTED LIGHTING IS AVAILABLE (E-STOP LIGHT AVAILABLE).	_____	_____
5. IT IS A STANDARD PRACTICE TO BE NOTIFIED ON COMPLETION OF WORK AND EXIT.	_____	_____
6. TORQUE WRENCH OFF AND RACKED OUT (EXCEPT FOR MOTOR FEEDBACK AND WATER-WASH TAGS AND RCU TAGS). (E-STOP LIGHT AVAILABLE).	_____	_____
7. WATER WASH SYSTEM RACKED OUT AND RED TAGGED.	_____	_____
8. IS THERE A HOLE WATCH CARD?	_____	_____
9. SAFETY OFFICER WILL HAVE FIVE (5) MINUTE ESCAPE PACKS AND TAGS READY TO USE THE VESSEL AND ONE FOR EMERGENCY USE.	_____	_____
10. THE SAFETY OBSERVER IS A CERTIFIED HOLE WATCH.	_____	_____
11. THE SAFETY OBSERVER HAS A HOLE WATCH CARD.	_____	_____

EXCEPTIONS TO STANDARD.

1. USE OF FIVE (5) MINUTE ESCAPE PACKS RATHER THAN AIR LINE EQUIP (4A).
2. AIR MOV/A FOR VENTILATION NOT USED - DEFENDANCE OR NATURAL DRAFT. (4A)
3. TYPICAL MAY BE USED ON SOME OCCASIONS (1E)

OPERATION: _____
MAINTENANCE: _____

DO A 133758
CONFIDENTIAL

REVISED 07/03/80
07/03/80
BLOOD #45

UPDATED 10/11/80

DO A 133759
CONFIDENTIAL

GT-100 SAFETY CHECKLIST OF MAINTENANCE SUPPLEMENT

COMPLETION OF THIS SUPPLEMENT COVERS ITEMS PECULIAR TO THIS EQUIPMENT AND NOT NECESSARILY INCLUDED IN THE MULTI-PERMIT. IN ADDITION TO, AND AS ATTACHED TO, THIS CHECKLIST, THE STANDARD SAFE WORK MULTI-PERMIT MUST BE ISSUED. ALSO COMBINED SPACE ENTRY FORM

CONDITIONS MUST BE SATISFIED:

	YES	NO
1. CONDUCTOR TEMPERATURE LESS THAN 120 DEGR.	-----	-----
2. FUEL GAS IS RED TAGGED WITH DOUBLE BLOCK AND BLEED.	-----	-----
3. STEAM INJECTION IS RED TAGGED WITH DOUBLE BLOCK AND BLEED.	-----	-----
4. PLANT AIR IS RED TAGGED WITH DOUBLE BLOCK AND BLEED.	-----	-----
5. STARTING MOTOR IS RACKED OUT AND RED TAGGED.	-----	-----
6. COMPRESSOR BREAKER IS RACKED OUT AND RED TAGGED.	-----	-----
7. TURBINE BREAKER OFF AND RED TAGGED.	-----	-----
8. SUFFICIENT FRESH AIR ENTRY DUE TO CARCINOGENIC DUST.	-----	-----
9. A SUFFICIENTLY LARGE FRESH AIR FLOW IS REQUIRED.	-----	-----
10. IF PURGING OF VESSEL IS TO BE PERFORMED, THEN A HALF	-----	-----
11. IF A VESSEL IS TO BE PURGED, THEN A HALF	-----	-----
12. APPROPRIATE VESSEL IS TO BE PURGED.	-----	-----
13. ALL VESSELS ARE TO BE PROTECTED LIGHTLY TO	-----	-----
14. SUFFICIENTLY LARGE FRESH AIR FLOW IS REQUIRED.	-----	-----
15. SUFFICIENTLY LARGE FRESH AIR FLOW IS REQUIRED.	-----	-----
16. APPROPRIATE VESSEL IS TO BE PURGED.	-----	-----
17. SUFFICIENTLY LARGE FRESH AIR FLOW IS REQUIRED.	-----	-----

EXCEPTIONS TO STANDARD:

1. PURGING OF VESSEL - RELY ON AIR MOVEMENT.
2. USE OF FIVE (5) MINUTE ESCAPE PACKS RATHER THAN AIR LINE EQUIPMENT.
3. AIR FLOW NOT ALWAYS USED - DEPENDENCE ON NATURAL DRAFT.

OPERATING UNIT: _____
MAINTENANCE UNIT: _____

DO A 133760
CONFIDENTIAL

REVISION: _____
03/17/77
BLOOMINGTON

UPDATER VFF
10/11/53

DO A 133761
CONFIDENTIAL

101-1 TRANSITION DUCT ENTRY SUPPLEMENT

COMPLETION OF THIS SUPPLEMENT COVERS ITEMS PECULIAR TO THIS EQUIPMENT AND NOT NECESSARILY INCLUDED IN THE MULTI-PERMIT. IN ADDITION TO AND AS ATTACHMENT TO THIS CHECKLIST, THE CONFINED SPACE ENTRY FORM MUST BE FILLED WITH AREAS NOTED THAT DO NOT APPLY.

CONDITION: UNIT IS SHUT DOWN.

NOTE: VESSEL ENTRY SECTION OF SAFE WORK MULTI-PERMIT MUST BE COMPLETED AS APPLICABLE.

	YES	NO
1. BOARD OPERATOR HAS BEEN NOTIFIED AT ENTRY AND APPROPRIATE RED TAGS SIGNED	_____	_____
2. TEMPERATURE INSIDE DUCT BELOW 120 DEGF.	_____	_____
3. STARTUP MOTOR FACED OUT AND RED TAGGED.	_____	_____
4. DUCT COVER REMOVED DUCT COVER RED TAGGED	_____	_____
5. FLOW CONTROL VALVE IS DETACHED AND RED TAGGED	_____	_____
6. FLOW CONTROL VALVE IS DETACHED AND RED TAGGED	_____	_____
7. FLOW CONTROL VALVE IS DETACHED AND RED TAGGED	_____	_____
8. FLOW CONTROL VALVE IS DETACHED AND RED TAGGED	_____	_____
9. FLOW CONTROL VALVE IS DETACHED AND RED TAGGED	_____	_____
10. FLOW CONTROL VALVE IS DETACHED AND RED TAGGED	_____	_____

EXCEPTIONS TO RULES

1. FLOW CONTROL VALVE IS DETACHED AND RED TAGGED. (2A)
2. RELIANT ON NATURAL DRAFT FOR VENTILATION. (3A)
3. USE OF LIVE (5) MINUTE ESCAPE PACKS RATHER THAN AIR LINE EQUIP. (4A)

OPERATIONS REPR _____
MAINTENANCE REPR _____

REVISION _____
2/2/2000
BUREAU

UPL-1111
10/1/2000

DO A 133762
CONFIDENTIAL

GT-100/200 BLEED VALVE ENCLOSURE ENTRY SUPPLEMENT

COMPLETION OF THIS SUPPLEMENT COVERS ITEMS PECULIAR TO THIS EQUIPMENT AND NOT NECESSARILY INCLUDED IN THE MULTI-PERMIT. IN ADDITION TO AND AS ATTACHMENT TO THIS CHECKLIST, THE STANDARD VESSEL ENTRY PERMIT MUST BE ISSUED WITH AREAS NOTED THAT DO NOT APPLY.

- | | YES |
|--|-------|
| 1. PRIOR TO ENTRY, MONITOR FOR OXYGEN CONTENT. | _____ |
| 2. BOARD OPERATOR NOTIFIED BEFORE ENTERING ENCLOSURE. | _____ |
| 3. APPROPRIATE RED TAGS SIGNED. | _____ |
| 4. STARTING MOTOR RACKED OUT AND RED TAGGED. | _____ |
| 5. FUEL GAS LINE BLOCKED IN, BLEED DOWN AND RED TAGGED. DB & B ON GT-200 BLIND IN PLACE UNLESS BURNER HAS BEEN PULLED. | _____ |
| 6. GEN BREAKER OUT, DC TURNED OFF AND RED TAGGED. | _____ |
| 7. GROUND FAULT PROTECTED OR LOW VOLTAGE LIGHTING IS REQUIRED INSIDE THE ENCLOSURE. | _____ |
| 8. BOARD OPERATOR MUST BE NOTIFIED ON COMPLETION OF WORK AND EXIT FROM ENCLOSURE. | _____ |
| 9. PLANT AIR - RED TAGGED AND DOUBLE BLOCK AND BLEED | _____ |
| 10. IF WORK IS GOING ON IN THIS AREA OTHER THAN CHECKING VALVE OPERATION, THE BLEED VALVE OPENINGS MUST BE CLOSED TO PREVENT FOREIGN OBJECTS FROM ENTERING THE COMPRESSOR. THIS CAN BE ACCOMPLISHED BY OPERATING THE BYPASS VALVES TO THE BLEED VALVES. THIS WILL CLOSE THE BLEED VALVES. IT WILL THEN BE NECESSARY TO JAM A PIECE OF 2 X 4 IN THE OPENING TO INSURE THEY STAY CLOSED. JUMPER THE TURNING GEAR TIME OUT TRIP PRIOR TO INSTALLING THE 2 X 4'S. IF THE TURNING GEAR TIMES OUT, WE WILL LOSE SAFETY OIL AND THE BLEED VALVES WILL OPEN. THE THREE VALVES FOR THE 3RD AND 6TH STAGE VALVES WILL NEED THREE 11 INCH 2 X 4'S AND THE 9TH STAGE VALVE WILL NEED A 8 3/4 INCH 2 X 4. THESE 2 X 4'S WILL BE KEPT IN BUILDING 3706 ON THE EAST WALL. | |
| 11. SAFETY OBSERVER WILL HAVE FIVE (5) MINUTE ESCAPE PACKS FOR EACH PERSON INSIDE THE VESSEL AND ONE FOR HIM/HER SELF. | _____ |
| 12. THE SAFETY OBSERVER IS A CERTIFIED HOLE WATCH. | _____ |
| 13. THE SAFETY OBSERVER HAS A HOLE WATCH CARD. | _____ |

EXCEPTIONS TO STANDARD:

DO A 133763
CONFIDENTIAL

1. USE OF FIVE (5) MINUTE ESCAPE PACKS RATHER THAN AIR LINE EQUIP. (4A)
2. INSTRUMENT AIR TO THIS AREA IS NOT ISOLATED.

OPERATIONS REPR: _____
MAINTENANCE REPR: _____

REvised: NLC
11/13/91
BLOCK #53

DO A 133764
CONFIDENTIAL

TRANSFERRING LUBE OIL FROM BOWSER TO GT-100/200 LUBE OIL RESERVOIRS

1. INFORM BOARD OPERATOR THAT YOU ARE TRANSFERRING OIL FROM THE THE BOWSER TO THE UNIT AND WHICH UNIT YOU ARE TRANSFERRING TO.
2. INSURE THAT LINES FROM LUBE OIL STORAGE TO OTHER LUBE OIL RESERVOIRS ARE BLOCKED OFF.
3. OPEN RECIRCULATION VALVES BACK TO STORAGE TANK.
4. OPEN LUBE OIL PUMP SUCTION VALVES.
5. OPEN LUBE OIL PUMP DISCHARGE VALVE.
6. OPEN VALVES TO UNIT 100 OR 200 LUBE OIL RESERVOIR INLET. (DEPENDING ON UNIT YOU ARE TRANSFERRING OIL INTO).
7. START LUBE OIL TRANSFER PUMP FROM LOCAL SWITCH AT THE PUMP DISCHARGE OF PUMP MUST BE THROTTLED.
8. AFTER STARTING LUBE OIL TRANSFER PUMP, BLOCK IN RECIRCULATION VALVES BACK TO STORAGE TANK. IF THESE VALVES ARE LEFT OPEN, THE OIL WILL GO BACK INTO THE TANK INSTEAD OF GOING TO THE RESERVOIR.
9. STOP PUMP WHEN REQUIRED AMOUNT OF OIL HAS BEEN PUMPED TO THE RESERVOIR.
10. CLOSE ALL VALVES THAT WERE PREVIOUSLY OPENED.
11. INFORM CONTROL ROOM OPERATOR AS TO HOW MUCH OIL IN INCHES (MEASURED ON RESERVOIR DIPSTICK) WAS ADDED TO WHICH TURBINES.

NOTE: DON'T LET THE LEVEL GO BEYOND 1% WHILE PUMPING.

REVISED: JML
02/24/92
BLOCK #54

UPDATED: JML
05/12/93

DO A 133765
CONFIDENTIAL

SAFE WORK PROCEDURE

TRANSFERRING THE GT-100 AND GT-200 INVERTERS

1. MAKE SURE SWITCHES TS-1 (GT-100) AND TS-2 (GT-200) ARE IN THE NORMAL (EPT) POSITION.
2. MAKE SURE THE "INVERTER OPERATION", "INVERTER OUTPUT", AND "ALTERNATE SOURCE AC INPUT CIRCUIT BREAKERS ARE ALL IN THE "UP" POSITION ("ON") AND NOT TRIPPED.
3. MAKE SURE THE "INVERTER SUPPLYING LOAD", AND "INSYNC", LIGHTS ARE ON BEFORE TRANSFERRING.
4. ON FRONT OF THE INVERTER PANEL, PUSH THE "ALT. SOURCE TO LOAD" BUTTON. THE "ALTERNATE SOURCE SUPPLYING LOAD" LIGHT WILL COME ON. THE "INVERTER OUTPUT" METER WILL SHOW "0" LOAD AMPS FROM INVERTER. AT THIS TIME, YOU WILL BE ON EPT POWER.
5. AFTER 10-15 SECONDS, PUSH THE "INVERTER TO LOAD" BUTTON. ONLY IF "IN SYNC" LIGHT IS ON THE "INVERTER SUPPLYING LOAD" LIGHT WILL COME ON. AT THIS TIME, THE INVERTER WILL BE BACK TO NORMAL POWER FROM THE MAIN D.C. PANEL.

REVISED: NLC
1/23/92
BLOCK #55

CHECKING MECHANICAL OVERSPEED TRIP - UNITS 100/200

TO CHECK OVERSPEED TRIP, FOLLOW THE PROCEDURE INDICATED BELOW:

1. ON EAST SIDE OF GOVERNOR BLOCK, FACING THE SPEED CHANGER, THERE WILL BE A HANDLE TO YOUR RIGHT. THIS IS THE "OVERSPEED TRIP TEST HANDLE". IT WILL BE IN THE "OPERATE" POSITION WITH THE HANDLE AWAY FROM YOU.
2. THERE ARE THREE GAUGES IN FRONT OF YOU. THEY ARE EMERGENCY OIL (WITH AN INDICATION OF 30 PSI APPROX), OVERSPEED TRIP OIL (WITH A "0" PSIG INDICATION) AND COMPRESSOR DISCHARGE.
3. THE "OVERSPEED TRIP" TEST HANDLE IS SPRING LOADED. START PULLING THE HANDLE SLOWLY TOWARDS YOU AND OBSERVE THE EMERGENCY OIL AND OVERSPEED TRIP OIL GAUGES AS THEY WILL CHANGE PRESSURES QUICKLY RIGHT BEFORE YOU HAVE PULLED THE HANDLE TO ITS STOP POSITION. SHOULD NOW SHOW THE FOLLOWING:

EMERGENCY OIL - 5-10 PSIG
OVERSPEED TRIP OIL - 30 PSI (APPROX.)
COMPRESSOR DISCHARGE

RIGHT BEFORE YOU GET TO THE STOP POSITION, YOU WILL OBSERVE THE EMERGENCY OIL PRESSURE GAUGE TO GO 6-10 PSIG, AND THE OVERSPEED TRIP OIL GAUGE WILL SHOW A PRESSURE INCREASE TO 30 PSI (APPROX). THE COMPRESSOR DISCHARGE GAUGE SHOULD STILL SHOW A PRESSURE READING.

BACK TO NORMAL OPERATING POSITION

1. SLOWLY RELEASE THE HANDLE TO ITS NORMAL POSITION AWAY. IF RELEASED TOO QUICKLY, THIS WILL TRIP THE TURBINE. OBSERVE THE OVERSPEED TRIP OIL PRESSURE GO TO "0" PSIG FIRST. THE EMERGENCY OIL IS STILL AT 6-10 PSIG. KEEP SLOWLY RELEASING THE HANDLE AND OBSERVE THE EMERGENCY OIL, GAUGE GO BACK TO 70 PSIG AS YOU LET THE HANDLE GO BACK TO ITS ORIGINAL OPERATE POSITION.
2. THE SYSTEM SHOULD BE JUST AS YOU FOUND IT WITH THE EMERGENCY OIL AT 30 PSI (APPROX.) AND THE OVERSPEED TRIP OIL AT 0 PSIG. TEST IS COMPLETE.

REVISED: NLC
1/23/92
BLOCK #56

DO A 133767
CONFIDENTIAL

CHECKING MECHANICAL OVERSPEED TRIP - UNITS 100/200

TO CHECK OVERSPEED TRIP, FOLLOW THE PROCEDURE INDICATED BELOW:

1. ON EAST SIDE OF GOVERNOR BLOCK, FACING THE SPEED CHANGER, THERE WILL BE A HANDLE TO YOUR RIGHT. THIS IS THE "OVERSPEED TRIP TEST HANDLE". IT WILL BE IN THE "OPERATE" POSITION WITH THE HANDLE AWAY FROM YOU.
2. THERE ARE THREE GAUGES IN FRONT OF YOU. THEY ARE EMERGENCY OIL (WITH AN INDICATION OF 30 PSI APPROX), OVERSPEED TRIP OIL (WITH A "0" PSIG INDICATION) AND COMPRESSOR DISCHARGE.
3. THE "OVERSPEED TRIP" TEST HANDLE IS SPRING LOADED. START PULLING THE HANDLE SLOWLY TOWARDS YOU AND OBSERVE THE EMERGENCY OIL AND OVERSPEED TRIP OIL GAUGES AS THEY WILL CHANGE PRESSURES QUICKLY RIGHT BEFORE YOU HAVE PULLED THE HANDLE TO ITS STOP POSITION. SHOULD NOW SHOW THE FOLLOWING:

EMERGENCY OIL - 5-10 PSIG
OVERSPEED TRIP OIL - 30 PSI (APPROX.)
COMPRESSOR DISCHARGE

RIGHT BEFORE YOU GET TO THE STOP POSITION, YOU WILL OBSERVE THE EMERGENCY OIL PRESSURE GAUGE GO TO 6-10 PSIG, AND THE OVERSPEED TRIP OIL GAUGE WILL SHOW A PRESSURE INCREASE TO 30 PSI (APPROX). THE COMPRESSOR DISCHARGE GAUGE SHOULD STILL SHOW A PRESSURE READING.

BACK TO NORMAL OPERATING POSITION

1. SLOWLY RELEASE THE HANDLE TO ITS NORMAL POSITION AWAY. IF RELEASED TOO QUICKLY, THIS WILL TRIP THE TURBINE. OBSERVE THE OVERSPEED TRIP OIL PRESSURE GO TO "0" PSIG FIRST. THE EMERGENCY OIL IS STILL AT 6-10 PSIG. KEEP SLOWLY RELEASING THE HANDLE AND OBSERVE THE EMERGENCY OIL. GAUGE SHOULD GO BACK TO 70 PSIG AS YOU LET THE HANDLE GO BACK TO ITS ORIGINAL OPERATING POSITION.
2. THE SYSTEM SHOULD BE JUST AS YOU FOUND IT WITH THE EMERGENCY OIL AT 30 PSI (APPROX.) AND THE OVERSPEED TRIP OIL AT 0 PSIG. TEST IS COMPLETE.

REVISED: NLC
1/23/92
BLOCK #56

UPDATED: JML
02/02/94

DO A 133768
CONFIDENTIAL

CLEANING COMPRESSOR - UNITS 100/200

(A). HAND CLEANING COMPRESSOR

NORMALLY, ANYTIME THE COMPRESSOR INLET SCROLL, AND BLADES ARE CLEANED, IT IS DONE BY LABORERS. THIS IS A RELATIVELY SAFE JOB BUT LIKE ANY OTHER JOB, SAFETY PRECAUTIONS MUST BE TAKEN. THE ITEMS BELOW MUST BE RED TAGGED AND CLEARANCE ACCEPTED BY ALL THE LABORERS DOING THE CLEANING BEFORE ENTERING THE COMPRESSOR INLET. CONFINED SPACE ENTRY SECTION OF THE MULTI-WORK PERMIT MUST BE FILLED OUT ALSO, AIR INLET ENTRY SUPPLEMENT MUST BE COMPLETED AND SIGNED. ALL LABORERS SHOULD HAVE RECEIVED POWER II BLOCK INDOCTRINATION WITHIN THE LAST YEAR.

- (1) - GENERATOR BREAKER
- (2) - STARTING MOTOR
- (3) - TURNING GEAR
- (4) - FUEL GAS - DOUBLE BLOCK & BLEED
- (5) - STEAM INJECTION - DOUBLE BLOCK & BLEED
- (6) - DOUBLE BLOCK & BLEED ON LINE CONDENSATE WATER WASH SYSTEM
- (7) - PLANT AIR DOUBLE BLOCK & BLEED

SAFETY EQUIPMENT REQUIRED TO DO THIS JOB IS AS FOLLOWS:

- (1) - MONOGOGGLES
- (2) - LOW VOLTAGE LIGHTS OR GROUND FAULT RECEPTACLE
- (3) - RUBBER GLOVES

CLEANING THE COMPRESSOR INLET SCROLL AND THE FIRST AND SECOND ROW OF VANES AND BLADES IS ACCOMPLISHED BY SCRUBBING THE METAL SURFACE WITH SCOTCH-BRITE AND HUNTER SOAP. THE DEPOSIT WHICH MUST BE REMOVED IS BLACK IN COLOR. ENSURE THE TRAILING EDGE OF THE BLADES ARE SCRUBBED ESPECIALLY WELL BECAUSE THEY ARE HARD TO SEE AND REACH.

REVISED: NLC
1/22/92
BLOCK #59

UPDATED: JML
11/16/93

TEXT BLOCK # 60

HOT END BEARING ENCLOSURE ENTRY SUPPLEMENT

COMPLETION OF THIS SUPPLEMENT COVERS ITEMS PECULIAR TO THIS EQUIPMENT AND NOT NECESSARILY INCLUDED IN THE MULTI-PERMIT. IN ADDITION TO AND AS ATTACHMENT TO THIS CHECKLIST, THE STANDARD VESSEL ENTRY PERMIT MUST BE ISSUED WITH AREAS NOTED THAT DO NOT APPLY.

CONDITIONS: UNIT IS SHUT DOWN.

NOTE: VESSEL ENTRY SECTION OF SAFE WORK MULTI-PERMIT MUST BE COMPLETED AS APPLICABLE.

	YES	NO
1. BOARD OPERATOR HAS BEEN NOTIFIED OF ENTRY AND APPROPRIATE RED TAGS SIGNED.	_____	_____
2. TEMPERATURE INSIDE DUCT BELOW 120 DEGF.	_____	_____
3. STARTING MOTOR RACKED OUT AND RED TAGGED.	_____	_____
4. AIR MOVER INSTALLED AND PROPERLY GROUNDED.	_____	_____
5. SNUFFING STEAM AND CO2 BLOCKED IN AND RED TAGGED. CO2 LINE DISCONNECTED.	_____	_____
6. LOW VOLTAGE OR GROUND FAULT PROTECTED LIGHTING AVAILABLE.	_____	_____
7. BOARD OPERATOR WILL BE NOTIFIED ON COMPLETION OF WORK AND EXIT.	_____	_____
8. SAFETY OBSERVER WILL HAVE FIVE (5) MINUTE ESCAPE PACKS FOR EACH PERSON INSIDE THE VESSEL AND ONE FOR HIM/HERSELF.	_____	_____
9. THE SAFETY OBSERVER IS A CERTIFIED HOLE WATCH.	_____	_____
10. THE SAFETY OBSERVER HAS A HOLE WATCH CARD.	_____	_____

EXCEPTIONS TO STANDARD:

1. USE OF FIVE (5) MINUTE ESCAPE PACKS RATHER THAN AIR LINE EQUIP. (4A)
2. LIFE LINE, HARNESS, ETC. NOT USED. (4B)

OPERATIONS REPR: _____
MAINTENANCE REPR: _____

DO A 133770
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REVISED: JML
07/03/91
BLOCK #60

SAFE WORK PROCEDURE

REPLACING G.T. LUBE OIL FILTER ELEMENTS - UNITS 100/200

THE G.T. LUBE OIL SYSTEM INCLUDES A PAIR OF FILTERS, ONE OF WHICH IS IN SERVICE AT ALL TIMES, THE OTHER CLEAN AND ON STAND-BY. WHEN, DUE TO HIGH DIFFERENTIAL PRESSURE ACROSS THE IN-SERVICE FILTER, IT BECOMES NECESSARY TO SWITCH TO THE STAND-BY ONE, THE FILTER ELEMENTS IN THE DIRTY UNIT THEN MUST BE REPLACED.

THE PROCEDURE FOR ACCOMPLISHING THIS TASK IS AS FOLLOWS:

1. INSURE THAT THE DIRTY FILTER IS ISOLATED - INLET AND OUTLET VALVES CLOSED TIGHT, AND VALVE IN THE 3/4" VENT PIPING CLOSED, AND VALVES ON 3/4" EQUALIZING LINE CLOSED.
2. CHECK ALL DRAINS TIED TO FILTER DRAIN HEADER TO INSURE FOR LUBE OIL SAMPLING, THEY ARE CLOSED. THESE ARE LUBE OIL FILTERS IN SERVICE, BOTH POWER OIL FILTER DRAINS AND BLOCK VALVES AT LUBE OIL HEADER (JUST SOUTH OF WEST L.O. FILTER).
3. INSURE CENTRIFUGE SUCTION FROM LUBE OIL TANK IS CLOSED. OPEN THE 1 1/2" DRAIN VALVE ON THE DIRTY FILTER AND THE 3/4" VALVE CONNECTING THE DRAIN LINE TO CENTRIFUGE SUCTION. AT THIS TIME, THE CENTRIFUGE CAN BE STARTED ACCORDING TO PROCEDURE TO DRAIN LUBE OIL FILTER.
4. PROCEED TO DRAIN THE FILTER HOUSING, USING THE CENTRIFUGE PUMP. AFTER PUMPING LONG ENOUGH TO BE ASSURED THAT THE OIL LEVEL IN THE FILTER IS BELOW THE COVER, THE FILTER MAY THEN BE OPENED.
5. OPEN THE 3/4" VENT TO ATMOSPHERE (PLACE A BUCKET UNDER THIS VENT TO CATCH ANY DRIP).
6. DISCONNECT THE DRIFICE FLANGE IN THE VENT PIPING.
7. LOOSEN THE COVER NUTS AND DROP THE HOLD-DOWN BOLTS TO THE SIDE.
8. TIGHTEN THE DAVIT NUT SUFFICIENTLY TO LIFT THE COVER CLEAR OF THE FILTER HOUSING AND SWING THE COVER AWAY.
9. IF THE OIL LEVEL IS NOT LOW ENOUGH TO ALLOW WORK, AGAIN OPERATE THE CENTRIFUGE UNTIL PROPER LEVEL IS ACHIEVED.
10. THERE ARE ELEMENTS IN EACH, HELD TIGHTLY IN PLACE BY A SPRING MECHANISM ON TOP OF EACH THAT IS COMPRESSED BY A LONG BOLT WHICH SCREWS INTO A POST WHICH SUPPORTS THE FILTER ELEMENTS. REMOVE THESE EIGHT BOLTS AND THE SPRING MECHANISMS.
11. REMOVE THE EIGHT DIRTY FILTER ELEMENTS - HAVE A CONTAINER (FIBER PACK AND PADS) AVAILABLE IN WHICH TO PLACE THEM.
12. INSURE THERE IS NOTHING LAYING IN THE BOTTOM OF THE HOUSING.
13. INSTALL NEW FILTER ELEMENTS.
14. REPLACE SPRING MECHANISMS, COMPRESSING AS BEFORE BY TURNING BOLT INTO TOP OF EACH POST.
15. INSURE THE RUBBER GASKET IS IN PLACE AND CLEAN, AND THAT GASKET SURFACE ON THE COVER IS CLEAN.
16. SWING THE COVER BACK INTO PLACE, LOOSEN DAVIT NUT, AND ALLOW THE COVER TO SEAT ON GASKET.

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17. LIFT HOLD-DOWN BOLTS BACK INTO PLACE AND TIGHTEN COVER NUTS, USING CRISS-CROSS PROCEDURE TO ASSURE PROPER GASKET SEALING.
18. RE-CONNECT THE VENT ORIFICE FLANGE AND THEN OPEN THE VALVE IN THIS 3/4" LINE.
19. WITH THE 3/4" VENT TO ATMOSPHERE OPEN (AND A BUCKET UNDER IT) THE FILTER HOUSING CAN NOW BE REFILLED.
20. WHILE OBSERVING LUBE OIL PRESSURE SLOWLY OPEN THE VALVES IN THE 3/4" EQUALIZING LINE. THIS WILL ALLOW OIL FROM THE IN-SERVICE FILTER TO SERVICE FILTER TO FLOW INTO THE EMPTY ONE THROUGH THIS COMMON DRAIN PIPING.
21. WHEN OIL IS DISCHARGED FROM THE 3/4" VENT TO ATMOSPHERE, AND WHEN THE ORIFICE VENT LINE TO THE DRAIN HEADER FEELS WARM FROM OIL FLOWING IT THE 3/4" DRAIN VALVES ON THE EQUALIZING LINE CAN BE CLOSED, ALONG WITH THE VENT.
22. THE FILTER IS NOW FULL AND READY TO BE PUT BACK ON STANDBY.
23. WHILE SOMEONE OBSERVES THE LUBE OIL PRESSURE, SLOWLY OPEN THE INLET VALVE UNTIL IT IS FULLY OPEN. IF A DROP IN LUBE OIL SUPPLY PRESSURE IS OBSERVED, CLOSE THE INLET AND GO BACK TO STEP 20. IF NO CHANGE IN PRESSURE IS OBSERVED, THE FILTER SHOULD HAVE THE INLET OPEN AND THE 3/4" VENT WITH ORIFICE TO THE DRAIN HEADER OPEN AND ALL OTHER VALVES CLOSED. THE FILTER IS NOW BACK ON STANDBY.
24. CLEAN UP THE AREA AND DISPOSE OF THE DIRTY FILTER ELEMENTS.

REVISED: NLC
1/22/92
BLOCK #61

SAFE WORK PROCEDURE

ISOLATING STEAM LINE TO COMBUSTOR - UNITS 100/200

1. INSURE THAT BOARD OPERATOR HAS PUT CONTROL VALVE ON MANUAL AND CONTROLLER CLOSED.
2. BLOCK IN UPSTREAM STEAM VALVE (TOP OF AIR INLET DUCT).
3. BLOCK IN DOWNSTREAM STEAM VALVE (TOP OF THE AIR INLET DUCT).
4. OPEN BLEED VALVE BETWEEN BLOCK VALVES.
5. HANG ALL PERTINENT RED TAGS.

NOTE: ALSO ON GT-200 TAG STEAM TO REGEN.

REVISED: NLC
1/23/92
BLOCK #62

UPDATED: JML
02/18/94

DO A 133723
CONFIDENTIAL

SAFE WORK PROCEDURE

HYDROGEN/SEAL OIL SYSTEM OPERATION - UNITS 100/200

HYDROGEN CONTROL SYSTEM

THE 70 MW E-M GENERATOR IS HYDROGEN COOLED, 30 PSI PRESSURE BEING MAINTAINED IN THE CASING AT ALL TIMES.

HYDROGEN GAS IS SUPPLIED FROM A COMPRESSED GAS CYLINDER TRAILER, REGULATED TO 45 PSIG, AND SENT TO THE CONTROL CABINET. A REGULATOR VALVE IN THE CABINET MAINTAINS CASING PRESSURE AT 30 PSI. THERE IS A BY-PASS VALVE AROUND THIS REGULATOR FOR EMERGENCY USE. THERE IS A 5 PSI REGULATOR IN THE SYSTEM, NORMALLY OUT OF SERVICE AND ISOLATED FROM THE 30 PSI SYSTEM BY A CHECK VALVE, WHICH COMES IN TO MAINTAIN 5 PSI IN THE GENERATOR CASING ON LOSS OF SEAL OIL PUMPS. UNDER THESE CONDITIONS, SEAL OIL WOULD BE SUPPLIED FROM THE BEARING OIL HEADER, NECESSITATING REDUCED HYDROGEN PRESSURE IN THE GENERATOR. EXCESSIVE GAS PRESSURE WOULD BE VENTED AUTOMATICALLY.

HYDROGEN PURITY IN THE GENERATOR CASING MUST BE MAINTAINED IN THE 90-95% RANGE. THIS IS ACCOMPLISHED BY VENTING A SMALL AMOUNT OF GAS FROM THE SEAL OIL DETRAINING CHAMBERS AT EACH END OF THE GENERATOR. THIS SCAVENGE GAS FLOW IS CONTROLLED THROUGH THE TWO FLOWMETERS MOUNTED ON THE FRONT OF THE HYDROGEN CONTROL CABINET. INCREASING PURITY (ABOVE 95%) SIGNALS THE NEED TO REDUCE THE SCAVENGE RATES THROUGH THESE FLOWMETERS, AND OF COURSE, VICE VERSA.

ALSO MOUNTED ON THE FRONT OF THE CONTROL CABINET IS A PUSH BUTTON WHICH ALLOWS MANUAL OPERATION OF THE SOLENOID-OPERATED VENT VALVES IN THE SCAVENGE GAS LINES FROM THE DETRAINING CHAMBERS. OPERATION OF THIS PUSH BUTTON WOULD ALLOW RAPID VENTING OF GAS FROM THE DETRAINING CHAMBERS, RESULTING IN AN INCREASE OF PURE HYDROGEN FLOW TO THE MACHINE AS A MEANS OF CORRECTING SITUATIONS OF DANGEROUSLY LOW PURITY.

SEAL OIL SYSTEM

IN ORDER TO CONTAIN HYDROGEN GAS IN THE GENERATOR CASING, SEAL OIL IS APPLIED TO THE SEAL RINGS AT EACH END OF THE MACHINE AT 5 PSI GREATER THAN THAT OF THE GAS IN THE CASING.

UNDER NORMAL OPERATING CONDITIONS, THIS OIL IS SUPPLIED BY AN AC MOTOR-DRIVEN PUMP, TAKING SUCTION FROM THE BEARING OIL HEADER AND DISCHARGING AT 65 PSI TO THE DIFFERENTIAL PRESSURE REGULATOR WHICH MAINTAINS PRESSURE AT THE GENERATOR SEALS 5 PSI HIGHER THAN THE CASING GAS PRESSURE. ON LOSS OF THE AC SEAL OIL PUMP, DUE TO POWER FAILURE OR WHATEVER, A DC MOTOR DRIVEN PUMP IS PROVIDED AS A BACKUP.

AS STATED PREVIOUSLY, NORMAL SUCTION SUPPLY TO THE SEAL OIL PUMPS IS FROM THE BEARING OIL HEADER. HOWEVER, ON LOSS OF PRESSURE ON THIS SYSTEM, THE SEAL OIL PUMP WILL TAKE SUCTION FROM THE MAIN LUBE OIL TANK AND/OR FROM THE SEAL DRAIN TANK. IT SHOULD BE REMEMBERED, HOWEVER, THAT ON LOSS OF BEARING OIL PRESSURE IT IS NECESSARY TO CLOSE THE BLOCK VALVE FROM THE SYSTEM TO THE SEAL OIL PUMP SUCTION HEADER. EXPERIENCE HAS SHOWN THAT IF THIS VALVE IS LEFT OPEN UNDER THESE CONDITIONS, THE SEAL OIL PUMP SOON BEGINS TO CAVITATE, APPARENTLY DRAWING IN AIR FROM THE 'DEAD' LINE.

THERE ARE TWO OTHER BACKUP SYSTEMS THAT WILL SUPPLY SEAL OIL ON LOSS OF BOTH AC AND DC PUMPS. FIRST, THERE IS A SOLENOID OPERATED VALVE WHICH SHOULD OPEN, SUPPLYING OIL FROM THE 220 PSI POWER OIL SYSTEM TO THE SEAL OIL DIFFERENTIAL PRESSURE REGULATOR. SECOND, THIS FAILING, OIL AT 30 PSI FROM THE BEARING HEADER WOULD BE SUPPLIED TO THE REGULATOR. HOWEVER, THIS WOULD NECESSITATE OPERATING AT A REDUCED HYDROGEN PRESSURE

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FROM THE SEAL DRAIN TANK. IT SHOULD BE REMEMBERED, HOWEVER, THAT IN LOSS OF BEARING OIL PRESSURE IT IS NECESSARY TO CLOSE THE BLOCK VALVE FROM THE SYSTEM TO THE SEAL OIL PUMP SUCTION HEADER. EXPERIENCE HAS SHOWN THAT IF THIS VALVE IS LEFT OPEN UNDER THESE CONDITIONS, THE SEAL OIL PUMP SOON BEGINS TO CAVITATE, APPARENTLY DRAWING IN AIR FROM THE 'DEAD' LINE.

THERE ARE TWO OTHER BACKUP SYSTEMS THAT WILL SUPPLY SEAL OIL ON LOSS OF BOTH AC AND DC PUMPS. FIRST, THERE IS A SOLENOID OPERATED VALVE WHICH SHOULD OPEN, SUPPLYING OIL FROM THE 220 PSI POWER OIL SYSTEM TO THE SEAL OIL DIFFERENTIAL PRESSURE REGULATOR. SECOND, THIS FAILING, OIL AT 30 PSI FROM THE BEARING HEADER WOULD BE SUPPLIED TO THE REGULATOR. HOWEVER, THIS WOULD NECESSITATE OPERATING AT A REDUCED HYDROGEN PRESSURE IN THE GENERATOR (AS DESCRIBED PREVIOUSLY IN THE HYDROGEN CONTROL SYSTEM WRITE-UP).

SEAL OIL FROM THE GENERATOR SEALS DRAINS TO THE DETRAINING CHAMBERS AT EACH END OF THE MACHINE, THENCE THROUGH THE FLOAT TRAP WHICH PREVENTS LOSS OF HYDROGEN TO THE DRAIN, AND INTO THE SEAL OIL DRAIN TANK. AN EVACTOR IS OPERATED ON THE DRAIN TANK TO MAINTAIN APPROXIMATELY 3"/H2O VACUUM IN THE TANK TO REMOVE GAS VAPORS AND TO FACILITATE DRAINAGE.

ANY LEAKAGE INTO THE GENERATOR CASING, EITHER OIL OR WATER (FROM HYDROGEN COOLERS) WILL BE DETECTED AND ANNUNCIATED BY THE LIQUID-DETECTOR DEVICE PIPED FROM THE BOTTOM OF THE CASING.

THE AUX. OPERATOR CHECKS ALL THIS HYDROGEN AND SEAL OIL EQUIPMENT EACH SHIFT, AND IT IS HIS RESPONSIBILITY TO SEE THAT EVERYTHING OPERATES NORMALLY OR TO REPORT ANY MALFUNCTIONS OR ABNORMALITIES TO THE SHIFT SUPERVISOR.

REVISED: JML
09/04/91
BLOCK #69

SAFE WORK PROCEDURE

TESTING OF GENERATOR LIQUID DETECTOR ALARM

EACH GENERATOR HAD IT'S OWN GENERATOR LIQUID DETECTOR DEVICE. THIS IS INSTALLED ON EACH MACHINE TO WARN OF LIQUIDS GETTING INTO THE GENERATOR CASING, WHICH COULD COME FROM A WATER LEAK IN THE HYDROGEN COOLERS OR OIL LEAKS FROM THE GENERATOR SHAFT SEALS.

TO ENSURE THAT THESE DETECTORS ARE OPERATING PROPERLY THEY MUST BE TESTED. THIS DUTY IS ASSIGNED TO A PARTICULAR SHIFT TO BE PERFORMED WEEKLY.

PROCEDURE FOR TESTING LIQUID DETECTOR:

1. INFORM BOARD OPERATOR YOU WILL BE TESTING THIS ALARM.
2. CLOSE DRAIN VALVE FROM GENERATOR (TOP AND BOTTOM DRAINS)
3. SLOWLY OPEN VENT VALVE ON TOP OF LEVEL POT (TO VENT TRAPPED H2) WITHIN THE DETECTOR AND THIS SHORT SECTION OF LINE, THERE WILL BE VERY LITTLE GAS TO BE VENTED.)
4. POUR CLEAN TURBINE OIL INTO VENT VALVE UNTIL THE BOARD OPERATOR NOTIFIES YOU OF THE ALARM OR UNTIL THE LINE IS FULL. IF THE LINE IS FULL AND YOU DID NOT GET AN ALARM, NOTIFY YOUR SUPERVISOR AND WRITE AND MMR FOR THIS TO BE CORRECTED.
5. PLACE CONTAINER UNDER LIQUID DETECTOR DRAIN VALVE AND OPEN, DRAINING ALL OF THE OIL FROM THE LIQUID DETECTOR AND LINE.
6. CLOSE VENT VALVE AND DRAIN VALVE.
7. OPEN DRAIN VALVE FROM GENERATOR SLOWLY.
8. CHECK FOR LEAKS IN THE LIQUID DETECTOR SYSTEM.

REVISED: JML
09/04/91
BLOCK #70

SAFE WORK PROCEDURE

PURGING GENERATORS WITH N2

I. SAFETY

A. HAZARDS:

H2 IS FLAMMABLE FROM 5% TO 75% HYDROGEN IN AIR

B. REQUIRED SAFETY EQUIPMENT:

BLOCK SAFETY EQUIPMENT

II. PROCEDURE

1. OPEN VENT FROM TOP OF GENERATOR.
2. ALLOW PRESSURE TO DROP TO APPROXIMATELY 5#.
3. PRESSURE UP TO 25# OF N2 THRU BOTTOM FEED ON GENERATOR.
4. OPEN VENT FROM TOP OF GENERATOR AND DEPRESSURE TO 5#.
5. PRESSURE UP TO 25# OF N2 THRU BOTTOM LINE OF GENERATOR.
6. OPEN VENT FROM TOP OF GENERATOR AND DEPRESSURE TO 5#.
7. PRESSURE UP TO 25# OF N2 THRU BOTTOM LINE OF GENERATOR.
8. CATCH A SAMPLE BOMB, LABEL, TAKE TO CA-II FOR ANALYSIS
*SEE NOTE.
9. IF SAMPLE IS BAD, RETURN TO STEP 6.
10. IF SAMPLE IS GOOD, VENT PRESSURE FROM TOP OF GENERATOR TO 5#.
 - *1. PURGE OUT SAMPLE LINE FROM TOP OF GENERATOR FOR APPROXIMATELY 10 SECONDS.
 - 2 OPEN BOTH ENDS OF SAMPLE BOMB.
 3. CONNECT TUBING TO SAMPLE BOMB AND SAMPLE LINE FROM TOP OF GENERATOR.
 4. PURGE THRU SAMPLE BOMB FOR APPROXIMATELY 30 SECONDS.
 5. CLOSE SAMPLE BOMB OUTLET BLOCK VALVE.
 6. CLOSE SAMPLE BOMB INLET BLOCK VALVE.
 7. CLOSE SAMPLE BLOCK VALVE.
 8. DISCONNECT SAMPLE TUBING.
 9. INSTALL CAP ON SAMPLE OUTLET.

SAFE WORK PROCEDURE

LOSS OF HIGH PRESSURE BOILER FEED PUMPS - UNITS 100/200

ON LOSS OF A HIGH PRESSURE BOILER FEED PUMP, OUR MAIN CONCERN WILL BE TRYING TO MAINTAIN A PROPER LEVEL IN THE HIGH PRESSURE DRUM. THESE BLR'S ARE DESIGNED TO RUN AT A LOW LEVEL FOR A LONG PERIOD OF TIME, BUT WE NEED TO GET A PROPER FIRING LEVEL AS SOON AS POSSIBLE TO KEEP FROM OVERHEATING AND ANY POSSIBLE TUBE DAMAGE.

1. UPON LOSS OF A HIGH PRESSURE BLR FEED PUMP, NOTIFY SHIFT SUPERVISOR AND AUXILIARY OPERATOR IMMEDIATELY.
2. ONCE THE HIGH PRESSURE BOILER FEED PUMP THAT WAS RUNNING TRIPPED, THE BOARD OPERATOR WILL IMMEDIATELY START THE BACK-UP PUMP. THE OUTSIDE OPERATOR(S) WILL CHECK THE TRIPPED PUMP TO INSURE IT IS NOT BACK SPINNING OR SPINNING.
3. IF STAND-BY PUMP WILL NOT BRING DRUM LEVEL BACK TO PROPER LEVEL FAST ENOUGH, HAVE AUXILIARY OPERATOR CRACK BY-PASS AROUND FEED WATER REGULATOR TO BRING LEVEL UP.
4. WHEN DRUM IS AT A NORMAL LEVEL, HAVE AUXILIARY OPERATOR CLOSE BY-PASS AND O.S. WILL MONITOR LEVEL FROM CONTROL ROOM.
5. NOTIFY MAINTENANCE SUPERVISOR OF PROBLEM WITH HIGH PRESSURE BLR FEED PUMP SO HE CAN HAVE PUMP OR MOTOR REPAIRED.

REVISED: JML
05/15/91
BLOCK #73

SAFE WORK PROCEDURE

LOSS OF LOW PRESSURE BLR FEED PUMPS - UNITS 100/200

ON LOSS OF A LOW PRESSURE BLR FEED PUMP, OUR MAIN CONCERN WILL BE TRYING TO MAINTAIN A PROPER LEVEL IN THE LOW AND MEDIUM PRESSURE DRUMS AND SUCTION TO HP BOILERS. THESE BOILERS ARE DESIGNED TO RUN AT A LOW LEVEL FOR A PERIOD OF TIME BUT WE NEED TO GET A PROPER FIRING LEVEL AS SOON AS POSSIBLE, TO KEEP FROM OVERHEATING AND POSSIBLE TUBE DAMAGE. OUR MAIN CONCERN IS A REDUCTION IN LOW PRESSURE FEEDWATER FLOW FROM THE SHUT DOWN PUMP BACK SPINNING. THIS CAN CAUSE FEED WATER FLASHING TO STEAM IN THE MEDIUM PRESSURE BOILER ECONOMIZER SECTION. THIS WILL CAUSE A LOSS OF FEEDWATER FLOW TO THE HIGH PRESSURE BOILER FEED PUMP. THIS PROBLEM CAN BE SERIOUS.

1. UPON LOSS OF A LOW PRESSURE BLR FEED PUMP, ALARM WILL GO OFF AN ANNUNCIATOR PANEL, NOTIFY SHIFT SUPERVISOR AND AUXILIARY OPERATOR IMMEDIATELY.
2. HAVE SHIFT SUPERVISOR OR AUXILIARY OPERATOR BLOCK IN THE DISCHARGE OF THE PUMP THAT HAS TRIPPED. TRY TO ESTABLISH A CONSTANT FLOW TO THE MEDIUM AND THE HIGH PRESSURE DRUMS.
3. IF STAND-BY PUMP WILL NOT BRING DRUM LEVEL BACK TO A PROPER FIRING LEVEL FAST ENOUGH, HAVE THE AUXILIARY OPERATOR CRACK OPEN THE BY-PASS AROUND THE FEED WATER REGULATOR TO BRING BLR LEVEL BACK UP TO NORMAL LEVEL.
4. WHEN DRUM LEVEL IS AT A NORMAL LEVEL, HAVE AUXILIARY OPERATOR CLOSE THE BY-PASS AND THE O.S. WILL MONITOR LEVEL FROM CONTROL ROOM.
5. NOTIFY APPROPRIATE MAINTENANCE SUPERVISOR ABOUT PUMP/MOTOR PROBLEMS SO HE CAN HAVE IT REPAIRED AS SOON AS POSSIBLE.

REVISED: JML
05/15/91
BLOCK #74

ISOLATING LOW PRESSURE BOILER FEED PUMPS/MOTOR - UNITS MP-100 A&B/MP-200 A&B
PUMP

WHEN WORK IS BEING DONE ON LOW PRESSURE BOILER FEED PUMP THAT REQUIRES
IT TO BE ISOLATED, THE FOLLOWING MUST BE DONE: (7 RED TAGS REQUIRED)

1. RED TAG START/STOP SWITCH IN CONTROL ROOM IN THE STOP POSITION.
2. RED TAG LOCAL START/STOP SWITCH IN THE STOP POSITION.
3. (INSURE THAT PUMP IS NOT RUNNING) OPEN AND RED TAG BREAKER IN MCC.
4. BLOCK IN AND RED TAG PUMP SUCTION VALVE.
5. BLOCK IN AND RED TAG PUMP DISCHARGE VALVE.
6. BLOCK IN THE RECIRCULATION LINE OF THE DISCHARGE JUST BEFORE THE
NON-RETURN CHECK VALVE. RED TAG THIS VALVE.
7. OPEN WHEEL DRAIN ON PUMP, SO THAT IT MAY DRAIN. RED TAG OPEN.

REVISION BY
2/20/86
BLOCK IN

UPDATED BY
2/23/86

OPERATING UNIT 100/200 GENERATOR NEUTRAL SWITCH MANUALLY FROM THE BREAKER
USING THE MANUAL HANDLE

NOTE: This procedure should be used when the electrical controls of generator neutral switch fail

1. Inform board operator of operation to be performed.
2. Proceed to generator neutral switch, remove locking pin and manual handle.
3. Open front panel of control box. This is done by sliding the front panel down. Isolate the neutral switch motor electrically. Do this by removing the fuses or opening the power switches and red tagging.
4. With power off from motor, place cover back over control panel.
5. Open flip located in the top left corner of the front panel on the control box. Place manual crank handle in the slot provided and operate the neutral switch by turning the crank.
6. When desired operating is complete, remove manual crank handle and place it in the proper place on the front panel.

REVISED BY
9/11/70
JLOCK #82

UPDATED JWC
2/23/74

DO A 133781
CONFIDENTIAL

SAFE WORK PROCEDURE

SWITCHING LUBE OIL FILTERS - UNITS 100/200

ALTHOUGH THE FOLLOWING PROCEDURE IS SIMPLE AND STRAIGHT FORWARD, IT IS TO BE DONE IN THE PRESENCE OF SUPERVISION. CLOSING A VALVE OUT OF SEQUENCE COULD RESULT IN LOSS OF OIL AND SEVERE DAMAGE TO THE TURBINE.

WHILE OPERATING VALVES IN THIS PROCEDURE, LISTEN FOR UNUSUAL NOISES (SUCH AS HIGH PRESSURE DROP ACROSS VALVES) AND RETURN THE VALVES TO THEIR FULL OPEN POSITION SHOULD THEY OCCUR.

DURING THESE OPERATIONS, AN OBSERVER SHOULD WATCH FOR FILTER DIFFERENTIAL OR LUBE OIL PRESSURE CHANGES.

1. CLOSE THE DRAIN VALVE AND OPEN THE VENT LINE TO THE LUBE OIL DRAIN HEADER (THESE VALVES SHOULD NORMALLY BE IN THESE POSITIONS).
2. CRACK THE INLET VALVE AND VERY SLOWLY ALLOW THE FILTER TO BE PUT IN SERVICE TO FILL WITH OIL (THE VENT LINE WILL BECOME WARM WHEN THE FILTER IS FULL).
3. WHEN FILTER IS FULL, SLOWLY OPEN THE INLET AND OUTLET VALVES ON THE FILTER TO BE PUT IN SERVICE, WHILE WATCHING FOR PRESSURE CHANGES.
4. VERY SLOWLY CLOSE THE OUTLET VALVE ON THE FILTER TO BE TAKEN OUT OF SERVICE, WHILE WATCHING OIL PRESSURES.
5. SLOWLY CLOSE THE INLET VALVE ON THE FILTER BEING TAKEN OUT OF SERVICE.
6. IF CHANGE IS FOR MAINTENANCE, RED TAG INLET, OUTLET, AND VENT VALVES. OPEN THE DRAIN AND PUMP THE FILTER DOWN WITH THE HAND DRAIN PUMP.

REVISED: NLC
9/11/90
BLOCK #119

PROCEDURE FOR WELDING IN 100/200 REGENERATOR HEADER

CASE NO. 1 -

PLEASE NOTE: REGENERATOR ENTRY PERMIT REQUIRED IN ADDITION TO THIS SAFE WORK PROCEDURE.

1. THERE WILL BE TWO (2) SAFETY OBSERVERS
 - 1 STATIONED OUTSIDE MANWAY
 - 1 STATIONED INSIDE NEAR WELD AREA
2. BOTH WELDER AND INSIDE SAFETY OBSERVER WILL WEAR SUPPLIED AIR MASK. WELDER WILL USE SPECIAL TYPE WITH WELDING LENS. (INSURE THAT YOU HAVE ENOUGH AIR BOTTLES FOR DURATION OF JOB)
3. BOTH SAFETY OBSERVERS WILL USE HAND HELD RADIOS FOR COMMUNICATION. THEY WILL TEST RADIOS BETWEEN THE INSIDE MAN AND THE OUTSIDE MAN BEFORE STARTING JOB. THE OUTSIDE MAN WILL MAKE COMMUNICATION TEST WITH CONTROL ROOM. DURING WELDING, INSIDE AND OUTSIDE OBSERVERS WILL HAVE COMMUNICATION AT LEAST EVERY 5 MINUTES.
4. AN AIR MOVER WILL BE PLACED AT MANWAY ENTRANCE (IN REVERSE, SO AS TO PUSH AIR THROUGH INSTEAD OF PULLING). COMMUNICATE TO OUTSIDE MAN THAT IN THE EVENT OF A SPILL, SHUTDOWN AIR MOVER AND EVACUATE MEN FROM INSIDE.
5. WELDERS WILL WELD NO LONGER THAN 15-20 MINUTES AT A TIME. ALSO WHEN WELDERS SWAP, HAVE THE TWO SAFETY OBSERVERS SWAP. HEAT STRESS HAZARD DUE TO PREHEATING OF METAL TO 450 DEGF.
6. NOTIFY SECURITY FOR RESCUE TECHNIQUE.
7. COMMUNICATE PROCEDURE WITH ALL INVOLVED.

CASE II

PLEASE NOTE: REGENERATOR ENTRY PERMIT REQUIRED IN ADDITION TO THIS SAFE WORK PROCEDURE.

1. THERE WILL BE (2) SAFETY OBSERVERS
 - 1 STATIONED OUTSIDE MANWAY - CERTIFIED HOLEWATCH
 - 1 STATIONED INSIDE NEAR WELD AREA
2. BOTH WELDER AND INSIDE SAFETY OBSERVER WILL HAVE A 5 MINUTE ESCAPE AIR PACK.
3. BOTH SAFETY OBSERVERS WILL HAVE HAND HELD RADIOS FOR COMMUNICATIONS. THEY WILL TEST RADIOS BETWEEN THE INSIDE MAN AND THE OUTSIDE MAN BEFORE STARTING JOB. THE OUTSIDE MAN WILL MAKE COMMUNICATION TEST WITH CONTROL ROOM. DURING WELDING, INSIDE AND OUTSIDE OBSERVERS WILL HAVE COMMUNICATION AT LEAST EVERY 5 MINUTES WITH CONTROL ROOM OPERATOR MONITORING COMMUNICATIONS.
4. AN AIR MOVER (SMALL ELECTRIC) WILL BE PLACED AT MANWAY ENTRANCE (IN REVERSE, SO AS TO PUSH AIR THROUGH INSTEAD OF PULLING). COMMUNICATE TO OUTSIDE MAN THAT IN THE EVENT OF A SPILL, SHUTDOWN AIR MOVER AND EVACUATE MEN FROM INSIDE.
5. NOTIFY SECURITY FOR RESCUE TECHNIQUE.
6. COMMUNICATE PROCEDURE WITH ALL INVOLVED.

DO A 133783
CONFIDENTIAL

REVISED: JML
07/02/91
BLOCK #127

UPDATED: JML
12/16/93

DO A 133784
CONFIDENTIAL

DA-100/200 ENTRY SUPPLEMENT

COMPLETION OF THIS SUPPLEMENT COVERS ITEMS PECULIAR TO THIS EQUIPMENT AND NOT NECESSARILY INCLUDED IN THE MULTI-PERMIT. IN ADDITION TO AND AS ATTACHMENT TO THIS CHECKLIST, THE STANDARD CONFINED SPACE ENTRY PERMIT MUST BE ISSUED WITH AREAS NOTED THAT DO NOT APPLY.

1. UPSTREAM BLOCK VALVE ON DA STEAM PRESSURE CONTROLLER AND BY-PASS VALVE ARE CLOSED AND RED TAGGED. _____
2. STEAM BLOCK VALVE AT DA IS CLOSED AND RED TAGGED. _____
3. DRAIN VALVE IS OPEN DOWNSTREAM OF DA PRESSURE CONTROLLER. RED TAG THIS VALVE. _____
4. DA DUMP VENT IS OPEN. _____
5. UPSTREAM BLOCK VALVE ON DA LEVEL CONTROLLER AND BY-PASS VALVE ARE CLOSED AND RED TAGGED. DO NOT BLOCK DOWN STREAM BY. THIS WILL STOP THE LINE FROM FLEEDING PROPERLY. _____
6. SUPPLY AND RETURN BLOCK VALVES ON CONDENSATE TO CSD FLASH TANK ARE CLOSED AND RED-TAGGED. _____
7. GLAND WATER TO/FROM HP BFP'S BLOCKED IN AND RED TAGGED. _____
8. DRAIN VALVE IS OPEN DOWNSTREAM OF DA LEVEL CONTROLLER. _____
9. MAIN CONDENSATE BLOCK VALVE IS CLOSED AND RED TAGGED. _____
10. RED TANK CONTROL PUMP DISCHARGE AND SUCTION CLOSED AND BLEED VALVE OPEN. _____
11. DA IS DRAINED DA DUMP BLOCK VALVE AND BY-PASS VALVE ARE CLOSED AND RED-TAGGED. _____
12. BOTH LP BOILER FEED PUMPS ARE BLOCKED IN WITH SUCTION AND DISCHARGE VALVES RED-TAGGED. _____
13. DRAIN VALVE IS OPEN ON BFP SUCTION HEADER. _____
14. MANWAYS ON STORAGE TANK AND ON DOME ARE OPEN. _____
TEMPERATURE INSIDE THE TANK MUST NOT EXCEED 120 DEGREES F.
15. SAFETY OBSERVER WILL HAVE FIVE (5) MINUTE ESCAPE _____
16. THE SAFETY OBSERVER IS A CERTIFIED HOLE WATCH. _____
17. THE SAFETY OBSERVER HAS A HOLE WATCH CARD. _____

EXCEPTIONS TO STANDARD

1. VALVES, INSTRUMENTS, INSTRUMENT LINES NOT DISCONNECTED. (1D)

DO A 133785
CONFIDENTIAL

2. USE OF FIVE (5) MINUTE ESCAPE PACKS RATHER THAN AIR LINE EQUIP.
(4A)
3. LIFE LINE, HARNESS, ETC., NOT USED (4B)

OPERATIONS REPR: _____
MAINTENANCE REPR: _____

REVISED: JMB
07/03/91
BLOCK #137

UPDATED: JMB
2/23/94

UNIT 100/200 DA FILL AFTER MAINTENANCE

1. CHECK RED TAG MASTER, MAKE SURE ALL ACCEPTED ENTRIES HAVE BEEN RELEASED.
2. IF THE DA STORAGE TANK HAS BEEN OPENED, VISUALLY CHECK STORAGE TANK FOR DEBRIS.
3. REMOVE AIR MOVER FROM DA DOME AND PUT DOME COVER BACK ON USING NEW GASKET. LEAVE VENT VALVE ON DOME CRACKED OPEN. PLACE STORAGE TANK MANHOLE COVER BACK OVER MANHOLE USING NEW GASKET.
4. CLOSE BOTTOM DRAIN VALVE UNDER DA STORAGE TANK. ALSO RECONNECT TUBING TO SULFITE ENTRY BLOCK VALVE. OPEN SULFITE ENTRY BLOCK VALVE AND PULL RED TAG.
5. CLOSE LP BOILER FEED PUMPS HEADER DRAIN VALVE AND PULL THE RED TAG.
6. OPEN LPBFW PUMPS SUCTION VALVES. CLOSE LOW PRESSURE BF PUMPS DRAIN VALVES.
7. REMOVE RED TAGS FROM CBD FLASH TANK HEAT EXCHANGER CONDENSATE BLOCK VALVES, INLET AND OUTLET. OPEN CONDENSATE INLET TO HEAT EXCHANGER AND CONDENSATE OUTLET BLOCK VALVE.
8. REMOVE RED TAG FROM CONDENSATE HEADER DRAIN VALVE. CLOSE THIS VALVE.
9. REMOVE RED TAGS FROM CONDENSATE HEADER TO DA.
(A) LEVEL CONTROL BLOCK VALVE (1 TAG)
(B) LEVEL CONTROL BY-PASS BLOCK VALVE (1 TAG)
11. CHECK WITH CONTROL ROOM OPERATOR TO ENSURE THAT DA LEVEL CONTROL REGULATOR IS CLOSED BEFORE UNBLOCKING CONDENSATE.
12. AT THIS POINT, SEE DA START-UP PROCEDURE.

REVISED: JMB
07/02/91
BLOCK #230

UPDATED: JMB
3/11/94

DO A 133787
CONFIDENTIAL

SWITCHING LUBE OIL FILTERS - UNITS 100/200

WHEN AND IF THE PRESSURE DROP ACROSS THE IN-SERVICE LUBE OIL FILTER BECOMES EXCESSIVE, IT BECOMES NECESSARY TO TRANSFER TO THE STAND-BY ONE. IF THIS MUST BE DONE DURING THE TIME THE GT IS RUNNING, CARE MUST BE EXERCISED DURING THE SWITCHING OPERATION TO PREVENT LOWERING BEARING OIL PRESSURE TO AN EXTENT THAT TRIPPING THE GT IS A RESULT.

PROCEED AS FOLLOWS:

1. CRACK OPEN THE 3/4" VENT ON THE STAND-BY FILTER TO INSURE IT IS FULL AND ALL AIR IS EXPELLED.
2. IF OIL IS NOT DISCHARGED THROUGH THE VENT, FILL THE STAND-BY FILTER BY CONNECTING IT TO THE IN-SERVICE ONE. THIS CAN BE ACCOMPLISHED BY OPENING THE 1 1/2" DRAIN VALVE ON THE IN-SERVICE FILTER AND CRACKING THIS DRAIN VALVE ON THE STAND-BY ONE. THIS WILL FLOW OIL FROM THE IN-SERVICE FILTER TO THE STAND-BY USING THE COMMON 1 1/2" DRAIN PIPING.
3. WHEN OIL DISCHARGES FROM THE STAND-BY FILTER VENT, CLOSE THIS 3/4" VALVE AND THE 1 1/2" DRAIN VALVES.
4. WITH AN ASSISTANT WATCHING SYSTEM PRESSURE, SLOWLY CRACK THE INLET VALVE ON THE STAND-BY FILTER. BE AWARE OF ANY UNUSUAL NOISE (SUCH AS RUSH OF OIL THROUGH VALVE).
5. SLOWLY OPEN INLET VALVE WIDE.
6. SLOWLY OPEN OUTLET VALVE ON THE STAND-BY FILTER. THIS FILTER IS NOW IN SERVICE.
7. SLOWLY CLOSE THE INLET, THEN THE OUTLET VALVES ON THE FILTER TO BE ISOLATED. AGAIN, ASSISTANT SHOULD WATCH SYSTEM PRESSURE CLOSELY.
8. FILTERS ARE NOW SWITCHED. ISOLATED FILTER MAY NOW BE OPENED FOR CHANGE-OUT OF DIRTY ELEMENTS. REFER TO APPLICABLE SAFE WORK PROCEDURE.

REVISED NLC
1/23/92
BLOCK #235

DO A 133788
CONFIDENTIAL

TRANSFERRING OIL FROM 100/200 LUBE OIL RESERVOIR TO BOWSER

(JTE: INFORM BOARD OPERATOR OF THE UNIT YOU ARE TRANSFERRING THE OIL FROM.

1. RED TAG LUBE OIL SYSTEM, PUMPS AND HEATER.
2. INSURE ALL FILL LINES TO OTHER STATIONS AND BOILER FEED PUMPS ARE BLOCKED IN.
3. CONNECT CENTRIFUGE RETURN LINE AT UNION NEAR EAST END OF RESERVOIR, AND INSURE BV BACK TO RESERVOIR IS CLOSED.
4. CHECK THE LEVEL IN THE OLD SIDE OF THE BOWSER ON THE LEVEL TRANSMITTER AND INSURE IT WILL HOLD THE OIL BEING PUMPED FROM 100 OR 200.
5. UNBLOCK 100/200 TRANSFER LINE AT BOWSER (300/400 SHOULD BE BLOCKED).
6. OPEN INLET BV TO OLD SIDE OF BOWSER AND CLOSE VENT BV ON RECIRCULATION LINE
7. INSURE ALL BV'S TO THE NEW OIL SIDE ARE CLOSED.
8. START THE CENTRIFUGE & PUMP UNTIL THE RESERVOIR IS EMPTY OR UNTIL THE CENTRIFUGE LOSES ITS SUCTION.
9. SHUT DOWN THE CENTRIFUGE AND PLACE ALL VALVES BACK TO NORMAL.
0. THE CENTRIFUGE RETURN LINE AT THE UNION MUST BE MISALIGNED AND CAPPED AFTER THE RESERVOIR HAS BEEN EMPTIED.

REVISED: JTB
06/10/92
BLOCK #234

UPDATED: JTB
02/22/94

DO A 133789
CONFIDENTIAL

PROCEDURE FOR STARTING AND RUNNING CENTRIFUGE - 100/200

1. INSURE SUPPLY AND RETURN TO CENTRIFUGE AT RESERVOIR ARE OPEN.
2. INSURE FILL VALVE FROM BOWSER TO RESERVOIR IS CLOSED.
3. OPEN CENTRIFUGE DISCHARGE VALVE AT CENTRIFUGE.
4. CHECK OIL LEVEL IN CENTRIFUGE - ADD IF NECESSARY (30 WT. MOTOR OIL).
5. WHEN READY TO START, CALL BOARD OPERATOR TO INFORM HIM YOU WILL BE STARTING CENTRIFUGE.
6. START CENTRIFUGE BY PUSHING START BUTTON AT LOCAL STATION.
7. ALLOW CENTRIFUGE TO COME UP TO SPEED. THIS SHOULD TAKE APPROXIMATELY 2 TO 3 MINUTES. OPEN WATER SUPPLY TO SEAL WATER GLASS HOUSING. CONTINUE ADDING WATER UNTIL WATER RUNS OUT OF OVERFLOW HOSE TO OVERFLOW TANK.
8. SHUT OFF SEAL WATER SUPPLY TO HOUSING.
9. SLOWLY OPEN SUCTION VALVE AT CENTRIFUGE.
10. INSURE THAT OVERFLOW TANK DRAIN VALVE IS CLOSED AS IT IS POSSIBLE TO DRAIN ENTIRE RESERVOIR AND TRIP TURBINE IF THIS VALVE IS LEFT OPEN AND CENTRIFUGE LOSES PRIME.
11. TEST HIGH LEVEL SHUT OFF BY FILLING TEST CUP AND COVERING HIGH LEVEL SHUT DOWN PROBE IN CENTER OF OVERFLOW TANK. THIS SHOULD TRIP CENTRIFUGE AND ALARM IN CONTROL ROOM. IF EITHER DOES NOT WORK, AN MMR SHOULD BE WRITTEN AND CENTRIFUGE SHUT DOWN. IF IT IS NECESSARY THAT CENTRIFUGE BE RUN IN THIS CONDITION, IT MUST NOT BE LEFT UNATTENDED WHILE RUNNING.

REVISED. JML
06/10/92
BLOCK #237

DO A 134790
CONFIDENTIAL

100

101

102

103

104

105

GEN-100/200 TEST STAND-BY VOLTAGE REGULATOR

NOTE: THIS TEST NEEDS TO BE COORDINATED WITH A MACHINE OUTAGE.

1. TURBINE/GENERATOR MUST BE RUNNING WITH EXCITATION FIELD ON GENERATOR.
2. WITH VOLTAGE REGULATOR SELECTOR ON MAIN, NOTICE THE AMOUNT OF MEGAVAR BEING PRODUCED.
3. CHECK THE VOLTAGE ON THE STANDBY REGULATOR. IT SHOULD BE BETWEEN 120-140 VOLTS. IF THE VOLTAGE IS NOT IN THIS RANGE DO NOT MAKE THE SWAP. NOTIFY ELECTRICAL ENGINEER OR PROBLEM
4. SWAP FROM MAIN TO BACK-UP VOLTAGE REGULATOR USING THE SELECTOR ON THE TURBINE CONSOLE. NOTICE MEGAVAR CLOSELY TO ENSURE NO CHANGE OCCURS.
5. IF THERE IS A CHANGE IN MEGAVARS, ADJUST TO DESIRED LEVEL USING VOLTAGE RAISE/LOWER CONTROLLER ON TURBINE CONSOLE.
6. IF VOLTAGE AND VARS ARE OK, SWITCH VOLTAGE REGULATOR SELECTOR BACK TO THE MAIN. NOTICE MEGAVARS FOR CHANGE, IF ONE OCCURS MAKE NECESSARY ADJUSTMENTS. TEST COMPLETE.

REVISED: N/C
9/12/90
BLOCK #246

UPDATED JWB
02/02/94

DO A 133792
CONFIDENTIAL

TEXT BLOCK # 247

GEN-100/200 TESTING AUTO OPERATION OF DCB AIR COMPRESSOR

1. INSURE THAT BLEED VALVE ON LINE CONNECTING 100 AND 200 DCB TANKS IS OPEN AND DRAIN AT 100 TANK IS CLOSED.
2. OPEN DCB TANK DRAIN VALVE LOCATED AT BOTTOM OF TANK AND BLEED PRESSURE FROM TANK.
3. AT APPROXIMATELY 160# PRESSURE, AIR COMPRESSOR WILL START TO RESTORE TANK PRESSURE TO APPROXIMATELY 175#.
4. CLOSE TANK DRAIN AND STAND BY UNTIL AIR COMPRESSOR PUMPS PRESSURE BACK UP AND SHUTS OFF AUTOMATICALLY.
5. INSURE THAT COMPARTMENT DOOR IS CLOSED AND LATCHED BEFORE LEAVING AREA.

REVISED: NLC
9/12/90
BLOCK #247

DO A 133793
CONFIDENTIAL

GEN-100/200 CHECK OPERATION OF NEUTRAL SWITCH

1. OUTSIDE OPERATOR SHOULD GO TO THE UNIT THAT IS TO BE CHECKED AND LOCATE THE NEUTRAL SWITCH TO BE TESTED.
2. AFTER SWITCH IS LOCATED, CALL BOARD OPERATOR AND INFORM HIM YOU ARE IN POSITION TO CHECK SWITCH.
3. BOARD OPERATOR WILL TURN GENERATOR NEUTRAL SWITCH TO CLOSED POSITION. INDICATOR LIGHTS WILL CHANGE FROM GREEN TO RED WHEN SWITCH IS CLOSED.
2. WHEN LIGHT INDICATES RED, HAVE AUXILIARY OPERATOR VISUALLY VERIFY THAT THE NEUTRAL SWITCH IS CLOSED.
3. THEN TURN SWITCH BACK TO OPEN AND HAVE AUXILIARY OPERATOR VISUALLY VERIFY THAT THE NEUTRAL SWITCH IS OPEN.
4. IF FOR SOME REASON SWITCH AND LIGHTS DO NOT OPERATE PROPERLY, CHANGE INDICATOR LAMP AND GET OUTSIDE OPERATOR TO VISUALLY CHECK SWITCH AND ASSOCIATED EQUIPMENT. TEST COMPLETE.

REVISED. JMB
09/04/91
BLOCK #243

UPDATED. JMB
02/02/94

DO A 133794
CONFIDENTIAL

SWITCHING POWER OIL FILTERS

SAME AS TURBINE PROCEDURE #1, TURBINE

DURING THESE OPERATIONS, AN OBSERVER SHOULD WATCH FOR FILTER DIFFERENTIAL OR POWER OIL PRESSURE CHANGES.

1. CLOSE THE DRAIN VALVE AND OPEN THE VENT LINE TO THE POWER OIL DRAIN HEADER (THESE VALVES SHOULD NORMALLY BE IN THESE POSITIONS).
2. CRACK THE INLET VALVE AND VERY SLOWLY ALLOW THE FILTER TO BE PUT IN SERVICE TO FILL WITH OIL (THE VENT WILL BECOME WARM WHEN THE FILTER IS FULL)
3. WHEN FILTER IS FULL, SLOWLY OPEN THE INLET AND OUTLET VALVES ON THE FILTER TO BE PUT IN SERVICE, WHILE WATCHING FOR PRESSURE CHANGES.
4. VERY SLOWLY CLOSE THE OUTLET VALVE ON THE FILTER TO BE TAKEN OUT OF SERVICE, WHILE WATCHING OIL PRESSURES.
5. SLOWLY CLOSE THE INLET VALVE ON THE FILTER BEING TAKEN OUT OF SERVICE.
6. IF CHANGE IS FOR MAINTENANCE, RED TAG INLET, OUTLET, AND VENT VALVES. OPEN THE DRAIN AND PUMP THE FILTER DOWN WITH THE CENTRIFUGE AFTER CLOSING CENTRIFUGE SUCTION VALVE AT RESERVOIR AND OPENING 3/4" VALVE TO CENTRIFUGE SUCTION LINE.

REVISED NLC
1/23/92
BLOCK #222

DO A 133795
CONFIDENTIAL

CLEANING UNIT 100 AND 200 LUBE OIL CENTRIFUGES

1. SHUT DOWN CENTRIFUGE IF RUNNING.
2. CLOSE SUCTION AND DISCHARGE VALVES AND RED TAG, ALSO RED TAG BREAKER.
3. BLOCK IN PRIMING WATER AT SOURCE AND REMOVE TUBING FROM TOP OF CENTRIFUGE.
4. LOOSEN CLAMP BOLTS AND OPEN BOWL COVER.
5. LOCK THE BOWL USING THE TWO LOCKING SCREWS.
6. REMOVE THE LARGE LOCKRING AND REMOVE BOWL HOOD. NOTE: LOCKRING HAS LEFT-HAND THREADS, USING TOOLS PROVIDED WITH CENTRIFUGE.
7. REMOVE THE SMALL LOCKRING AND REMOVE GRAVITY DISC. NOTE: LOCKRING HAS LEFT-HAND THREADS, USING TOOLS PROVIDED WITH CENTRIFUGE.
8. REMOVE THE DISC SET AND DISTRIBUTOR IN ONE PIECE. BE SURE NOT TO CHANGE THE DISC SET ARRANGEMENT. (ORDER OF DISCS)
9. REMOVE SPINDLE NUT, LOOSEN LOCKING SCREWS AND REMOVE BOWL.
10. CLEAN PARTS WITH A SUITABLE SOLVENT AND DRY THOROUGHLY.
11. REINSTALL BOWL, RELOCK WITH LOCKING SCREWS, AND TIGHTEN SPINDLE NUT.
12. REINSTALL THE DISTRIBUTOR AND DISC SET MAKING SURE DISTRIBUTOR FOLLOWS THE GUIDE POINTS
13. REINSTALL GRAVITY DISC AND SMALL LOCKRING.
14. REINSTALL THE BOWL HOOD USING GUIDE MARKINGS.
15. REINSTALL LARGE LOCKRINGS
16. UNLOCK THE BOWL BE SURE LOCKING SCREWS ARE LOOSENEED A SUFFICIENT AMOUNT.
17. CLOSE BOWL COVER AND TIGHTEN CLAMP BOLTS.
18. REINSTALL TUBING FOR PRIMING WATER AND UNBLOCK AT SOURCE.
19. REMOVE RED TAGS AND START CENTRIFUGE AS PER START UP PROCEDURE.

REVISED: NLC
1/23/92
BLOCK #283

DO A 133796
CONFIDENTIAL

TEXT BLOCK # 294

U-DUCT SUMP ENTRY SUPPLEMENT

COMPLETION OF THIS SUPPLEMENT COVERS ITEMS PECULIAR TO THIS EQUIPMENT AND NOT NECESSARILY INCLUDED IN THE MULTI-PERMIT. IN ADDITION TO AND AS ATTACHMENT TO THIS CHECKLIST, THE STANDARD VESSEL ENTRY PERMIT MUST BE ISSUED WITH AREAS NOTED THAT DO NOT APPLY. ALSO VESSEL ENTRY EQUIPMENT, I.E., ROPE, HARNESSES, ETC.

CONDITIONS: UNIT IS SHUT DOWN.

NOTE: VESSEL ENTRY SECTION OF SAFE WORK MULTI-PERMIT MUST BE COMPLETED AS APPLICABLE.

	YES	NO
1. GT SHUT DOWN. AREA HAS COOLED.	_____	_____
2. WATER HAS BEEN PUMPED OUT.	_____	_____
3. EXPLOSIMETER/O2 LEVEL CHECKS MADE.	_____	_____
4. SAFETY OBSERVER WILL HAVE FIVE (5) MINUTE ESCAPE PACKS FOR EACH PERSON INSIDE THE VESSEL AND ONE FOR HIM/HER SELF.	_____	_____
5. THE SAFETY OBSERVER IS A CERTIFIED HOLE WATCH.	_____	_____
6. THE SAFETY OBSERVER HAS A HOLE WATCH CARD.	_____	_____

EXCEPTIONS TO STANDARD:

1. BASICALLY OPEN SUMP - NO VENTILATION USED. (3A)
2. USE OF FIVE (5) MINUTE ESCAPE PACKS RATHER THAN AIR LINE EQUIP. (4A)

OPERATIONS REPR: _____
MAINTENANCE REPR: _____

REVISED: JML
07/03/91
BLOCK #294

DO A 133797
CONFIDENTIAL

DA 100/200 START-UP

PURPOSE THE PURPOSE OF THIS PROCEDURE IS TO INSURE THAT CONDENSATE FLOWING THRU THE HRU HAS BEEN DEAERATED (OXYGEN FREE). IT WILL ALSO BRING HIGH PRESSURE BOILER FEED PUMP TEMPERATURE UP SLOWLY TO PREVENT THERMAL SHOCK TO THE PUMP.

1. OPEN DA STEAM INTERNAL LOOP DRAIN VALVE LOCATED AT GROUND LEVEL ON SOUTH SIDE OF SOUTH TRAIN. _____
2. CLOSE DA BOTTOM DRAIN VALVE LOCATED BELOW DA AT DA _____
3. CLOSE DA DUMP CONTROL BY-PASS VALVE. _____
4. OPEN DA DUMP CONTROL BLOCK VALVES. _____
5. OPEN DA DOME VENT. _____
6. BRING LEVEL TO 50% FULL. _____
7. SLOWLY BRING STEAM PRESSURE UP TO 25 PSIG. ADMITTING STEAM TOO FAST WILL CAUSE EXCESSIVE WATER HAMMERING. _____
8. OPEN 2" CONDENSATE LINE TO BOILER FEED PUMP GLAND COOLERS AND FLOW TO DA. _____
9. LET DA FILL TO OVERFLOWING WHILE MAINTAINING 25 PSIG STEAM PRESSURE. _____
10. CONTINUE OVERFLOWING DA UNTIL BOILER FEED PUMPS ARE PUT IN SERVICE. _____

EDITED ON:
04/22/92
BLOCK #347

UPDATED ON:
3/11/94

PREPARATION FOR DA/100/200 CONFINED SPACE ENTRY

WHEN NECESSARY TO ENTER THE DEAERATORS FOR INSPECTION AND/OR MAINTENANCE WORK, IT IS IMPERATIVE THAT ALL SSP REQUIREMENTS BE COMPLETED. CONFINED SPACE ENTRY PERMITS AND SUPPLEMENTS SPECIFY EVERY PRECAUTION TO BE TAKEN.

TO PREPARE THE VESSEL FOR ENTRY, PROCEED AS FOLLOWS:

1. DRAIN THE STORAGE TANK BY PUMPING WATER TO THE BOILER SECTIONS, AS MUCH AS POSSIBLE.
2. DRAIN THE REMAINING WATER TO THE SEWER BY OPENING THE 2" DRAIN VALVE BENEATH THE TANK WHICH CONNECTS TO THE DUMP LINE. THE DUMP CONTROL BY-PASS WILL ALSO HAVE TO BE OPENED. AFTER DRAINING, TAG BYPASS AND DRAIN OPEN.
3. DOUBLE BLOCK AND BLEED OR DISCONNECT SULFITE TUBING LINE FROM BULK TANK AND TAG. CLOSE AND TAG CARRIER FLUID UPSTREAM B/V AND SULFITE B/V AT DEAERATOR. OPEN CARRIER FLUID BLEED B/V AND RED TAG (DO NOT OPERATE NEEDLE THROTTLE VALVE)
4. DOUBLE BLOCK AND BLEED CONDENSATE TO DA AND TAG
5. IF PUMP IS AVAILABLE, ALLOW THE UNIT TO COOL BEFORE PROCEEDING TO OPEN MANWAYS. IF THIS IS NOT POSSIBLE, BE AWARE OF HIGH TEMPERATURE METAL PARTS AND POSSIBILITY OF HOT VAPORS AND TAKE ADDED PRECAUTIONS.
6. DOUBLE BLOCK AND BLEED STEAM TO DA AND TAG.
7. DOUBLE BLOCK AND BLEED LP BOILER FEED PUMPS AND TAG.
8. BLEED AND REM TAG CONDENSATE TO AND FROM FLASH TANK.
9. REMOVE MANWAY COVER ON THE SOUTH END OF STORAGE TANK
10. REMOVE MANWAY COVER ON DOME SECTION. THIS WILL REQUIRE THE REMOVAL OF LIFT LIFTING
11. INSTALL AIR FLOWER ON DOME MANWAY FOR VENTILATION. TIE OFF AND GROUND PROPERLY
12. HAVE VESSEL INTERIOR CHECKED FOR EXPLOSIVES AND OXYGEN CONTENT.
13. COMPLETE NECESSARY PERMITS.
14. PROVIDE SAFETY OBSERVER

REVISED: JMB
07/02/9
BLOCK #334

UPDATED: JMB
1/11/99

DO A 133799
CONFIDENTIAL

PLACING GAUGE GLASSES IN SERVICE - UNITS 100/200

WARNING: WHEN PLACING A GAUGE GLASS IN SERVICE, DO NOT STAND IN FRONT OF AND IN DIRECT LINE OF SIGHT WITH THE GAUGE.

NOTE: WHEN PLACING A GAUGE GLASS IN SERVICE ON AN OPERATING BOILER, PRECAUTIONS MUST BE TAKEN TO AVOID EXCESSIVE THERMAL SHOCK.

- (1). BEGINNING WITH ALL VALVES CLOSED, OPEN THE DRAIN VALVE AND CRACK OPEN THE STEAM VALVE SLIGHTLY TO ALLOW THE STEAM TO FLOW THROUGH THE GAUGE FOR 15 MINUTES.
- (2). CLOSE THE DRAIN VALVE TO ALLOW THE GAUGE TO FILL UP WITH CONDENSATE.
- (3). CRACK OPEN THE WATER VALVE AND GRADUALLY AND ALTERNATELY CONTINUE TO OPEN THE STEAM AND WATER VALVES UNTIL FULLY OPEN. THE GAUGE IS NOW IN SERVICE.
- (4). IF THE GAUGE IS NEW OR HAS BEEN REPAIRED PRIOR TO PLACING IT IN SERVICE, IT WILL BE NECESSARY TO RETIGHTEN THE COVER PLATE CAP SCREWS AFTER THE GAUGE HAS BEEN IN SERVICE FOR 3 TO 4 HOURS.

CAUTION DO NOT USE WRENCHES OR OTHER LEVERAGE DEVICES TO OPEN OR CLOSE VALVES. IF VALVES DO NOT SHUT STEAM TIGHT WITH STANDARD HAND WHEELS OR CHAIN WHEELS, IT IS AN INDICATION THAT THE SEATS ARE STEAM CUT OR DAMAGED AND THAT THEY SHOULD BE RELAPPED OR REPLACED.

REVISED JBL
07/02/91
BLOCK #370

UPDATED VPC
02/22/94

RESETTING SNUFFING STEAM UNITS 100/200

THE 30 LB. SNUFFING STEAM IS AUTOMATICALLY ACTUATED BY EITHER OF THE FOLLOWING

- A). LOSS OF VACUUM ON THE LUBE OIL RESERVOIR (EVACTOR MALFUNCTION)
- B). FIRE IN THE HOT END BEARING TUNEL.

BOTH OF THESE EVENTS ARE ALARMED ON THE 100/200 TURBINE ALARM PANELS IN THE CONTROL ROOM. USE THE FOLLOWING PROCEDURE TO RESET THE SNUFFING STEAM ONCE THE PROBLEM AND ALARM HAS BEEN CLEARED.

1. GO TO THE NORTH SIDE OF TURBINE AND RESET THE RESET HANDLE.
2. GO TO THE AUTOMATIC VALVE AND CHECK TO BE SURE IT IS CLOSED ALL THE WAY.

NOTE: IF THE VALVE DOES NOT FULLY CLOSE AFTER SEVERAL ATTEMPTS, YOU MAY HAVE TO NOTIFY THE INSTRUMENT DEPARTMENT TO CHECK THE RESET THE VALVE FOR PROBLEMS.

REVISED: NLC
1/23/92
BLOCK #387

UNITS 100/200 COOL DOWN PROCEDURE

NOTE: AFTER THE UNIT HAS BEEN UNLOADED AT 2 MW/MIN AND THE GENERATOR BREAKER OPENED, LET THE TURBINE WILL IDLE FOR 5 MINUTES AT NORMAL SPEED. (3,600 RPM'S). AFTER THE ABOVE TURBINE SPIN, THE TRISEN WILL AUTOMATICALLY TRIP THE TURBINE.

1. THE TURBINE WILL COAST DOWN AND GO ON TURNING GEAR AUTOMATICALLY.
2. IF THE TURBINE HAS TO BE COOLED DOWN FOR ANY REASON, THE UNIT CAN BE PUT ON STARTING MOTOR, USING THE NORMAL START STEPS. THE UNIT MAY BE KEPT ON STARTING MOTOR FOR AS LONG AS NECESSARY TO COOL THE UNIT. THE STARTING MOTOR SHOULD BE RUN AT 500-800 RPM'S FOR THE COOL DOWN CYCLE.

REVISED: NLC
1/23/92
BLOCK #338

UNITS 100/200 COOL DOWN PROCEDURE

NOTE: AFTER THE UNIT HAS BEEN UNLOADED AT 2 MW/MIN AND THE GENERATOR BREAKER OPENED, LET THE TURBINE IDLE FOR 5 MINUTES AT NORMAL SPEED. (3,600 RPM'S). AFTER THE ABOVE TURBINE SPIN, THE TRISEN WILL AUTOMATICALLY TRIP THE TURBINE.

THIS WILL ONLY OCCUR IF THE UNIT WAS BROUGHT DOWN ON TRI-SEN, WITH NORMAL STOP OR MIN. LOAD SELECTED NOT MANUALLY. IF THE LOAD WAS LOWERED MANUALLY, YOU WILL HAVE TO TRIP THE TURBINE MANUALLY).

1. THE TURBINE WILL COAST DOWN AND GO ON TURNING GEAR AUTOMATICALLY.
2. IF THE TURBINE HAS TO BE COOLED DOWN FOR ANY REASON, THE UNIT CAN BE PUT ON STARTING MOTOR, USING THE NORMAL START STEPS. THE UNIT MAY BE KEPT ON STARTING MOTOR FOR AS LONG AS NECESSARY TO COOL THE UNIT. THE STARTING MOTOR SHOULD BE RUN AT 500-800 RPM'S FOR THE COOL DOWN CYCLE.

REVISED: NLC
1/23/92
BLOCK #388

UPDATED: JNL
11/12/93

TEXT BLOCK # 390

UNITS 100/200 GAS TURBINE START-UP PROCEDURE WITHOUT THE USE OF THE COMPUTER

(A). START STEP NUMBER 1

1. SELECT STOP OFF
2. RESET ANNUNCIATOR ALARMS
3. SYSTEM RESET (CARDLOC SYSTEM)
4. RESET 86 DEVICES
5. CLOSE GENERATOR NEUTRAL SWITCH
6. SELECT FUEL
7. TURN OFF LUBE OIL HEATER
8. COMMAND A. C. LUBE OIL PUMP ON
9. TORQUE CONVERTER BRAKE OFF
10. EMERGENCY COOLIN OIL PUMP OFF
11. RESET OIL PUMPS

(B). START STEP NUMBER 2

1. AUXILIARY POWER OIL PUMP ON
2. OUTPUT CLUTCH MODULATING VALVE ON
3. JACKING OIL PUMP ON
4. VISUAL CHECK OF TURNING GEAR PAWL (PAWL MUST BE UP AND OUT OF THE I AND MOTOR MUST BE OFF)

(C). START STEP NUMBER 3

1. D. C. COOLING OIL PUMP ON
2. MODULATING CLUTCH SELECTOR SWITCH IN THE MANUAL POSITION
3. STARTING MOTOR ON
4. TORQUE CONVERTER CHARGING OIL PUMP ON
5. BLEED FUEL GAS HEADER (USE THE BUTTON BEHIND THE START BOARD TO DO THIS)

NOTE: THE MODULATING CLUTCH SWITCH IS USED TO REGULATE TURBINE SPI AT 850 RPM'S FOR FIRING THE TURBINE OFF.

(D). START STEP NUMBER 4

1. PUSH IGNITION BUTTON (ON GT 100 ONLY, WAIT APPROXIMATELY 20 SECONDS THEN TURN IGNITION BYPASS SWITCH TO THE ON POSITION, THEN PUSH TRI SOLENOID VALVE BUTTON. THIS STEP IS NOT NECESSARY ON GT 200).

DO A 133804
CONFIDENTIAL

FIRE.

3. AFTER THE UNIT IS FIRED, THE MODULATING CLUTCH SWITCH SHOULD BE TURNED TO THE AUTOMATIC POSITION.

(E). START STEP NUMBER 5

1. SPEED GREATER THAN 950 RPM'S

(F). START NUMBER 6

1. SPEED GREATER THAN 2,200 RPM'S (STARTING MOTOR SHOULD DISENGAGE AT THIS TIME)

(G). START STEP NUMBER 7

1. SPEED GREATER THAN 3,450 RPM'S

(H). START STEP NUMBER 8

1. SPEED GREATER THAN 3,600 RPM'S (THE FIELD FLASHES AND THE STEAM INJECTION RELAY AUTOMATICALLY RESETS)

SYNCHRONIZING GENERATOR

1. TURBINE RPM'S MUST BE AT 3,600.
2. ADJUST GENERATOR VOLTAGE SLIGHTLY HIGHER THAN SYSTEM VOLTAGE.
3. ASSURE STEAM INJECTION CONTROLLER IS ON MANUAL, VALVE IS CLOSED, AND THEN GO BEHIND THE START-UP BOARD AND PUSH STEAM INJECTION RESET BUTTON.
4. NOTIFY POWER I AND CHLORINE THAT YOU ARE ABOUT TO SYNCHRONIZE THE GENERATOR.
5. CLOSE THE DCB BREAKER WHEN THE SYNCROSCOPE INDICATES THAT YOU ARE IN SYNC WITH THE SYSTEM.
6. RAISE THE LOAD TO APPROXIMATELY 5 MW'S AND 5 MV'S.
7. OPEN GENERATOR NEUTRAL SWITCH.
8. RAISE LOAD TO APPROXIMATELY 15 MW'S.
 - (A). SWAP THE 2.4 KV FROM THE TIE TO THE MAIN.
 - (B). TRANSFER THE 2.4 KV AUTO/MANUAL SWITCH TO THE AUTOMATIC POSITION.
9. RAISE LOAD TO APPROXIMATELY 20 MW'S AND BEGIN TO PUT STEAM INJECTION ON THE UNIT.
10. RAISE LOAD TO APPROXIMATELY 30 MW'S AND WAIT FOR THE BOILERS TO COME ON LINE.
11. RAISE MACHINE UP TO FULL LOAD AT 3 MW'S PER MINUTE.
12. AFTER UNIT IS AT FULL LOAD, PUT IN ONE OF THE FOLLOWING MODES
 - (A). PYROMETER CONTROL
 - (B). TIT CONTROL
 - (C). TAT CONTROL

NOTE: AS EACH START STEP SEQUENCE IS COMPLETED, THE RED LIGHT ON THE START-L
PANEL WILL COME ON TELLING YOU THAT ALL THE PERMISSIVES HAVE BEEN MET
THAT STEP.

REVISED: NLC
9/12/90
BLOCK #390

DO A 133806
CONFIDENTIAL

CHECKING A COMBUSTIBLE GAS ALARM ON UNIT 100/200 H2 CABINET

1. ONCE AN ALARM IS RECEIVED IN THE CONTROL ROOM, THE BOARD OPERATOR WILL CHECK THE PERCENTAGE LEL READING ON THE "GAS TECH" METER. ANY PERCENT ABOVE 50% LEL IS CONSIDERED HAZARDOUS. THIS INFORMATION IS THEN GIVEN TO THE OUTSIDE OPERATOR.
2. THE OPERATOR THAT WILL CHECK THE ALARM SHOULD WEAR A FIRE PROTECTION NOMEX AND CARRY A PORTABLE COMBUSTIBLE GAS ANALYZER. (PORTABLE GAS ANALYZERS SHOULD ALWAYS BE CHECKED BEFORE USING).
3. COMMUNICATION IS VERY IMPORTANT AT THIS STAGE. IF THE LEL IS HIGHER THAN 50%, SAMPLE THE GAS INSIDE OF THE CABINET. IF LEL IS LESS THAN 50%, CHECK FOR LEAKS INSIDE CABINET.
4. ALL RESULTS SHOULD BE REPORTED TO THE CONTROL ROOM.
5. IF THERE IS A LEAK THAT CAN BE ISOLATED BY VALVING OFF A LINE, THIS SHOULD BE DONE. IF THE LEAK IS BETWEEN THE H2 CABINET AND THE GENERATOR, THEN THE MACHINE POSSIBLY WILL HAVE TO BE SHUTDOWN TO FIX THE PROBLEM.

REVISED: N/C
1/23/92
BLOCK #394

UPDATED: JMB
2/23/94

DO A 133807
CONFIDENTIAL

CLEANING COMPRESSOR - UNITS 300/400

(A). HAND CLEANING COMPRESSOR

NORMALLY, ANYTIME THE COMPRESSOR INLET SCROLL AND BLADES ARE CLEANED, IT IS DONE BY LABORERS. THIS IS A RELATIVELY SAFE JOB BUT LIKE ANY OTHER JOB, SAFETY PRECAUTIONS MUST BE TAKEN. THE ITEMS BELOW MUST BE RED TAGGED AND CLEARANCE ACCEPTED BY ALL THE LABORERS DOING THE CLEANING BEFORE ENTERING THE COMPRESSOR INLET.

- (1) - GENERATOR BREAKER
- (2) - STARTING MOTOR
- (3) - TURNING GEAR
- (4) - FUEL GAS
- (5) - STEAM INJECTION
- (6) - DOUBLE BLOCK AND BLEED ON-LINE CONDENSATE WATER WASH SYSTEM
- (7) - BLOCK AND TAG OFF LINE WATER WASH VALVE

VESSEL ENTRY SECTION OF THE MULTI-WORK PERMIT MUST BE FILLED OUT, ALSO AIR INLET ENTRY SUPPLEMENT MUST BE COMPLETED AND SIGNED. ALL LABORERS SHOULD HAVE RECEIVED POWER II BLOCK INDOCTRINATION WITHIN THE LAST YEAR.

SAFETY EQUIPMENT REQUIRED TO DO THIS JOB IS AS FOLLOWS:

- (1) - MONOGOGGLES
- (2) - RESPIRATOR
- (3) - HARD HAT
- (4) - RUBBER GLOVES
- (5) - LOW VOLTAGE LIGHTING OR GFCI RECEPTACLE
- (6) - SAFETY HARNESS WITH 4-FOOT LANYARD

CLEANING THE COMPRESSOR INLET SCROLL AND THE FIRST AND SECOND ROW OF VANES AND BLADES IS ACCOMPLISHED BY SCRUBBING THE METAL SURFACE WITH SCOTCH-BRITE AND HUNTER SOAP.

NOTE: CAUTION SHOULD BE TAKEN WHEN CLEANING THE TOP SECTION OF THE COMPRESSOR. THE SCROLL IS WET AND COULD BE VERY SLIPPERY. A SAFETY HARNESS IS REQUIRED THAT HAS A 4-FOOT LANYARD.

THE DEPOSIT WHICH MUST BE REMOVED IS BLACK IN COLOR. INSURE THE TRAILING EDGE OF THE BLADES ARE SCRUBBED ESPECIALLY WELL BECAUSE THEY ARE HARD TO SEE AND REACH. (THE SECOND ROW BLADES AND VANES WILL NEED TO BE CLEANED USING A SCRUB BRUSH. THIS BRUSH CAN BE OBTAINED FROM OUR IN-BLOCK LABORER. MAKE SURE BLADES AND VANES ARE RINSED VERY WELL WITH LARGE QUANTITIES OF WATER).

CAUTION SHOULD BE TAKEN WHEN USING THE SOAP TO AVOID EYE IRRITATION. INSURE THE LABORERS ARE INFORMED OF THIS POTENTIAL HAZARD AND THE NEED TO THOROUGHLY WASH THEIR HANDS IMMEDIATELY AFTER JOB COMPLETION OR GLOVE REMOVAL.

AFTER JOB COMPLETION, NOTIFY THE MAINTENANCE SUPERVISOR FOR INSPECTION. INLET SHOULD NOW BE SWEEPED TO REMOVE ANY FALLEN MATERIAL AND SOAP WATER. SIGN OFF THE RED TAG MASTER.

REVISED: JMI.
01/08/93
BLOCK #416

DO A 133808
CONFIDENTIAL

CHECKING A COMBUSTIBLE GAS ALARM ON UNIT 100/200 FUEL GAS BLOCK

NOTE: COMBUSTIBLE GAS ALARM COMES FROM EITHER THE GAS BLOCK OR THE GOVERNOR BLOCK ON THESE TWO UNITS. THESE GAS OPERATING STATIONS ARE EXPOSED TO THE OUTSIDE ATMOSPHERE.

1. WHEN A COMBUSTIBLE GAS ALARM OCCURS ON UNIT 100 OR 200, THE BOARD OPERATOR WILL COMMUNICATE THE LOCATION AND LEL PERCENTAGE. THE GAS DETECTOR READ-OUT IS JUST ABOVE THE TURBINE BEARING DATA WATCH.

NOTE: 50% LEL AND ABOVE IS CONSIDERED DANGEROUS.

2. DIRECTLY AFTER THE LOCATION OF THE ALARM IS NOTED, THE BOARD OPERATOR WILL COMMUNICATE THE PERCENTAGE LEL OF GAS TO THE OUTSIDE OPERATOR.
3. THE OUTSIDE OPERATOR WEARING FIRE PROTECTION CLOTHING AND CARRYING A TESTED PORTABLE COMBUSTIBLE GAS ANALYZER WILL INVESTIGATE THE PROBLEM. CLOSE COMMUNICATION BETWEEN THE OUTSIDE OPERATOR AND THE CONTROL ROOM IS REQUIRED, BY PAGE PHONE ONLY AS RADIOS ARE NOT ALLOWED BY THE GAS CABINET.
4. ALARMED AREA SHOULD BE CHECKED COMPLETELY FOR LEAKS. ANY PROBLEM OR FINDINGS SHOULD BE REPORTED.
5. IF THE PROBLEM IS SEVERE, THE UNIT POSSIBLY WILL HAVE TO SHUTDOWN BUT IF THE LEAKS ARE THE PRODUCT OF ACCUMULATION THEN OPENING THE DOORS WILL REDUCE THE CONCENTRATION TO A SAFE LEVEL.

REVISED NLC
1/23/92
BLOCK #422

DO A 133809
CONFIDENTIAL

PROCEDURE FOR STOPPING 100/200
CENTRIFUGE MP-106 AND MP-206

1. INFORM BOARD OPERATOR WHAT YOU ARE GOING TO DO.
2. CLOSE SUCTION VALVE TO RELEASE ALL OIL FROM CENTRIFUGE.
3. STOP CENTRIFUGE BY PUSHING STOP BUTTON ON LOCAL SWITCH.
4. WHEN CENTRIFUGE COMES TO COMPLETE STOP, CLOSE DISCHARGE VALVE.

NOTE: FAILURE TO WAIT UNTIL CENTRIFUGE COMES TO A COMPLETE STOP
BEFORE CLOSING DISCHARGE VALVE RESULTS IN OIL LEAKS AT "O"
RINGS AT VARIOUS LOCATIONS ON THE CENTRIFUGE.

REVISED: JML
10/23/92
BLOCK #436

DO A 133810
CONFIDENTIAL

OPERATING DISCIPLINE FOR THERMOCOUPLE ZONE FAILURES

PURPOSE: TO EXPLAIN THE REQUIRED ACTIONS THAT NEED TO BE TAKEN WHEN THE BBC TURBINES EXPERIENCE THERMOCOUPLE ZONE FAILURES.

DEFINITION OF FAILURE TYPES

- LOW FAILURE: A FAILURE OF A THERMOCOUPLE THAT IS READING TOO LOW TO BE CONSIDERED CORRECT BY THE PROGRAM. THE PROGRAM HAS A FIXED VALUE OF 300 DEGREES F THAT IT COMPARES WITH EACH THERMOCOUPLE READING. IF THE THERMOCOUPLE IS READING LESS THAN THE 300 DEGREES F, THE PROGRAM WILL REJECT THAT THERMOCOUPLE FROM THE PROGRAM. THIS PROGRAM LOGIC IS NOT ACTIVE BEFORE START STEP 5.
- HIGH FAILURE: A FAILURE OF A THERMOCOUPLE THAT IS READING TOO HIGH TO BE CONSIDERED CORRECT BY THE PROGRAM. THE PROGRAM HAS FIXED HIGH VALUE OF 1400 DEGREES F THAT IT COMPARES WITH EACH THERMOCOUPLE READING. IF THE THERMOCOUPLE IS READING HIGHER THAN 1400 DEGREES F, THE PROGRAM WILL REJECT THAT THERMOCOUPLE FROM THE PROGRAM. THIS PROGRAM LOGIC IS ALWAYS ACTIVE.
- DIFFERENCE FAILURE: A FAILURE THAT OCCURS WHEN TWO THERMOCOUPLES IN THE SAME ZONE DIFFER BY MORE THAN 30 DEGREES F IN THEIR READINGS. WHEN THIS DOES OCCUR, THE PROGRAM REJECTS BOTH THERMOCOUPLES BECAUSE IT DOES NOT KNOW WHICH ONE IS CORRECT. THIS RESULTS IN A ZONE FAILURE.
- ZONE FAILURE: A FAILURE WHICH OCCURS WHENEVER TWO THERMOCOUPLES IN THE SAME ZONE FAIL AND ARE REJECTED FROM THE PROGRAM. THIS FAILURE CAN BE THE RESULT OF A DIFFERENCE FAILURE OR A COMBINATION OF THE LOW AND/OR HIGH FAILURES. THERE ARE SIX ZONES ON THE EXHAUST OF THE BBC UNITS.

***** NOTE *****

*
* EACH OF THESE CONDITIONS WILL ACTIVATE THE TURBINE *
* EXHAUST THERMOCOUPLE FAILURE ALARM ON THE METRA ALARM *
* SCREEN. ANYTIME A THERMOCOUPLE FAILURE OCCURS, THE *
* TRI-SEN AUTOMATICALLY TRANSFERS TO SPEED CONTROL TO *
* PREVENT THE TURBINE FROM MAKING ANY SUDDEN CHANGES. *
*

RESPONSE TO ZONE FAILURES

DO A 133811
CONFIDENTIAL

WHEN A SINGLE ZONE FAILURE OCCURS, THE TURBINE WILL TRANSFER TO SPEED CONTROL AND GIVE AN EXHAUST THERMOCOUPLE FAILURE ALARM. OPERATIONS SHOULD PROCEED AS FOLLOWS:

1. LOOK AT THE EXHAUST THERMOCOUPLE SCREEN ON THE METRA AND LOCATE THE FAILED ZONE. FAILED THERMOCOUPLES WILL BE IN RED.
2. LOOK AT THE INDIVIDUAL THERMOCOUPLE READINGS AND DETERMINE IF THE THERMOCOUPLES FAILED HIGH (ABOVE 1400 DEGREES F) OR LOW (BELOW 300 DEGREES F) OR A COMBINATION OF HIGH AND LOW. IF THEY HAVE, CALL THE ENGINEER RESPONSIBLE AND HAVE THE FOLLOWING INFORMATION READY:

A. THE EXHAUST AVERAGE TEMPERATURE BEFORE AND AFTER THE THERMOCOUPLE

FAILURE.

- B. THE TEMPERATURE OF THE THERMOCOUPLES THAT FAILED PRIOR TO THE FAILURE.
- C. THE PRESENT TIT TEMP FROM THE RUN SCREEN ON THE METRA AND TIT TEMP PRIOR TO THE FAILURE.
- E. COMPRESSOR DISCHARGE PRESSURE BEFORE AND AFTER FAILURE.
- F. EGGCRATE TEMPERATURE BEFORE AND AFTER ZONE FAILURE.
- G. MW LOAD BEFORE AND AFTER THE ZONE FAILURE.
- H. DESCRIPTION OF ANY UNUSUAL EVENTS THAT WERE TAKING PLACE PRIOR TO THE THERMOCOUPLE FAILURE.

THE ENGINEER RESPONSIBLE WILL USE THIS INFORMATION TO DETERMINE THE APPROPRIATE ACTION TO BE TAKEN. NOTE: RESPONSIBLE PERSON MAY NEED THE TIT CALCULATION EQUATION GIVEN HERE;

$$TIT = 1.39 * TAT + 2.96 * ICDP + 53$$

- 3. IF NEITHER HAVE FAILED HIGH OR LOW, THEN THE FAILURE IS A DIFFERENCE FAILURE. OPERATIONS RESPONSE TO A DIFFERENCE FAILURE IS AS FOLLOWS:
 - A. OBSERVE THE FAILED THERMOCOUPLE VALUES AND DETERMINE IF EITHER OR BOTH ARE ERRATIC. IF BOTH THERMOCOUPLES ARE ERRATIC, THEN RESPOND AS PER 2 ABOVE.
 - B. LOOK AT THE EXHAUST SCREEN OF THE METRA. IF ONLY ONE THERMOCOUPLE IS ERRATIC AND ONE IS STEADY, CHART THE STEADY THERMOCOUPLE'S HISTORY ON THE CRT AND VERIFY THAT IT'S READING IS REASONABLE. IF THE VALUE IS REASONABLE, THEN RESET THE GOOD THERMOCOUPLE. RECORD THE PRESENT MW'S, GAS VALVE %, AND TIT TEMP FROM THE RUN SCREEN. RETURN THE MACHINE TO TIT CONTROL. IF THE MW LOAD CHANGES, ADJUST THE TARGET SETPOINT TO MAINTAIN THE PROPER LOAD. NOTIFY RESPONSIBLE ENGINEER OF THE SITUATION.
- 4. IF AT ANY TIME TWO ZONE FAILURES OCCUR, THE MACHINE WILL AUTOMATICALLY BEGIN A RUNBACK. IT WILL CONTINUE TO RUNBACK UNTIL MINIMUM LOAD IS REACHED. OPERATIONS CAN HALT THE RUNBACK BY RESETTING A GOOD THERMOCOUPLE IN EITHER OF THE TWO FAILED ZONES THEREFORE, A QUICK RESPONSE IS REQUIRED. UPON RECEIVING THE RUNBACK ALARM, LOOK AT THE EXHAUST SCREEN ON THE METRA AND OBSERVE THE FAILED ZONES IN RED. IF THERE IS A THERMOCOUPLE THAT IS STABLE AND IN NORMAL RANGE, IMMEDIATELY RESET THAT THERMOCOUPLE TO HALT THE RUNBACK. LEAVE THE MACHINE ON SPEED CONTROL AND PROCEED WITH STEPS 2 AND 3 ABOVE. NOTIFY APPROPRIATE STAFF PERSONNEL OF THE SITUATION.
- 5. IF AT ANY TIME THREE OR MORE THERMOCOUPLE ZONES FAIL, THE MACHINE WILL TRIP IMMEDIATELY. IF THIS OCCURS, CALL OUT THE ENGINEER RESPONSIBLE TO INVESTIGATE AND REPAIR THE THERMOCOUPLES. LEAVE THE MACHINE ON TURNING GEAR. COOLING THE MACHINE SHOULD NOT BE REQUIRED UNLESS APPROPRIATE PLANT PERSONNEL DECIDE TO LEAVE THE MACHINE DOWN TO DO OTHER JOBS THAT WOULD REQUIRE THE MACHINE TO BE COOL. CHANGING THE THERMOCOUPLES THEMSELVES DOES NOT REQUIRE THE MACHINE TO BE COOLED.

PERFORMING HYDROGEN LEAK TESTS ON UNITS 100/200

1. INFORM BOARD OPERATOR OF THE TASK YOU ARE ABOUT TO PERFORM.
THE GENERATOR H2 PRESSURE SHOULD BE 25 PSIG, IF IT IS NOT PRESSURED UP TO 25 PSIG, YOU WILL HAVE TO PRESSURE IT UP TO 25 PSIG.
3. BLOCK YOUR SUPPLY AND SCAVENGE RATES IN AND CHECK VENT TO MAKE SURE IT IS CLOSED. DOUBLE BLOCK IF POSSIBLE.
4. INFORM BOARD OPERATOR THAT THE GENERATOR IS PRESSURED UP AND THAT YOU HAVE THE SUPPLY AND SCAVENGE'S BLOCKED IN. GIVE HIM THE PRESSURE READING ON THE GENERATOR.
5. EVERY HOUR FOR 6 HOURS, THE BOARD OPERATOR SHOULD WRITE DOWN THE HYDROGEN BAROMETER PRESSURE AND THE STATOR WINDING "B" TEMPERATURE.
6. AFTER ALL IS COMPLETE, GO BACK TO THE GENERATOR YOU ARE TESTING AND UNBLOCK THE SUPPLY LINE AND SCAVENGER BACK TO NORMAL.

NOTE: ANY DIFFERENCE GREATER THAN .5# REQUIRES CHECKING AND REPAIRING ANY LEAKS. ALSO COMMENT IF ANY CONDITIONS CHANGED SIGNIFICANTLY DURING TEST. EX. COOLING TOWER H2O TEMPERATURE CHANGED, AMBIENT, ETC.

EDITED: JMI
03/28/91
BLOCK #452

DO A 133813
CONFIDENTIAL

CHANGING PLANT AIR FILTERS ON 100/200 UNITS

NOTE: THESE FILTERS CAN BE CHANGED WITH THE UNIT ON THE LINE OR OFF THE LINE, HOWEVER, KEEP IN MIND THAT ISOLATING THIS FILTER WILL RESULT IN NO PLANT AIR BEING SUPPLIED FROM THIS UNIT.

1. CLOSE THE AIR IN BLOCK VALVE.
2. CLOSE THE AIR OUT BLOCK VALVE.
3. SLOWLY OPEN THE BLEED VALVE BETWEEN THE ABOVE BLOCK VALVES.
4. AFTER THE FILTER HAS ALL THE PRESSURE BLED OFF, THE FILTER CAN BE REPLACED. USE FILTER #84-228H-61. RECORD DATE FILTER WAS CHANGED.

REDITED: JMC
2/24/94
BLOCK #458

UPDATED: JMC
4/14/94

DO A 133814
CONFIDENTIAL

TEXT BLOCK # 462

UNITS 100/200 TURBINE START-UP CHECKLIST

THE PURPOSE OF THIS CHECKLIST IS TO HELP THE OPERATORS STARTING THE GAS TURBINES VERIFY THAT ALL NECESSARY ITEMS REQUIRED FOR START UP HAVE BEEN TAKEN CARE OF.

	YES	NO
1. HAVE ALL THE RED TAGS BEEN CHECKED AND CLEARED?	☒	☐
2. IS THE LUBE OIL TEMPERATURE ABOVE 95 DEGF. ?	☐	☐
3. IS THE AUXILIARY LUBE OIL PUMP RUNNING?	☐	☐
4. IS THE SEAL OIL SYSTEM O.K. ? (SUCH AS GENERATOR HYDROGEN PRESSURE, A.C. OIL PUMP RUNNING, DIFFERENTIAL PRESSURE IN RANGE)	☐	☐
5. HAS A VISUAL INSPECTION OF THE LUBE OIL SYSTEM, GAS BLOCK, TURBINE, ETC., BEEN MADE?	☐	☐
6. HAS THE U-DUCT DRAINS AND BLEED VALVE DRAINS BEEN CLOSED?	☐	☐
7. HAS THE AIR INLET BEEN INSPECTED AND DOORS CLEANED?	☐	☐
8. IS THE TRANSITION DUCT DOOR CLOSED?	☐	☐
9. HAS THE STEAM INJECTION SYSTEM BEEN WARMED UP?	☐	☐
10. ARE ALL OIL HEADER VALVES IN THE CORRECT OPERATING POSITION?	☐	☐
ARE ALL OIL AND HYDROGEN AND STARTING MOTOR COOLING SYSTEM VALVES IN THE CORRECT OPERATING POSITION?		
11. IS ONE POWER OIL FILTER IN SERVICE?	☐	☐
12. IS ONE LUBE OIL FILTER UNBLOCKED AND IN SERVICE	☐	☐
13. IS THE MAIN GAS VALVE UNBLOCKED AND LINE PRESSURED UP?	☐	☐
14. IS THE STARTING MOTOR RACKED IN?	☐	☐
15. IS THE S&C SWITCHGEAR RACKED IN?	☐	☐
16. IS THE STATION SERVICE TRANSFORMER RACKED IN?	☐	☐
17. ARE THE OCB BLADES CLOSED AND LOCKED AT THE BLOCK LINE?	☐	☐
18. IS THE OCB RACKED IN:		
(A). IS THE AIR VALVE UNBLOCKED?	☐	☐
(B). AT THE OCB: IS THE CONTROL POWER KNIFE SWITCH	☐	☐
(C). IS THE D.C. BREAKER CLOSED IN THE CONTROL ROOM?	☐	☐

DO A 133815
CONFIDENTIAL

19. VERIFY COMPUTER IS WORKING: UNBLOCK LINE LOCAL SWITCH
ON PRINTER. _____

COMMENTS: _____

REVISED: NLC
9/13/90
BLOCK #462

DO A 133816
CONFIDENTIAL

ISOLATING LUBE OIL SYSTEMS ON UNITS 100 AND 200 TO CHANGE FILTERS

1. NOTIFY BOARD OPERATOR OF JOB TO BE DONE ON LUBE OIL SYSTEM.
2. REVIEW AND UPDATE PROCEDURE.
3. RED TAG ALL NECESSARY OIL PUMPS OUT ON LUBE OIL SYSTEM.
 - A. AUX. LUBE OIL
 - B. VALVE TO SEAL OIL (CLOSED) FROM L. O. HEADER
 - C. VALVE TO SEAL OIL (OPEN) FROM L. O. TANK
4. BLOCK IN FILL LINES TO LUBE OIL FILTERS.
5. BLOCK IN SUCTION FROM L. O. TANK TO CENTRIFUGE.
6. OPEN DRAIN VALVE TO SUCTION OF CENTRIFUGE FROM L. O. FILTERS.
7. ONCE FILTER HAS BEEN PUMPING DOWN ABOUT 15 OR 20 MINUTES, BREAK BLEED AT GRIFICE (USING A 1 GALLON BUCKET TO CATCH ANY EXCESS LEFT IN LINE) BREAK BOLTS APART. OPEN LID SO YOU CAN WATCH LEVEL DECREASE AND ALSO TO KEEP AN EYE ON IT SO YOUR CENTRIFUGE WANT LOSE PRIME
8. ONCE LEVEL IS DOWN HALF WAY LAST SET OF FILTERS IN DESIRED FILTER BLOCK OFF AND DRAIN SECOND FILTER (SAME WAY).
9. CHANGE OR CHECK FILTERS.

REVISED: NLC
1/23/92
BLOCK #489

100/200 H.P. BFP SEAL ADJUSTMENT

1. ISOLATE BFP AS PER PROCEDURE ON CRT
2. RED TAG BFP AS PER RED TAG MASTER.

NOTE: OLAND SEAL H2O DOES NOT HAVE TO BE BLOCKED AND TAGGED TO PERFORM THIS JOB. (PUMP MUST BE DE-PRESSURIZED).

3. AFTER PUMP HAS DEPRESSURED, YOU CAN CONTINUE. TAKE A MEASUREMENT (IF THE SPACE BETWEEN THE SEAL RETAINER HOUSING AND THE SEAL LOCKING COLLAR. (IT SHOULD BE APPROXIMATELY 1/8" CLEARANCE.)

NOTE: MAKE SURE LOCKING COLLAR ALLEN SCREWS ARE TIGHT. IF THEY ARE LOOSE, LOCKING COLLAR MAY HAVE SLID INWARDS CAUSING SEAL FACES TO LOSE CONTACT WITH ONE ANOTHER AND ALLOW LEAKAGE. IF SO, SET CLEARANCE AT 1/8", PUSHING COLLAR AWAY FROM PUMP. USE SHIM MATERIAL ON THREE SIDES OF COLLAR WHEN SETTING CLEARANCE TO ASSURE COLLAR FACE IS SQUARE TO SEAL HOUSING. IF ALLEN SCREWS WERE FOUND TO BE TIGHT, LOOSEN LOCK SCREWS ON COLLAR AND MOVE COLLAR (.015"), IN ADDITION TO THE 1/8" CLEARANCE THAT YOU ALREADY HAVE. AGAIN USE THE SHIM STOCK MATERIAL ON ALL THREE SIDES OF THE LOCKING COLLAR TO ASSURE A SQUARE ALIGNMENT. (YOU SHOULD AT THIS POINT HAVE (2) SHIMS .025 AND .015). LOCKING COLLAR MUST BE SQUARE (NOT COCKED OR SEALS WILL LEAK) WHEN YOU HAVE THE COLLAR POSITIONED PROPERLY, TIGHTEN ALLEN SCREWS TO LOCK COLLAR IN PLACE.

4. CLOSE BLEEDS BACK AND CRACK OPEN SUCTION VALVE ON PUMP UNTIL A FLOW IS OBSERVED COMING FROM BLEED VALVE. CLOSE BLEED VALVE AND PRESSURE UP PUMP (IN O-LY). KEEP AN EYE ON SEALS WHILE PRESSURING UP AND CHECK FOR LEAKAGE.
5. AFTER PUMP HAS PRESSURED UP, ROLL PUMP SHAFT (BY HAND) AND AGAIN CHECK SEALS FOR LEAKAGE. IF THERE IS NO LEAKAGE, UNTAG PUMP AND PUT PUMP BACK IN SERVICE.

NOTE: IF SEALS ARE STILL LEAKING, BUT HAS SLOWED, REPEAT THE ABOVE STEPS MOVING OUT AWAY FROM PUMP ANOTHER 0.15 OF AN INCH. IF AFTER MOVING COLLAR .030" FROM THE ORIGINAL 1/8" SETTING, THE SEALS ARE STILL LEAKING, SEALS ARE PROBABLY WORN TOO BADLY FOR ADJUSTMENT AND SHOULD BE REPLACED.

RED TAG PUMP AND MNR FOR SEAL REPLACEMENT.

REVISED NCR
9/13/90
BLOCK #450

UPDATED JNR
3/10/94

DO A 133818
CONFIDENTIAL

HOT END BEARING FIRES - UNITS 100/200

SEVERAL OIL CONTAINING LINES EXIST IN THE HOT END BEARING TUNNEL. LEAKS IN ANY OF THESE OR BEARING SPLIT LINE LEAKS MAY CAUSE OIL FIRES. THESE FIRES ARE AUTOMATICALLY DETECTED BY A U-V SCANNER LOCATED IN THE TUNNEL. THE MAIN FIRE PROTECTION DEVICE CONSISTS OF A STEAM SNUFFING NOZZLE FED BY 30 PSIG STEAM FROM THE MAIN HEADER. THIS STEAM IS AUTOMATICALLY OPERATED BY THE U-V SCANNER WITH A BYPASS FOR MANUAL OPERATION. THIS SYSTEM IS BACKED UP BY TWO LARGE CO2 BOTTLES LOCATED ALONG THE NORTH AIR INLET DUCT. THESE ARE MANUALLY OPERATED.

FIRES IN THIS BEARING TUNNEL WILL MOST LIKELY RESULT IN FAILURES OF THE INSTRUMENTATION IN THIS AREA AND POSSIBLY HIGH BEARING TEMPERATURE READINGS DUE TO FAILURE OF THE THERMOCOUPLE WIRING WHICH WOULD RESULT IN A TURBINE TRIP

ACTION TO BE TAKEN IN THIS INSTANCE IS AS FOLLOWS:

1. OPEN SNUFFING STEAM BYPASS AND USE CO2 AS NECESSARY TO STOP FLAMES.
2. CHECK LUBE OIL EVACTOR FOR PROPER OPERATION AND TANK VACUUM (ABOUT 2 INCHES). IF THE EVACTOR IS NOT PULLING (2 INCHES) A GOOD VACUUM TAG OUT THE EVACTOR AND BREAK THE EVACTOR DISCHARGE LINE WHERE IT CROSSES THE TOP OF THE COMPRESSOR INLET. CHECK FOR WATER BUILDUP.
3. ELONG DRAIN DRAIN LINE FROM BEARING DRIP PAN.
4. SPLIT (OFF) FIRE PROTECTION EQUIPMENT PERIODICALLY TO ASSURE NO FURTHER FIRE PROBLEM (CONTINUOUS OPERATION WITH STEAM CAN CAUSE WATER TO BE PULLED INTO LUBE OIL SYSTEM)
5. PERFORM MAINTENANCE OF THE ABOVE TO STOP THE FIRE, RUN SNUFFING STEAM AS REQUIRED AND SCHEDULE THE UNIT DOWN FOR INSPECTION.
6. NOTIFY SECURITY WHEN YOU USE UP A CO2 BOTTLE, ANYTIME DAY OR NIGHT. THEY WILL BRING ANOTHER BOTTLE AND INSTALL IT

REVISED BY:
9/13/90
BLOCK #910

UPDATED BY:
3/10/94

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CONFIDENTIAL

EMERGENCY PROCEDURE

GT-100 & GT-200 U-DUCT FAILURE

BACKGROUND INFORMATION

THE FAILURE OF A U-DUCT ON THE BBC GAS TURBINES IS AN OCCURENCE WE NEED TO BE PREPARED FOR AT ANY TIME. IT IS NOT KNOWN WHAT THE FAILURE MODE WILL BE NOR HOW IT WILL AFFECT THE TURBINE OPERATION. WE HAVE HAD A U-DUCT FAILURE HERE AT POWER 2 BUT UNFORTUNATELY WE DO NOT HAVE VERY MUCH DATA ON HOW THE VARIABLES WILL CHANGE DURING THE FAILURE. THE ONLY THING ABSOLUTE IS THAT THE REGENERATOR AIR FLOW WILL GO DOWN. FOR THIS REASON, AUTOMATIC TRIPS WILL BE SET UP TO SHUT DOWN THE TURBINE IF THE REGENERATOR AIR FLOW FALLS BELOW A SET AMOUNT. MANUAL OPERATOR TRIPS WILL BE REQUIRED IF A REGENERATOR AIR FLOW REDUCTION OCCURS ALONG WITH OTHER KEY PARAMETER CHANGES. IT IS NOT KNOWN IN WHAT DIRECTION THESE OTHER PARAMETERS WILL MOVE, THEREFORE CHANGES IN ANY DIRECTION ARE SIGNIFICANT.

1. AUTOMATIC TRIPS ARE BEING INSTALLED ON GT-100 AND GT-200 TO TRIP THE MACHINE ON LOW REGENERATOR AIR FLOW. THE TRIPS WILL BE SET AT 1300 MLB/HR. THE TRIPS WILL REQUIRE TWO TRANSMITTERS TO READ LOW TO ACTIVATE. GT-100 ONLY HAS ONE TRANSMITTER AT PRESENT, BUT A SECOND TRANSMITTER WILL BE ADDED ON THE NEXT OUTAGE. THE TRIPS WILL BE ACTIVE ON AFTER THE TURBINE RPM'S ARE GREATER THAN 3600.
2. OPERATORS SHOULD MANUALLY TRIP THE UNIT IF THE FOLLOWING CONDITIONS EXIST:
 - THE REGEN AIR FLOW LOW ALARM HAS ACTIVATED ON ANY OF THE AVAILABLE FLOW INDICATIONS. THE ALARMS ARE SET APPROXIMATELY 100 MLB/HR LESS THAN THE NORMAL OPERATING FLOWS.

AND

- ANY CHANGE IS OBSERVED ON ANY OF THE FOLLOWING ITEMS:
 - A. GENERATOR MEGAWATTS
 - B. PYROMETER TEMPERATURE
 - C. BLADE PATH SPREAD
 - D. HEAT RATE
 - E. FUEL GAS FLOW

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3. IF A LOW REGENERATOR AIR FLOW ALARM ACTIVATES ON THE PDP-11, THE FOLLOWING ACTIONS SHOULD BE TAKEN:
 - A. IMMEDIATELY HISTORY LOG THE PYROMETER TEMPERATURE.
 - B. SELECT "SETUP" ON THE HISTORY LOG OPTIONS.
 - C. SELECT "TIME" ON THE SETUP OPTIONS.

A. REGENERATOR AIR FLOW
B. PYROMETER TEMPERATURE
C. BLADE PATH SPREAD
D. HEAT RATE
E. FUEL AS FLOW

3. IF A LOW REGENERATOR AIR FLOW ALARM ACTIVATES ON THE PDP-11,
THE FOLLOWING ACTIONS SHOULD BE TAKEN:

- A. IMMEDIATELY HISTORY LOG THE PYROMETER TEMPERATURE.
- B. SELECT "SETUP" ON THE HISTORY LOG OPTIONS.
- C. SELECT "TIME" ON THE SETUP OPTIONS.
- D. SELECT THE 2 MINUTE INCREMENT FOR 12 HOURS
- E. ADVANCE THROUGH THE PAGES USING THE "FWD" SELECTION AND OBSERVE THE TRENDS ON THE INPUTS.
- F. IF ANY OF THE INPUTS ARE TRENDING UP OR DOWN OTHER THAN CHANGES THAT YOU KNOW WERE CAUSED BY DEFINEABLE OCCURENCES (DAY/NIGHT TEMPERATURE, WATER WASHING, WASH COLUMNS SHUT DOWN, ETC.) THEN DECIDE TO SHUT THE TURBINE DOWN.
- G. CALL POWER 1 AND CHLORINE AND INFORM THEM THAT YOU WILL BE SHUTTING DOWN THE SPECIFIED GAS TURBINE IN 3 MINUTES. INSTRUCT THEM TO EITHER PICK UP LOAD ON THE GSU TIE LINE OR CUT CHLORINE RECITIFER LOAD BY AN AMOUNT EQUAL TO THE MEGAWATT OUTPUT OF THE UNIT YOU ARE ABOUT TO SHUT DOWN.
- H. AFTER 3 MINUTES HAVE ELAPSED, ANNOUNCE THAT YOU ARE NOW GOING TO TRIP THE GAS TURBINE - THEN DO SO USING THE EMERGENCY STOP BUTTON.
- I. CONTACT THE PRODUCTION ENGINEER, PLANT SUPERINTENDENT, OR PRODUCTION SUPERVISOR.

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ISOLATING 100/200 HP & MP BOILER VESSEL ENTRY CHECKLIST

(AS TURBINE SHUTDOWN AND TAGGED.

1. RACK OUT AND RED TAG STARTING MOTOR. _____
2. DOUBLE BLOCK AND BLEED GAS LINE AND RED TAG. _____
3. DOUBLE BLOCK AND BLEED STEAM INJECTION LINE
AND RED TAG. _____
4. HP, MP AND LP NON-RETURNS, LEADLINES AND WARM-UP
VALVES DOUBLE BLOCK AND BLEED AND RED TAGGED. _____
5. DOUBLE BLOCK AND BLEED FEED H2O TO HP, MP, AND
LP BOILERS. _____
6. RACK OUT AND RED TAG MP-103A/B AND MP-203A/B
HP BFP'S (ELECTRICALLY). _____
RACK OUT AND RED TAG MP-100A/B AND MP-200A/B
LP BFP'S (ELECTRICALLY). _____
7. WHEN BOILER QUILTS STEAMING, DRAIN BOILER SECTION. _____
8. DRAIN ECONOMIZER SECTION IF NEEDED. _____
9. DOUBLE BLOCK AND BLEED OR DISCONNECT CHEM. FEED
PUMPS. _____
10. O2 AND EXPLOSIMETER TEST RUN AND RESULTS ARE O.K. _____
11. OBTAIN PROPER PERMITS TO ENTER VESSEL AND
SUPPLEMENTS. _____

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2/21/94

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ISOLATING 100/200 HOT END FIRE PROTECTION

1. INFORM BOARD OPERATOR THAT YOU WILL BE ISOLATING THE HOT END FIRE PROTECTION.
2. RED TAG DOUBLE BLOCK AND BLEED DOWNSTREAM OF BOTTLES.
3. CLOSE AND RED TAG THE UPSTREAM AND DOWNSTREAM BLOCK VALVES AT THE SNUFFING STEAM TRIP VALVE.
4. RED TAG SNUFFING STEAM BYPASS VALVE CLOSED.
5. RED TAG VENT TO ATMOSPHERE OPEN.
6. HOT END FIRE PROTECTION NOW ISOLATED.

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ANNUNCIATOR TRIP ALARMS

GT-100/200 TRI-SEN GENERATED ALARMS: THE FOLLOWING IS A LISTING OF ALL ALARMS GENERATED BY THE TRI-SEN AND APPROPRIATE ACTION TO FOLLOW FOR UNFAMILIAR ALARMS. ADDITIONALLY, PROCEDURES FOR ACTIONS REQUIRED ON ALL ALARMS WILL BE POSTED SOON.

ANNUNCIATOR TRIP ALARMS:

1. BLADE PATH SPREAD HIGH TRIP --HIGH TO LOW SPREAD > 250 DEGF.
2. TURNING GEAR TIME-OUT TRIP -- ROTOR ON T.G. IF RESET PB DEPRESSED, ONE MINUTE TIMER WILL BE ACTIVATED. IF START PB NOT DEPRESSED DURING THIS TIME INTERVAL, ROTOR WILL AUTOMATICALLY RETURN TO T.G.
3. LOSS OF SPEED SENSORS TRIP -- START STEP > 4 (GAS PRESS OK, VENT CLOSED, SPEED > 720, FLAME ON) AND SPEED < 200 RPM.
4. SAFETY OIL PRESSURE LOW TRIP -- PERM 2 SATISFIED AND SAFETY OIL PRESSURE < 50 PSIG. (dP8031)
5. LOW DC VOLTS TRIP -- CONTROL POWER VOLTAGE < 94 VOLTS (dDCC27)
6. HIGH TURBINE INLET TEMP TRIP -- TIT > 1920
8. HIGH BEARING TEMP TRIP -- TEMP > 230 DEGF ON BOTH PROBES OF SINGLE BEARING(dTMBRG1)
9. TURBINE UNDERSPEED TRIP -- SPEED < 3400
- (10. HIGH VIBRATION TRIP (dVMT) --OCCURS WHEN EITHER RELATIVE AND EITHER SEIMIC (VELONETER) GO ABOVE TRIP SETPOINT.
11. HIGH TURBINE EXHAUST TEMP TRIP -- TAT > 1086 OR EGGCRATE TEMP > 1051 (BOTH AVERAGES) OR PRIOR TO BREAKER CLOSURE SPEED < 2200 AND TAT > 700.
12. FLAME MONITOR TRIP -- LOSS OF FLAME AND BREAKER OPEN OR LOSS OF FLAME, BREAKER CLOSED AND ISOLATED FROM SYN BUS. REQUIRES BOTH MONITORS TO SEE NO FLAME.
13. LOW LUBE OIL PRESS TRIP -- LUBE OIL PRESS < 18# AND PERM ONE SATISFIED. (dP3034A)
14. OVERSPEED TRIP -- ELECTRICAL (NO OS TEST) SPEED > 3890 MECHANICAL (OS TEST) SPEED > 4050
15. PROTECTIVE RELAY TRIP -- GENERATOR B6T (dG86)
16. EMERGENCY TRIP -- EMERGENCY TRIP PUSHBUTTON (dETRIP)

18. STARTING MOTOR FAULT TRIP -- SPEED < 2200 AND STARTING NOT RUNNING. (dSMFALT)
19. TORQ. CONV. OVERTEMP TRIP -- SPEED < 2200 AND TEMP > 300 DEGF (dTS3046)
20. CONTROL OIL PRESSURE HI TRIP --SPEED < 2200 AND PRESSURE GREATER THAN 50#. (dPS8032)
21. TORQ. CONV. MOD. CLUTCH COOLING OIL PRESS TRIP -- SPEED < 530, PERM 7 NOT SATISFIED AND TORQ. CONV. MOD. CLUTCH COOLING OIL PRESS < 15#. (dPS3281)
22. TURBINE ACCELERATION LOW TRIP -- PERM 5 SATISFIED AND PERM 7 NOT SATISFIED; PRESENT SPEED MINUS SPEED 20 SECONDS PRIOR < 10 RPM AND CONDITION EXIST FOR 25 SECONDS.
23. TORQ. CONV. CLUTCH OIL PRESS. LOW TRIP -- PERM 3 SATISFIED, PERM 6 NOT SATISFIED AND TORQ. CONV. CLUTCH OIL PRESS < 180#. (dPS3043)

*** ALARM SUMMARY ***

33. BLADE PATH SPREAD HIGH RUNBACK -- HI-LO EXHAUST SPREAD IS GREATER THAN 230 DEGF. GOVERNOR WILL QUICKLY CUT LOAD UNTIL SPREAD CLEARS.
ACTION: REDUCE FIRING TEMP TO LOWER SPREAD. CONTACT APPROPRIATE PERSONNEL.
34. EXHAUST TC MALFUNCTION -- SPREAD BETWEEN TWO TC'S > 30 AND TEMPS ARE > 300 AND TEMP < 1400. NOTE: GO TO EXHAUST T/C SCREEN ON CRT AND HIT P10 POINT, WHICH WILL SHOW YOU THE ACTION TO TAKE FROM THERE. PROBLEM TC'S WILL BE IDENTIFIED ON METRA AS FOLLOWS:

FAL34M1: PROBE 1 -- FAL34M2: PROBE 2
FAL34M3: PROBE 3...FA34M12: PROBE 12

ACTION: BOTH PROBLEM TC'S WILL BE LOOKING AT THE SAME POINT. UPON ALARM, GO TO THE EXHAUST SCREEN ON THE METRA. THE NUMBER OF GOOD TC'S WILL BE REDUCED FROM 12 TO 10. THIS IS DONE TO ELIMINATE THESE TWO FROM THE TAT CALCULATIONS. IF ONE OF THE TC'S GOES BELOW 300 OR GREATER THAN 1400, TC RESET BUTTON WILL PUT THE REMAINING GOOD ONE IN THE CALCULATION AND # OF GOOD TC WILL GO TO 11. IF THE 50 DEGREE SPREAD CLEARS, BOTH CAN BE RETURNED BY THE TC RESET. THE PROBLEM TC'S WILL TURN RED FOR EASY ID.

THIS ALARM WILL ALSO BE ACTIVATED IF ANY OF THE TC'S GO BELOW 300 OR ABOVE 1070. IF THIS OCCURS, THE TC'S WILL TURN YELLOW FOR EASY ID. THE TEMP MUST FALL BELOW 1060 BEFORE THE ALARM WILL CLEAR. IF BOTH TC'S LOOKING AT THE POINT AGREE, WE KNOW THE CONDITION IS REAL. THE ONLY METHOD OF ELIMINATING THE CONDITION IS TO REDUCE THE FIRING TEMPERATURE.

35. LOW GAS MAIN PRESSURE -- GAS PRESS < 200#
ACTION: TAKE APPROPRIATE ACTION TO INCREASE PRESSURE
(dPS4005)
36. EMERGENCY & SECURITY OIL LOW PRESS -- PERM 2 SATISFIED
AND SAFETY OIL < 50#. (dPB031 & dPSB034)
38. POWER OIL FILTER DIFFERENTIAL PRESSURE HIGH -- POWER OIL DIFF.
PRESS. > 12#. (dPD3033)
ACTION: CHANGE FILTER
39. CONTROL SYSTEM TROUBLE -- THIS ALARM INDICATES ONE OF THE FOUR
RACKS HOUSED IN THE TRI-SEN CABINET REQUIRES SOME TYPE OF
MAINTENANCE. THIS COULD RANGE FROM A BLOWN FUSE TO A MODULE
FAILURE.
ACTION: CONTACT BRUCE COOPER, KEITH CROUSILLAC OR PHIL CAMPO
IMMEDIATELY. NO OTHER OPERATOR ACTION IS REQUIRED OTHER THAN
MONITORING.
40. LOSS OF SPEED SENSOR -- SPEED > 40 AND EITHER PROBE "A" MINUS
PROBE "B" > 4 RPM OR PROBE "C" - "D" > 4 RPM.
ACTION: ONE OF THE SPEED PROBES IS FAULTY AND MUST BE CHANGED.
THREE SPEED PROBES ARE USED AND THE CONTROLLER IS MEDIAN
SELECTING BETWEEN THE THREE. ONE BAD PROBE SHOULDN'T CAUSE A
TRIP NEVERTHELESS BRUCE COOPER SHOULD BE CALLED OUT IMMEDIATELY.
43. STEAM INJECTION MALFUNCTION -- THREE CONDITIONS CAN CAUSE THIS
ALARM TO BE ACTIVATED. PRESSURE < 210#, TEMP < 410, OR SPEED
< 3554.
ACTION: GO TO DEBUG SCREEN, CALL UP DIGITAL INPUT SCREEN AND
GO TO PAGE THREE. THE PRESSURE INPUT (DPSSI) AND TEMPERATURE
(DTSSI) SHOULD BE RED TO INDICATE CONDITION SATISFIED. IF
EITHER IS GREEN TAKE APPROPRIATE ACTION TO CORRECT SITUATION.
MONITOR SPEED TO INSURE IT DID NOT ACTIVATE THE ALARM IF PRESS
AND TEMP ARE RED.
44. LUBE OIL FILTER HIGH DIFF. PRESS. -- DIFFERENTIAL PRESSURE
GREATER THAN 12#. (dPD3032)
45. COMBUSTIBLE GAS ALARM -- ACTION: CHECK FOR GAS LEAKS (dCOMGASO)
46. LUBE OIL HEATER OVERTEMP -- LUBE OIL HEATER TEMP > 150 DEGF.
(dTS3024)
47. GENERATOR LOSS OF FIELD -- VOLTAGE REGULATOR WILL AUTOMATICALLY
TRANSFER TO BACK UP. (dX40L)
ACTION: CALL BLOCK ELECTRICIAN TO LOCATE PROBLEM
48. LUBE OIL PRESS LOW -- PERM 1 SATISFIED AND LUBE OIL PRESS LESS
THAN 22#. (dP3034 & dPS3042)

49. SEAL OIL EVACTOR MALFUNCTION -- SEAL OIL VACUUM < 1# (dPS3444)
51. COMPRESSOR DISCHARGE PRESS. XMITTER MALF -- THE DIFFERENCE BETWEEN THE OUTPUTS OF THE CDP XMITTERS > 5. THE OUTPUT FROM THESE TWO XMITTERS IS HIGH SELECTED AND GOES INTO THE TIT CALCULATIONS. ACTION: MONITOR THE TIT OUTPUT AND PLACE THE TURBINE ON SPEED/LOAD CONTROL UNTIL PROBLEM IS CORRECTED. CONTACT BRUCE COOPER OR SOMEONE IN THE INSTRUMENT DEPARTMENT IMMEDIATELY.
52. BLEED VALVE MALFUNCTION -- PERM 1 SATISFIED, PERM 6 NOT SATISFIED AND BLEED VALVE CLOSES OR BLEED VALVES OPEN AFTER PERM 7. CONTACT BLOCK ELECTRICIAN OR BRUCE COOPER. (dBVOPEN & dBVCLSD) ACTION: CHECK OIL TO AIR RELAYS AND ELECTRIC SOLENOIDS.
54. TURBINE ENCLOSURE TEMP HIGH -- TURBINE ENCL. TEMP > 200.
55. SHUTDOWN SOLENOID VALVE MALF. -- PERM 6 SATISFIED AND ONE OF THE FOLLOWING VALVES IS NOT CLOSING: GAS VENT, MIN FLOW, EMERG. SHUTOFF EMERG., OR SAFETY OIL. (dZS4281) ACTION: MONITOR EACH INPUT ON THE DIGITAL INPUT PAGE IDENTIFY AND CORRECT THE PROBLEM.
56. TURBINE EXHAUST TEMP HIGH -- EITHER THE EGGRATE TEMP IS ABOVE 1012 OR TAT > 1050. ACTION: MONITOR EGGRATE TEMP AVERAGES TO SEE IF EITHER IS ERRATIC. IF ERRATIC, CALL BRUCE COOPER OR INSTRUMENT MAN TO CHECK TICS. REDUCE FIRING TEMP.
57. TRIP RESET OIL TEST OR MALFUNCTION -- RESET OIL > 5#. (dPSSG:1)
58. FLAME MONITOR -- ACTIVATED IF NO FLAME CONFIRMED 12 SEC. AFTER IGNITION PB DEPRESSED. (dFMB & dFMA)
59. LUBE OIL LEVEL HIGH/LOW (dLS3044)
60. TURBINE OVERSPEED -- ACTIVATED IF TURBINE SPEED > 3610
61. LUBE OIL TEMP HIGH OR LOW -- LUBE OIL TEMP > 130 OR < 85 DEGF (dTS0049)
65. BEARING TEMP HIGH -- BEARING TEMP > 180 DEGF.
66. REVERSE POWER TRIP -- GENERATOR HAS BECOME MOTORIZED AND TAKING POWER. (dRP32X) CAN ONLY HAPPEN WHEN MACHINE IS TIED TO THE GRID.
67. TURBINE INLET TEMP HIGH -- TIT > 1850 DEGF.
68. GEN. VOLTAGE REGULATORS BACKUP IN SERVICE (dTRSS) ACTION: CONTACT BLOCK ELECTRICIAN
69. VIBRATION HIGH (dVMA)
70. GEN BUS DEAD OR PT FAILURE -- COMES FROM LINE PT (Ddx27) ACTION: CONTACT BLOCK ELECTRICIAN

71. ROTOR GLAND DIFF. PRESS LOW -- PERM7 SATISFIED AND ROTOR GLAND DIFF. PRESS < 10# (Dp8095 & Dpd8096)
72. GENERATOR FIELD GROUND ALM (Dfg)
ACTION: CONTACT BLOCK ELECTRICIAN
73. TURBINE UNDERSPEED -- PERM7 SATISFIED & SPEED < 3450
ACTION: CONTACT BRUCE COOPER OR PHIL CAMPO
76. GENERATOR STATOR TEMP HIGH -- STATOR TEMP > 180f HI & HHI 170, 180
ACTION: HAVE INSTRUMENT MAN CHECK RTD'S TO SEE IF TEMP IS CORRECT. IF CORRECT CONTACT APPROPRIATE SUPERVISION TO DISCUSS SHUTDOWN. (dtmstat)
77. HOT END BEARING FIRE ALM. (dfire)
ACTION: INSURE SNUFFING STEAM EXTINGUISHERS FIRE
78. HOT END BEARING SNUFFING STEAM VALVE OPEN (dsstopn)
79. TURNING GEAR MALFUNCTION -- SPEED < 1 FOR 2 SECONDS AND TRI-SEN HAS REQUESTED TGEAR ON OR TRI-SEN HAS REQUESTED TGEAR ON WITH NO DIGITAL INPUT REQUESTING IT TO DO SO.
ACTION: CONTACT BLOCK ELECTRICIAN
80. DC EMERGENCY PUMP OVERLOAD -- ACTIVATED IF EITHER OF THE FOLLOWING PUMPS IS OVERLOADED:
EMERGENCY COOLING OIL, JACKING OIL OR DC SEAL OIL.
(dQCPOL, dQJOL, dSODCOL)
ACTION: CHECK THE ABOVE DIGITAL INPUTS TO CONFIRM WHICH PUMP IS OVERLOADED AND CORRECT PROBLEM
81. GENERATOR H2 SEAL TEMP TURBINE END HIGH -- TEMP > 180 DEGF.
ACTION: CHECK SEAL OIL FLOW INDICATOR, CHECK OIL COOLER OUTLET TEMP. (dTS3162)
82. GENERATOR H2 SEAL TEMP EXCITER END HIGH -- TEMP > 180
ACTION: SAME AS ABOVE. (dTS3161)
83. SEAL OIL DIFF. PRESS. LOW -- DIFF. PRESS < 3 (dPD3167)
84. SEAL OIL SUPPLY PRESS LOW -- SUPPLY DPRESSURE < 40#.
86. GENERATOR HIGH/LOW PRESS -- ACTIVATED PRESSURE > 31 OR < 10#
ACTION: IF HI VERIFY PRESSURE IN THE FIELD ON H2 PRESS SUPPLY GAUGE. RE-ADJUST REGULATOR. IF LO, VERIFY PRESS ON PRESS GAUGE, RE-ADJUST REGULATOR, CHECK FOR LEAKS OR LOW SUPPLY. (ipt8242)
87. GENERATOR GAS TEMP HIGH -- GAS TEMP > 142 (dt8146A)
ACTION: CHECK FOR INSUFFICIENT H2 COOLING, HIGH GEN LOAD, OR INSUFFICIENT H2 PURITY.

- 88. GENERATOR H2 PURITY LOW -- PURITY < 94% (iPURH2)
ACTION: INCREASE SCAVENGER FLOW, ADD H2 TO SYSTEM
- 89. SEAL OIL FLOAT TRAP OIL LEVEL HIGH (dLS3168)
ACTION: VERIFY VALVE (3252) BETWEEN FLOAT TRAP OUTLET AND LOOP SEAL TANK IS OPENED. CHECK FOR RESTRICTIONS.
- 90. GENERATOR LIQUID DETECTOR ALARM (dLS3169)
ACTION: VERIFY OIL DRAIN FLOW FG3236, CHECK FOR RESTRICTION INTO FLOW TRAP.
- 92. SEAL OIL DC PUMP RUNNING (dSODCRN)
- 93. EMERGENCY COOLING OIL PUMP RUNNING (dQCPRUN)
- 94. AUX. PUMP EMERGENCY OPERATION -- SPEED > 3600 AND AUX POWER OIL OR AUX LUBE OIL RUNNING. (cQC, cAL)
- 95. LUBE OIL EVACTOR MALFUNCTION -- VACUUM > 8" (dPS3041)
- 96. DISABLE LOAD SHEDDER TRIPS -- MEGAWATTS MUST GO > 25 TO SET. IF THEY FAIL < 15, ALARM COMES IN AND REMAINS UNTIL M2'S > 25 AGAIN.

METRA 1010BT ALARMS

- FGVLVDF - GAS VALVE DIFFERENCE ALARM -- ACTUAL VALVE POSITION MINUS TRI-SEN COMMAND > 6
ACTION: CONTACT I&E ENGINEER OR PHIL CAMPO
THERE IS NO DANGER OF TRIPPING THE MACHINE
- FEXHLIM - EXHAUST TEMP CONTROLLER IN -- COMES IN IF TEMP GOES ABOVE 500 DURING STARTUP.
ACTION: NO ACTION REQUIRED
- FSPDGAP - SPEED EXCURSION ALARM -- SPEED MINUS 3600 > 20
ACTION: MONITOR SPEED, MAYBE NECESSARY TO GO ON SPEED CONTROL IF TRI-SEN DOESN'T MAKE SWAP AUTOMATIC
- FSPDDIF - SPEED DIFFERENCE FLAG -- SPEED SP - SPEED > 100
ACTION: CONTACT I&E ENGINEER OR PHIL CAMPO
- FSPEEDA, FSPEEDB, FSPEEDC, FSPEEDD (ON) -- SPEED MINUS SPEED A OR SPEED B, C, D > 5 (SPEED PROBE TROUBLE FLAG)
ACTION: POSSIBLY ONE OF THE SPEED PROBES IS BAD. CONTACT INSTRUMENT MAN AND I&E ENGINEER.
- IINGLV - MAX/MIN GAS VALVE LIMIT ALARM
ACTION: CONTACT I&E ENGINEER OR PHIL CAMPO
NO DANGER OF TRIPPING MACHINE

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BLOCK #527

UPDATED: JMC:
03/10/94

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CONFIDENTIAL

TEXT BLOCK # 532

ISOLATING DA FOR VESSEL ENTRY CHECKLIST

SHUT GT DOWN; HRU SECTION ALSO DOWN, ALL BFP'S OFF.

1. DOUBLE BLOCK CARD TO DA AND BLEED.
2. DOUBLE BLOCK STEAM TO DA AND BLEED.
3. RACK OUT AND RED TAG CHEMICAL PUMPS TO DA CONTROL AND PD4.
4. VENT AND DRAIN DA.
5. GET NECESSARY PERMITS AND SUPPLEMENTS.
6. RED TAG LP BFP'S.

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9/13/90
BLOCK #532

TEXT BLOCK # 536

ISOLATING GT-100/200 LUBE OIL EVACTOR

USE THE FOLLOWING PROCEDURE TO ISOLATE THE LUBE OIL EVACTOR IF THE TURBINE IS DOWN AND THE OIL IS PUMPED OUT OF THE MAIN LUBE OIL TANK.

1. TURN OFF AND RED TAG THE LUBE OIL EVACTOR BREAKER IN BUILDING 3704.

NOTE: CLOSE THE SNUFFING STEAM BLOCK VALVES AS THE SNUFFING STEAM WILL ACTUATE ON LOSS OF LUBE OIL TANK VACUUM.

USE THE FOLLOWING STEPS IF THE LUBE OIL EVACTOR IS TO BE ISOLATED ON LINE.

1. INSTALL THE AIR EDUCTION UNIT ON THE LUBE OIL TANK.
2. OPEN AND RED TAG AIR VALVE TO AIR EDUCTOR.
3. TURN OFF AND RED TAG THE LUBE OIL EVACTOR BREAKER IN BUILDING 3704.
4. CLOSE AND RED TAG THE LUBE OIL EVACTOR DISCHARGE/DAMPER BLOCK VALVE.
5. ADJUST AIR FLOW TO THE AIR EDUCTOR TO MAINTAIN LUBE OIL TANK VACUUM IN THE PRESCRIBED RANGE.

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BLOCK #536

DU A 133831
CONFIDENTIAL

TEXT BLOCK # 537

ISOLATING GT-100/200 SEAL OIL SYSTEM

(THE FOLLOWING PROCEDURE MAY ONLY BE PERFORMED ONCE THE GENERATOR IS DOWN AND HAS BEEN PURGED WITH CO2 AND THEN PURGED WITH INSTRUMENT AIR.

1. CLOSE AND RED TAG THE HYDROGEN SUPPLY BLOCK VALVE AT THE ROTOMETER AT THE SOUTH SIDE OF THE SOUTH AIR WASH INLET.
2. CLOSE AND RED TAG THE HYDROGEN SUPPLY BYPASS BLOCK VALVE.
3. CLOSE AND RED TAG THE UPSTREAM HYDROGEN SUPPLY BLOCK VALVE.
4. CLOSE AND RED TAG THE CO2 SUPPLY BLOCK VALVE.
5. ADJUST AND MAINTAIN SMALL INSTRUMENT AIR PURGE THROUGH THE GENERATOR, USING THE INSTRUMENT AIR SUPPLY BLOCK VALVE AND GENERATOR VENT BLOCK VALVE. THIS IS TO PREVENT ANY MOISTURE FROM ENTERING THE GENERATOR.
6. TURN OFF AND RED TAG THE D. C. SEAL OIL PUMP BREAKER IN THE CONTROL ROOM D. C. PANEL LABELED D. C. P-1.
7. CLOSE AND RED TAG THE 2251B. POWER OIL BACKUP TO SEAL OIL BLOCK VALVE.
8. TURN OFF AND RED TAG THE A. C. SEAL OIL PUMP BREAKER IN BUILDING 3704.
- (9. CLOSE AND RED TAG THE SEAL OIL SUPPLY BLOCK VALVE FROM THE MAIN LUBE OIL HEADER.
10. CLOSE AND RED TAG THE SEAL OIL SUPPLY BLOCK VALVE FROM THE MAIN LUBE OIL TANK.
11. TURN OFF AND RED TAG THE SEAL OIL EVACTOR BREAKER IN BUILDING 3704.

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BLOCK #537

(
DO A 133832
CONFIDENTIAL

ISOLATING GT-100/200 AIR WASH CHILLERS

1. SHUT DOWN AIR WASH CHILLER RECIRCULATION PUMPS AND TAG THE FOLLOWING:

- A). LOCAL SWITCHES
- B). MAIN BREAKERS IN BUILDING 3704
- C). SUCTION BLOCK VALVES

2. CLOSE AND RED TAG THE AIR WASH CHILLER UPSTREAM DUMP BLOCK VALVE.

3. CLOSE AND RED TAG THE AIR WASH CHILLER DUMP BYPASS BLOCK VALVE.

4. CLOSE AND RED TAG THE CONDENSATE MAKE UP BLOCK VALVES (3) TO THE AIR WASH CHILLER.

5. DRAIN BASINS IF NECESSARY.

REVISED: NLC
1/23/92
BLOCK #538

DO A 133833
CONFIDENTIAL

ISOLATING GT-100/200 LUBE OIL EVACTOR

USE THE FOLLOWING PROCEDURE TO ISOLATE THE LUBE OIL EVACTOR IF THE TURBINE IS DOWN AND THE OIL IS PUMPED OUT OF THE MAIN LUBE OIL TANK.

NOTE: CLOSE THE SNUFFING STEAM BLOCK VALVES AS THE SNUFFING STEAM WILL ACTUATE ON LOSS OF LUBE OIL TANK VACUUM.

1. TURN OFF AND RED TAG THE LUBE OIL EVACTOR BREAKER IN BUILDING 3704.

USE THE FOLLOWING STEPS IF THE LUBE OIL EVACTOR IS TO BE ISOLATED ON LINE.

1. INSTALL THE AIR EDUCTION UNIT ON THE LUBE OIL TANK.
2. OPEN AND RED TAG AIR VALVE TO AIR EDUCTOR.
3. TURN OFF AND RED TAG THE LUBE OIL EVACTOR BREAKER IN BUILDING 3704.
4. CLOSE AND RED TAG THE LUBE OIL EVACTOR DISCHARGE/DAMPER BLOCK VALVE.
5. ADJUST AIR FLOW TO THE AIR EDUCTOR TO MAINTAIN LUBE OIL TANK VACUUM IN THE PRESCRIBED RANGE.

REVISD: NLC
1/23/92
BLOCK #536

ISOLATING GT-100/200 SEAL OIL SYSTEM

THE FOLLOWING PROCEDURE MAY ONLY BE PERFORMED ONCE THE GENERATOR IS DOWN AND HAS BEEN PURGED WITH N2 AND THEN PURGED WITH INSTRUMENT AIR.

1. CLOSE AND RED TAG THE HYDROGEN SUPPLY BLOCK VALVE AT THE SOUTH SIDE OF THE SOUTH AIR WASH INLET.
2. CLOSE AND RED TAG THE HYDROGEN SUPPLY BYPASS BLOCK VALVE.
3. CLOSE AND RED TAG THE UPSTREAM HYDROGEN SUPPLY BLOCK VALVE.
4. MISALIGN, CAP AND RED TAG LINE ON SOUTH AIR INLET.
5. ADJUST AND MAINTAIN SMALL INSTRUMENT AIR PURGE THROUGH THE GENERATOR, USING THE INSTRUMENT AIR SUPPLY BLOCK VALVE AND GENERATOR VENT BLOCK VALVE. THIS IS TO PREVENT ANY MOISTURE FROM ENTERING THE GENERATOR.
6. TURN OFF AND RED TAG THE D.C. SEAL OIL PUMP (100 MP-119A OR 200 MP-219A) BREAKER IN THE CONTROL ROOM D.C. PANEL LABELED D.C. P-1.
7. CLOSE AND RED TAG POWER OIL BACKUP TO SEAL OIL BLOCK VALVE.
8. TURN OFF AND RED TAG THE A.C. SEAL OIL PUMP (MSOP 1A OR MSO 2A) BREAKER IN BUILDING 3704.
9. CLOSE AND RED TAG THE SEAL OIL SUPPLY BLOCK VALVE FROM THE MAIN LUBE OIL HEADER.
10. CLOSE AND RED TAG THE SEAL OIL SUPPLY BLOCK VALVE FROM THE MAIN LUBE OIL TANK.
11. TURN OFF AND RED TAG THE SEAL OIL EVACTOR (100 MEV 1B OR 200 MEV 2B) BREAKER IN BUILDING 3704.

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06/29/92
BLOCK #537

UPDATED: JMB
3/11/94

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CONFIDENTIAL

ISOLATING GT-100/200 SEAL OIL SYSTEM

THE FOLLOWING PROCEDURE MAY ONLY BE PERFORMED ONCE THE GENERATOR IS DOWN AND HAS BEEN PURGED WITH CO2 AND THEN PURGED WITH INSTRUMENT AIR.

1. CLOSE AND RED TAG THE HYDROGEN SUPPLY BLOCK VALVE AT THE ROTOMETER AT THE SOUTH SIDE OF THE SOUTH AIR WASH INLET.
2. CLOSE AND RED TAG THE HYDROGEN SUPPLY BYPASS BLOCK VALVE.
3. CLOSE AND RED TAG THE UPSTREAM HYDROGEN SUPPLY BLOCK VALVE.
4. CLOSE AND RED TAG THE CO2 SUPPLY BLOCK VALVE.
5. ADJUST AND MAINTAIN SMALL INSTRUMENT AIR PURGE THROUGH THE GENERATOR, USING THE INSTRUMENT AIR SUPPLY BLOCK VALVE AND GENERATOR VENT BLOCK VALVE. THIS IS TO PREVENT ANY MOISTURE FROM ENTERING THE GENERATOR.
6. TURN OFF AND RED TAG THE D. C. SEAL OIL PUMP BREAKER IN THE CONTROL ROOM D. C. PANEL LABELED D. C. P-1.
7. CLOSE AND RED TAG THE 2251B. POWER OIL BACKUP TO SEAL OIL BLOCK VALVE.
8. TURN OFF AND RED TAG THE A. C. SEAL OIL PUMP BREAKER IN BUILDING 3704.
9. CLOSE AND RED TAG THE SEAL OIL SUPPLY BLOCK VALVE FROM THE MAIN LUBE OIL HEADER.
10. CLOSE AND RED TAG THE SEAL OIL SUPPLY BLOCK VALVE FROM THE MAIN LUBE OIL TANK.
11. TURN OFF AND RED TAG THE SEAL OIL EVACTOR BREAKER IN BUILDING 3704.

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1/23/92
BLOCK #537

DO A 133836
CONFIDENTIAL

ISOLATING MEV-1B/2B SEAL OIL EVACTOR

USE THE FOLLOWING PROCEDURE TO ISOLATE THE SEAL OIL EVACTOR ON LINE OR IF THE UNIT IS DOWN AND THE SEAL OIL SYSTEM IS STILL IN SERVICE.

1. OPEN AND RED TAG THE SEAL OIL EVACTOR BYPASS BLOCK VALVE.
2. TURN OFF AND RED TAG THE SEAL OIL EVACTOR (100 MEV 1B OR 200 MEV 2B) BREAKER IN BUILDING 3704.
3. CLOSE AND RED TAG THE SEAL OIL EVACTOR DISCHARGE/DAMPER BLOCK VALVE.

REVISED: JML
12/23/92
BLOCK #539

DO A 133837
CONFIDENTIAL

ISOLATING GT-100/200 LUBE OIL SYSTEM FOR TURBINE OVERHAUL

THIS PROCEDURE IS FOR ISOLATING THE LUBE OIL SYSTEM FOR TURBINE OVERHAUL AND LEAVING THE OIL IN THE MAIN LUBE OIL TANK. THE FOLLOWING STEPS SHOULD BE TAKEN ONCE THE TURBINE, STARTING MOTOR, AND TURNING GEAR ARE DOWN AND RED TAGGED.

1. RED TAG IN THE OPEN POSITION THE SEAL OIL SUPPLY BLOCK VALVE FROM THE MAIN LUBE OIL TANK.
2. CLOSE AND RED TAG THE SEAL OIL SUPPLY BLOCK VALVE FROM THE MAIN LUBE OIL HEADER. CHECK SEAL OIL SYSTEM ONCE THIS IS DONE TO INSURE SUCTION FROM THE MAIN LUBE OIL TANK IS O.K. VERIFY BY CHECKING SEAL OIL PUMP DISCHARGE PRESSURE AND SEAL OIL DIFFERENTIAL PRESSURE.
3. TURN OFF AND RED TAG THE D.C. JACKING OIL BREAKER IN THE CONTROL ROOM D.C. PANEL LABELED D.C. P-1.
4. TURN OFF AND RED TAG THE D.C. COOLING OIL PUMP BREAKER IN THE CONTROL ROOM D.C. PANEL LABELED D.C. P-1.
5. IN BUILDING 3704, RACK OUT AND RED TAG THE FOLLOWING BREAKERS:
 - A). TORQUE CONVERTER CHARGING OIL PUMP
 - B). MODULATING CLUTCH COOLING OIL PUMP
 - C). AUXILIARY POWER OIL PUMP
 - D). AUXILIARY LUBE OIL PUMP
 - E). LUBE OIL EVACTOR ONLY IF THE SEAL OIL SYSTEM IS DOWN AND/OR THE GENERATOR IS PURGED.

REVISED: NLC
1/23/92
BLOCK #540

DO A 133838
CONFIDENTIAL

ISOLATING MRTG-100/200 TURNING GEAR

TO ISOLATE THE TURNING GEAR ON 100/200 WHILE LEAVING THE JACKING OIL IN SERVICE, USE THE FOLLOWING PROCEDURE:

1. TURN LOCAL SWITCH TO THE EMERGENCY STOP POSITION AND RED TAG.
2. TURN THE D.C. TURNING GEAR (MRTG-100 OR MRTG-200) BREAKER IN BUILDING 3704 TO THE OFF POSITION AND RED TAG.

TO ISOLATE THE TURNING GEAR AND THE JACKING OIL TOGETHER, USE THE FOLLOWING PROCEDURE:

1. TURN LOCAL SWITCH TO THE EMERGENCY STOP POSITION AND RED TAG.
2. TURN THE D.C. TURNING GEAR (MRTG-100 OR MRTG-200) BREAKER IN BUILDING 3704 TO THE OFF POSITION AND RED TAG.
3. IN THE D.C. PANEL FOR GT-100/200 LOCATED IN THE CONTROL ROOM, TURN OFF THE TURNING GEAR/JACKING OIL PUMP BREAKER AND RED TAG.

REVISED: JML
12/23/92
BLOCK #541

ISOLATING GT 100/200 WATER WASH SYSTEM FOR VESSEL ENTRY

1. CLOSE AND RED TAG UPSTREAM WATER WASH BLOCK VALVE LOCATED IN THE EAST SIDE OF THE SOUTH AIR INLET DUCT.
2. OPEN THE WATER WASH HEADER DRAIN BLOCK VALVE AND RED TAG.
3. CLOSE AND RED TAG DOWNSTREAM WATER WASH BLOCK VALVE.
4. CLOSE AND RED TAG OFF LINE WATER WASH VALVE, SOUTH OF TURBINE BY U-DUCT.

REVISED: JML
11/03/92
BLOCK #542

UPDATED: JML
12/01/93

GT-100/200 CLEAN H2 COOLERS

CLEANING 100/200 H2 COOLERS

NOTE: TURBINE AND GENERATOR MUST BE OFF LINE IN ORDER TO PERFORM COOLER CLEAN OUT.

1. BLOCK IN AND TAG COOLING WATER IN AND OUT ON NORTH AND SOUTH COOLERS ON EAST END OF GENERATOR.
2. SIGN RED TAG MASTER.
3. REMOVE COVERS ON NORTH AND SOUTH SIDE OF COOLERS ON EAST END OF GENERATOR.

CAUTION: THESE COOLERS WILL STILL BE UNDER PRESSURE AT THIS TIME. THERE IS NO WAY TO DEPRESSURIZE.

REMOVE ANY TRASH.

4. FAB UP TYGON TUBING TO PROCESS WATER HOSE CONNECTION AND INSERT INTO EACH INDIVIDUAL TUBE AND FLUSH UNTIL OUTLET WATER IS CLEAR AND HAS A GOOD FLOW THROUGH IT. IN THE EVENT SOME TUBES HAVE SOME RESTRICTION, IT MAY BE NECESSARY TO BACK FLUSH TO CLEAR THEM.

NOTE: H2 VAPORS MAY BE PRESENT IF THERE IS A TUBE LEAK.

(AFTER ALL TUBES HAVE BEEN CLEANED AND FLUSHED AND NO INDICATION OF A TUBE LEAK, INSTALL COVERS WITH NEW GASKETS.

6. AFTER COVERS ARE INSTALLED, RELEASE MASTER AND PUT COOLERS BACK IN SERVICE AND CHECK FOR LEAKS.

REVISED: NLC
1/23/92
BLOCK #543

DO A 133841
CONFIDENTIAL

TEXT BLOCK # 544

CLEANING 100/200 LUBE OIL COOLERS

(NOTE: IN ORDER TO FLUSH OIL COOLERS ON GT 100/200, THE TURBINE AND OIL SYSTEM MUST BE DOWN.

1. BLOCK IN AND TAG COOLING WATER TO AND FROM LUBE OIL COOLERS.
2. SIGN RED TAG MASTER.
3. REMOVE BLIND FLANGES ON EAST END OF TOP AND BOTTOM COOLERS.

CAUTION: COOLERS ARE STILL UNDER PRESSURE AT THIS TIME. THERE IS NO WAY TO DEPRESSURE OR DRAIN AT THIS TIME.

4. FAB UP TYGON TUBING TO PROCESS WATER HOSE CONNECTION AND INSERT INTO EACH INDIVIDUAL TUBE AND FLUSH UNTIL OUTLET WATER IS CLEAR AND HAS A GOOD FLOW THROUGH IT. IN THE EVENT SOME TUBES HAVE SOME RESTRICTION, IT MAY BE NECESSARY TO BACK FLUSH IT CLEAR THEM.
5. MONITOR OUTLET WATER FOR OIL OR OIL SHEEN IN WATER WHICH WOULD INDICATE A TUBE LEAK.
6. AFTER ALL TUBES HAVE BEEN CLEAN AND NO INDICATION OF A TUBE LEAK, INSTALL BLIND FLANGES WITH NEW GASKETS.
- (7. RELEASE RED TAG MASTER AND PUT BACK INTO SERVICE AND CHECK FOR LEAKS.

REVISED: NLC
9/13/90
BLOCK #544

HRU 100/200 FREEZE PRECAUTION (DOWN)

LEVEL I

IF 100 AND 200 IS DOWN AND THE HRU'S NEED TO BE DRAINED FOR FREEZE PRECAUTIONS, THE FOLLOWING STEPS SHOULD BE TAKEN:

- 1. OPEN HP, MP AND LP BOILER DRAINS - BOTH SIDES WIDE OPEN**
- 2. OPEN ALL ECONOMIZER DRAINS - BOTH TRAINS**
- 3. OPEN DEAERATOR DRAIN AND DRAIN DEAERATOR**
- 4. OPEN HP SUPERHEATER DRAINS AND VENTS - BOTH TRAINS**
- 5. OPEN MP SUPERHEATER DRAIN AND VENT**
- 6. OPEN DRUM VENTS - HP, MP AND LP**
- 7. OPEN DRUM WATER COLUMN DRAINS - HP, MP AND LP**
- 8. OPEN DEAERATOR WATER COLUMN DRAIN**
- 9. OPEN PREHEATER DRAINS - BOTH TRAINS**
- 10. PLACE ALL FEEDWATER REGULATORS ON MANUAL AND OPEN - OPEN ALL BY-PASSES AND OPEN ALL BOILER FEED PUMP DRAINS**
- 11. RACK OUT AND RED TAG ALL BOILER FEED PUMPS ELECTRICALLY**
- 12. OPEN ALL DOWNCOMER DRAINS - BOTH TRAINS**
- 13. OPEN VENTS ON ALL LEAD LINES TO KEEP LEAD LINE HOT UP TO NON-RETURN**
- 14. UNPLUG PD4 AND CONTROL PUMPS - DISCONNECT DISCHARGE PIPING AT PUMP - DRAIN LINE INTO BUCKET AND POUR BACK INTO BULK TANK**
- 15. BLOCK IN PD4 AND CONTROL BULK TANKS - DISCONNECT SUCTION LINE AT PUMP - DRAIN LINE INTO BUCKET AND POUR BACK INTO BULK TANK**
- 16. INSURE SAMPLE COOLERS ARE OPEN - THIS WILL DRAIN CBD LINES - (NOTE: ON 200, DRAINS IN CBD LINES MUST BE OPENED).**
- 17. BLOCK IN STEAM TO DEAERATOR - GROUND LEVEL. BLOCK VALVE UPSTREAM OF CONTROL VALVE AND OPEN DRAINS ON BOTH SIDES OF CONTROL VALVE.**
- 18. CONDENSATE TO UNIT -**
 - A. BLOCK IN AT BLOCK VALVE UPSTREAM OF DEAERATOR LEVEL CONTROL VALVE.**
 - B. OPEN DRAINS ON EACH SIDE OF DEAERATOR LEVEL CONTROL VALVE.**
 - C. OPEN DRAINS ON BOILER FEED PUMP GLAND COOLERS.**
 - D. BLOCK IN CONDENSATE TO FLASH TANK.**
 - E. AFTER EVERYTHING HAS DRAINED, PROCEED AS FOLLOWS.**

DO A 133843
CONFIDENTIAL

- F. BLOCK IN CONDENSATE TO AND FROM BOILER FEED PUMP GLAND COOLERS.
- G. CLOSE DOWNSTREAM VALVE ON CONDENSATE TO DEAERATOR - (THIS IS THE LAST VALVE ON THIS LINE).
- H. CLOSE DRAINS DOWNSTREAM OF DEAERATOR LEVEL CONTROL VALVE.
- I. RUN WATER HOSE FROM DRAIN UPSTREAM OF DEAERATOR LEVEL CONTROL VALVE TO DITCH.
- J. CRACK OPEN CONDENSATE TO FLASH TANK AND ALLOW SMALL AMOUNT OF FLOW THROUGH FLASH TANK AND BACK OUT OF HOSE TO DITCH.

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11/11/92
BLOCK #545

UPDATED: JML
12/16/93

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CONFIDENTIAL

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(ACTUAL TESTING OF THE MECHANICAL OVERSPEED TRIP
ON GT-200

THE PURPOSE OF THIS TEST IS TO MAKE SURE THE TURBINE WOULD TRIP IN CASE OF A SUDDEN LOAD DROP, AND THE ELECTRICAL OVERSPEED TRIP DID NOT TRIP THE UNIT.

TO TEST THE MECHANICAL OVERSPEED TRIP, THE FOLLOWING MUST BE DONE:

1. THE GENERATOR MUST BE WARMED UP PRIOR TO THE TEST. THE GENERATOR ROTOR RINGS NEED TO BE HOT TO AVOID DAMAGE. LOAD UP GENERATOR A MINIMUM OF 20 MW'S FOR ONE HALF HOUR.
2. THE TURBINE MUST BE RUNNING WITH NO LOAD ON THE GENERATOR TO PERFORM THE TEST.
3. AN ENGINEER OR HIS DESIGNEE MUST JUMP OUT THE ELECTRONIC OVERSPEED AND THE ACCELERATION LIMITER

- (1) TRIP CONTROL #7 TO #8 (TS-B195)
- (2) STOP #100 TO #100
- (3) W#7 TO #8
- (4) #5 TO #6-11 (ALL WIRES JUMPED FROM X TO X)

(TOTAL OF FOUR (4) JUMPERS SHOULD BE USED.

4. THE FOLLOWING SHOULD BE PERFORMED VERY CAREFULLY AS ANY MOVEMENT IN THE SPEED CHANGER OF THE SPEED CHANGER STOP DISK WILL RESULT IN SIGNIFICANT SPEED CHANGES. AN ENGINEER OR HIS DESIGNEE WILL REMOVE THE SPEED CHANGER STOP DISK, LOCATED BY THE EMERGENCY TRIP DEVICE ON THE EAST SIDE OF THE GAS CONTROL CABINET. DO THIS BY REMOVING THE LOWER HALF OF THE COVER PLATE (TWO (2) ALLEN HEAD SCREWS) THEN REMOVE CENTER SHAFT SCREW ON THE SPEED CHANGER STOP DISK. REMOVE THE DISK. BE CERTAIN TO REMEMBER EXACTLY HOW THE DISK WAS REMOVED.
5. IN THE CONTROL ROOM, THE BOARD OPERATOR WILL RAISE THE SPEED OF THE TURBINE, USING THE SPEED CONTROL HANDLE, AT A STEADY RATE, UP TO THE MECHANICAL OVERSPEED TRIP POINT. DO NOT MAINTAIN THE TURBINE AT HIGH SPEEDS MORE THAN A FEW MINUTES. THE TURBINE IS NOT DESIGNED TO RUN AT HIGH SPEEDS FOR EXTENDED PERIODS OF TIME. RAISE THE SPEED AT A RAPID RATE BUT NOT SO FAST THAT THE TRIP SPEED CANNOT BE IDENTIFIED. RECORD THE SPEED AT WHICH THE TURBINE TRIPPED.
6. AFTER THE OVERSPEED TRIP TEST HAS BEEN COMPLETED, THE SPEED CHANGER IN THE GAS CONTROL CABINET CAN BE PUT BACK TO NORMAL OPERATION AND THE JUMPERS CAN BE REMOVED FROM THE TURBINE CONTROL BOARD.
7. THE UNIT CAN NOW BE PUT BACK INTO NORMAL OPERATION.

(REVISION NO.
9/13/70
ELECT #5-7

DO A 133845
CONFIDENTIAL

ACTUAL TESTING OF THE MECHANICAL OVERSPEED TRIP ON
GT-100

THE PURPOSE OF THIS TEST IS TO MAKE SURE THE TURBINE WOULD TRIP IN CASE OF A SUDDEN LOAD DROP AND THE ELECTRICAL OVERSPEED TRIP DID NOT TRIP THE UNIT.

TO TEST THE MECHANICAL OVERSPEED TRIP, THE FOLLOWING MUST BE DONE.

1. THE GENERATOR MUST BE WARMED UP PRIOR TO THE TEST. THE GENERATOR ROTOR RINGS NEED TO BE HOT TO AVOID DAMAGE. LOAD UP GENERATOR A MINIMUM OF 20 MW'S FOR ONE HALF HOUR.
2. THE TURBINE MUST BE RUNNING WITH NO LOAD ON THE GENERATOR TO PERFORM THE TEST.
3. THE BOARD OPERATOR WILL USE A "KEY" (A COIN) TO TURN THE "MEC O/S TEST" SWITCH TO THE "DM" POSITION. THIS SWITCH IS LOCATED ON THE TRI-SEN CONTROL PANEL. THIS WILL AUTOMATICALLY TAKE THE ELECTRONIC OVERSPEED TRIP OUT OF SERVICE AND ALLOW THE MECHANICAL OVERSPEED TRIP TO WORK.
4. THE BOARD OPERATOR THEN CAN USE THE SPEED CONTROL HANDLE TO RAISE THE SPEED OF THE TURBINE. DO SO AT A STEADY RATE UP TO THE MECHANICAL OVERSPEED TRIP POINT. DO NOT MAINTAIN THE TURBINE AT HIGH SPEEDS MORE THAN A FEW MINUTES AS THE TURBINE IS NOT DESIGNED TO RUN AT HIGH SPEEDS FOR EXTENDED PERIODS OF TIME. RAISE THE SPEED AT A RAPID RATE BUT NOT SO FAST THAT THE TRIP SPEED CANNOT BE IDENTIFIED. THE TRI-SEN RECORDS AND REPORTS THE HIGHEST ATTAINED SPEED THAT THE COMPUTER SAW.
5. AFTER THE OVERSPEED TRIP TEST HAS BEEN COMPLETED, THE "MEC O/S TEST" SWITCH CAN BE PUT BACK IN THE "OFF" POSITION. THIS WILL AUTOMATICALLY RESET THE ELECTRONIC OVERSPEED TRIP.
6. THE UNIT IS NOW READY FOR NORMAL OPERATION.

REVISED: NLC
1/23/92
BLOCK #549

DO A 133846
CONFIDENTIAL

ADDING CONDENSATE TO 100/200 S03 TANK

NOTE: BEFORE BEGINNING ADDING CONDENSATE TO S03 TANK, FIRST DETERMINE HOW MUCH CONDENSATE WILL BE ADDED AND WHAT THE FINISH LEVEL SHOULD BE IN TANK. ALWAYS ADD THE SAME AMOUNT OF CONDENSATE AS S03 TO TANK.

1. REMOVE COVER ON TOP OF TANK.
2. CHECK DRAIN VALVE ON FILL LINE TO ASSURE IT IS CLOSED.
3. OPEN FILL BLOCK VALVE TO TANK AND BEGIN FILLING TANK.
4. MONITOR LEVEL IN TANK BY OBSERVING GALLON INDICATION ON EAST END OF TANK. (DO NOT LEAVE TANK AREA DURING CONDENSATE ADDING PROCESS).
5. AFTER DESIRED LEVEL IS OBTAINED, CLOSE CONDENSATE FILL BLOCK VALVE.
6. REPLACE COVER ON TOP OF TANK.
7. OPEN BLEED ON FILL LINE AND DRAIN LINE.

REDITED: JMC
2/24/94
BLOCK #660

UPDATED: JMC
4/14/94

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CONFIDENTIAL

GT-200 ON-LINE PREFILTER CHANGE

REMOVAL AND INSTALLATION OF PREFILTER

1. OPEN WIRE CAGE DOOR.
2. ROLL PREFILTER MEDIA.
3. PLACE PREFILTER MEDIA IN TRASH BAG IMMEDIATELY AFTER REMOVAL.
4. INSERT NEW REPLACEMENT MEDIA
5. CLOSE WIRE CAGE DOOR.
6. CONTINUE TO THE NEXT USED FILTER.

CAUTION:

- MONOGOGGLES SHALL BE WORN THROUGH THE ENTIRE JOB.
- HOLE WATCH (SAFETY WATCH) WILL BE REQUIRED THROUGHOUT THE ENTIRE JOB.
- SAFETY BELT WILL BE REQUIRED WHEN WORKING OFF THE UPPER LEDGES.
- COMMUNICATION SHALL BE MAINTAINED WITH THE CONTROL ROOM THROUGH THE ENTIRE JOB THOROUGH USE OF A HAND HELD RADIO.
- WATER WASH GT-200 PRIOR TO ENTRY TO CLEAN COMPRESSOR.
- ANY CHANGES IN GT-200 UNIT OUTPUT OR PERFORMANCE MONITORED BY THE BOARD OPERATOR WILL REQUIRE IMMEDIATE SHUTDOWN OF THE JOB AND EVACUATION FROM THE AWC.

SR. PRODUCTION ENGR.

SHIFT SUPERVISOR

PLANT SUPERINTENDENT

MAINT. SUPERVISOR

REVISED: NLC
1/23/92
BLOCK #714

DO A 133848
CONFIDENTIAL

GT-100/200 PYROMETER
START-UP/SHUTDOWN

THE PURPOSE OF THIS PROCEDURE IS TO ISOLATE 100/200 PYROMETER TO PREVENT WATER FROM CONDENSING ON THE SIGHTGLASS. PYROMETER SHOULD BE ISOLATED PRIOR TO OR DURING TURBINE SHUTDOWN. IN THE EVENT OF A TURBINE TRIP, AND TURBINE WILL BE DOWN MORE THAN 4 HOURS, ISOLATE PYROMETER.

SHUTDOWN PROCEDURE:

1. INSURE PYROMETER IS NOT CONTROLLING TURBINE LOAD.
2. CLOSE PYROMETER BLOCK VALVE (2" GATE VALVE)
3. REMOVE VENT PLUG TO DEPRESSURE SIGHTGLASS.

PYROMETER SHOULD BE PLACED IN SERVICE 8 HOURS AFTER TURBINE START-UP.

START-UP PROCEDURE:

1. INSURE THAT PYROMETER IS IN PLACE AND CONNECTED IN THE FIELD.
2. INSTALL VENT PLUG AT SIGHTGLASS.
3. OPEN PYROMETER BLOCK VALVE.

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1/22/92
BLOCK 717

DO A 133849
CONFIDENTIAL

MRTG-100/200 TURNING GEAR PAWL RELEASE

ON OCCASION, THE TURNING GEAR PAWL MAY GET JAMMED IN THE CATCH IF THE TURNING GEAR TRIES TO COME ON WHEN THE SHAFT IS STILL TURNING. IF THIS SHOULD OCCUR, THE PAWL SHOULD BE DISLODGED BY:

1. INSURE TURBINE HAS COMPLETELY STOPPED TURNING.
2. RED TAG TURNING GEAR LOCAL SWITCH AND BREAKER IN BLDG. 3704.
3. REMOVE THE PLEXIGLASS COVER AT TURNING GEAR ON INTERMEDIATE BLOCK.

NOTE: THIS COVER MAY BE HARD TO REMOVE DUE TO THE INTERMEDIATE BLOCK BEING UNDER A VACUUM. WHEN THIS COVER IS PULLED, THE VACUUM WILL DROP ON THE LUBE OIL RESERVOIR AND THE SNUFFING STEAM MAY COME ON TO THE HOT END. IF THE SNUFFING STEAM COMES ON, IT WILL HAVE TO BE RESET WHEN THE JOB IS COMPLETED.

4. USE A PAIR OF CHANNEL LOCKS OR A SCREW DRIVER TO DISLOGDE PAWL.
5. YOU MAY HAVE TO SPREAD THE TWO CATCH ARMS APART AND THEN PRY PAWL DOWN
6. REINSTALL PLEXIGLASS COVER.
7. REMOVE RED TAGS FROM LOCAL SWITCH AND BREAKER.

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12/23/92
BLOCK 718

UPDATED: JMC
2/23/94

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CONFIDENTIAL

TEXT BLOCK # 793

GT-100 LUBE OIL MIST ELIMINATOR

REFERENCE: THIS PROCEDURE USES NOMENCLATURE ASSOCIATED WITH THE EQUIPMENT DRAWING FOUND IN THE EQUIPMENT FILES [100/200 AREA; LUBRICATION SYSTEM; KOCH MIST ELIMINATOR]

I. PREPARE VESSEL FOR SERVICE

1. CONNECT INLET AND OUTLET GAS PIPING TO NOZZLES N-1 AND N-2, RESPECTIVELY.
2. CONNECT THE DIFFERENTIAL PRESSURE GAUGE ACROSS PRESSURE TAPS C-4 AND C-5.
3. PIPE OIL DRAINS C-2 AND C-3 BACK TO THE LUBE OIL RESERVOIR WITH VALVES IN EACH LINE LOCATED AT THE VESSEL. THE VALVE ON DRAIN C-2 SHOULD NORMALLY BE CLOSED AND ONLY OPENED TO DRAIN ANY OIL ACCUMULATION BACK TO THE RESERVOIR.
4. PIPE THE BOTTOM OF C-1 BACK TO THE LUBE OIL TANK WITH A VALVE INSTALLED AT THE C-1 CONNECTION. CLOSE THIS VALVE AND FILL THE UNIT THROUGH THE TOP OPENING WITH TURBINE OIL. CONTINUE TO FILL UNTIL OIL IS AT THE C-1 LEVEL. THIS SUBMERGES THE DRAIN PIPE ATTACHED TO THE FILTER ELEMENT FLANGE AND PREVENTS GAS FROM BYPASSING THE ELEMENT. PLUG THE TOP OF C-1 AND OPEN THE VALVE.
5. THE VESSEL IS NOW READY TO OPERATE.

II. OPERATING REQUIREMENTS

THIS UNIT SHOULD BE MAINTENANCE FREE. IF A PROBLEM OCCURS IN MAINTAINING TANK VACUUM, FIRST CHECK THE DIFFERENTIAL PRESSURE GAUGE. IT SHOULD NOT BE EXCEEDING 4 IN. H₂O. SECOND, BEGIN OPENING THE BYPASS AROUND THE FILTER UNTIL THE DESIRED TANK VACUUM IS ACHIEVED. ONCE THE DESIRED VACUUM IS ACHIEVED, ALTERNATE THE BYPASS AND MIST ELIMINATOR VALVING UNTIL THE MIST ELIMINATOR IS TAKEN OUT OF SERVICE. IF THE DESIRED VACUUM CANNOT BE OBTAINED BY OPENING THE BYPASS, CHECK THE EVACTOR AND THE LINE UPSTREAM OF THE VENT FOR OBSTRUCTION.

EDITED: JML
07/18/91
BLOCK #

DO A 133851
CONFIDENTIAL

100/200 SPEED PROBE FAILURE RESPONSE

PURPOSE: TO PROVIDE OPERATIONS AND PLANT PERSONNEL A GENERAL DESCRIPTION OF THE SPEED LOGIC SYSTEM AND HOW TO RESPOND TO SPEED LOGIC PROBE FAILURES.

SPECIAL NOTE: THE TRI-SEN PROGRAM LOGIC WILL ALLOW THE MACHINE TO RUN AS LONG AS THERE IS ONE UNFAILED PROBE. THE LOGIC IS SET THIS WAY ONLY TO PROVIDE SOME TIME TO PLAN AND CONDUCT A CONTROLLED SHUTDOWN OF THE UNIT. CONTINUED OPERATION WITH ONLY A SINGLE PROBE IS NOT WITHIN THE GUIDELINES OR SUPPORT OF THE TECH CENTER, OTHER THAN TO PLAN AND CONDUCT A SHUTDOWN.

SYSTEM DESCRIPTION

GT-100/200 SPEED LOGIC USES THREE SPEED PROBES FOR DETERMINING THE SPEED OF THE MACHINE. THE PROGRAM VERIFIES THAT EACH SPEED INPUT IS "GOOD" AND THEN MEDIUM SELECTS THE SPEED. MEDIUM SELECT IS THE MIDDLE VALUE. THE PROGRAM CONTINUES TO MEDIUM SELECT UNTIL ANY ONE PROBE FAILS. ONCE A PROBE FAILS, THE PROGRAM THEN USES "HIGH SELECT" FOR DETERMINING MACHINE SPEED AND CONTINUES TO USE HIGH SELECT UNTIL THERE ARE THREE GOOD INPUTS AND THEN IT WILL RETURN TO MEDIUM SELECT.

THE VERIFICATION OF THE SPEED INPUTS IS A CHECK TO ENSURE THAT THE PROBE'S INPUT IS GREATER THAN 200 RPM. THE VERIFICATION STEP DOES NOT OCCUR UNTIL THE IGNITION STEP IS COMPLETE. IF A PROBE IS DETECTED TO BE BELOW 200 RPM, THE PROGRAM WILL FAIL THAT PROBE AND FORCE THAT INPUT TO ZERO. THE HIGH SELECT LOGIC WILL ALSO BE ACTIVATED. NOW THE PROGRAM WILL CONTROL OFF THE HIGHEST OF THE TWO REMAINING PROBES. AT THIS POINT, THERE ARE TWO SCENARIOS THAT CAN TAKE PLACE:

1. IF ONE OF THE PROBES DROPS BELOW 200 RPM, IT WILL BE FAILED AND CONTROL WILL CONTINUE ON THE ONE REMAINING PROBE. AS THIS PROBE'S INPUT CHANGES THE PROGRAM WILL RESPOND TO TRY AND MAINTAIN 3600 RPM. IF THE INPUT BEGINS TO DROP, THE MACHINE WILL TRY TO PICK UP SPEED. IF THE INPUT REACHES 3950 RPM, THE MACHINE WILL TRIP ON OVERSPEED. IF THE SPEED DROPS BELOW 3400 RPM THE MACHINE WILL TRIP ON UNDERSPEED. IF THE INPUT BEGINS TO INCREASE, THE MACHINE WILL TRY AND REDUCE SPEED.
2. IF ONE OF THE PROBES BEGINS TO READ ABOVE 3600 RPM, THE PROGRAM WILL TAKE THAT VALUE AS THE MACHINE SPEED AND REACT ACCORDINGLY. THE PROGRAM WILL "THINK" THAT THE MACHINE IS IN AN OVERSPEED CONDITION AND IT WILL TRY TO REDUCE THE SPEED. SHOULD THE SPEED INPUT REACH 3950 RPM, THE MACHINE WILL TRIP ON OVERSPEED.

FAILURE RESPONSE

OPERATIONS RESPONSE TO THE FIRST PROBE FAILURE IS:

1. GO TO THE SPEED INPUT SCREEN AND LOOK AT THE THREE SPEED INPUT VALUES. NOTE WHICH PROBE HAS FAILED. VERIFY THAT THE REMAINING TWO PROBES ARE STABLE AND READING THE SAME VALUE OF 3600 RPM.
2. NOTIFY THE I&E ENGINEER OF THE FAILURE.

OPERATIONS RESPONSE TO THE SECOND PROBE FAILURE IS:

1. GO TO THE SPEED INPUT SCREEN AND LOOK AT THE THREE SPEED INPUT VALUES NOTING WHICH PROBES HAVE FAILED. VERIFY THAT THE ONE REMAINING PROBE IS READING 3600 RPM.
2. NOTIFY POWER 1 OF THE SITUATION AND THAT IF THE LAST SPEED PROBE FAILS, THE MACHINE WILL TRIP. DISCUSS THE EFFECTS OF SHUTTING THE MACHINE DOWN TO CORRECT THE PROBLEM.

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3. NOTIFY PLANT SUPERINTENDENT OF THE SITUATION AND THE NEED TO REPAIR THE SPEED INPUTS. DISCUSS SHUTTING THE MACHINE DOWN. THE TECH CENTER RECOMMENDS SHUTTING THE UNIT DOWN FOR REPAIR AS SOON AS POSSIBLE.

4. NOTIFY I&E ENGINEER OF THE SITUATION AND THE PLANNED COURSE OF ACTION. CALL OUT BLOCK INSTRUMENT PERSONNEL FOR THE REPAIR IF THE MACHINE IS TO BE SHUT DOWN.

REDITED: JMC
04/14/94
BLOCK #761

UPDATED: JML
05/05/94

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CONFIDENTIAL

GT-100/200 AWC HIGH DELTA-P

IF THE "GT-100 AWC HIGH DELTA-P" OR THE "GT-200 AWC HIGH DELTA-P" ALARM ACTIVATES, THE FOLLOWING ITEMS SHOULD BE DONE.

1. SHUT DOWN THE AWC PUMPS.
2. MONITOR THE AWC DELTA-P INDICATIONS ON THE STRIP CHART.
3. MONITOR THE AWC DELTA-P INPUTS ON THE PICS DISPLAY (CRT).
4. MONITOR THE STATIC PRESSURE INDICATION ON THE COMPRESSOR INFORMATION PAGE OF THE PDP-11.
5. INSPECT THE INLET ON THE SIDES, BOTTOM, AND TOP TO DETERMINE WHY THE FILTERS MAY BE PLUGGING UP AND IF THE AWC WOODEN WALLS ARE STILL INTACT. SOMETIMES RAIN CAN LEAK INTO THE AWC DOWNSTREAM OF THE DEMISTERS, POSSIBLY OVER THE FILTERS, CAUSING THEM TO PLUG UP.
6. VERIFY THAT THE AWC LEVEL IS ADEQUATE. IF THE LEVEL IS TOO HIGH (ABOVE 80%) WATER GETS BLOWN ONTO THE FILTERS AND UP INTO THE TURBINE INLET. A LOW LEVEL (BELOW 60%) WILL ALLOW AIR TO BYPASS THE FILTERS THROUGH A HOLE WHICH EXISTS IN THE SEPARATING WALL. (THIS MIGHT SHOW UP AS A LOW FILTER DIFFERENTIAL PRESSURE THOUGH.)

SHUTTING DOWN THE AWC PUMPS WILL ALLOW DRY AIR TO PASS THROUGH THE FILTERS THEREBY DRYING THEM OUT, ASSUMING THEY HAVE GOTTEN WET.

MONITORING THE DELTA-P INDICATION ON THE STRIP CHART AND PICS DISPLAY WILL GIVE SOME INFORMATION ON WHETHER THE SITUATION IS WORSENING.

MONITORING THE STATIC PRESSURE INDICATION ON THE PDP-11 WILL GIVE MORE INFORMATION ABOUT THE FILTER CONDITION. THE STATIC PRESSURE INDICATION IS ACTUALLY THE VACUUM RIGHT AT THE INLET OF THE COMPRESSOR IF THE STATIC PRESSURE IS HIGH, THE VACUUM IS HIGH AND THE COMPRESSOR IS SUCKING HARD. THE FILTERS MAY BE PLUGGING UP OR, IF THE TEMPERATURE IN THE INLET IS BELOW 40 DEG. F, ICE MAY BE FORMING SOMEWHERE IN THE INLET.

FURTHER ACTION STEPS:

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1. WHEN THE AWC DELTA-P INDICATION REACHES 4.5 INCHES OF WATER DIFFERENTIAL, THE HINGED DOORS ON THE AWC WALLS NEXT TO THE FILTERS SHOULD BE WEDGED OPEN. THIS WILL ALLOW AIR TO BYPASS THE FILTERS AND PREVENT THEM OR THE WOOD INLET WALLS FROM FAILING. THIS MUST BE DONE CAREFULLY AS THE DOORS ARE DIFFICULT TO OPEN WHILE THE MACHINE IS RUNNING. ALSO BE CAREFUL NOT TO LET ANYTHING GET PULLED INTO THE INLET.
2. CONTACT THE AREA ENGINEER, PRODUCTION SUPERVISOR, OR PLANT SUPERINTENDENT.
3. IF THE DELTA-P INDICATION READS FULL SCALE THEN WE ARE OPERATING WITHOUT KNOWING THE TRUE DIFFERENTIAL PRESSURE. THE DELTA-P COULD WORSEN WITHOUT US KNOWING AND THE STATIC PRESSURE WOULD RISE DUE TO A HIGH VACUUM. UNDER THESE CONDITIONS, IT IS ADVISEABLE TO CONSIDER SHUTTING DOWN THE TURBINE DUE TO A POTENTIAL OF SUCKING IN THE AWC WALLS. THE FULL SCALE

READING ON THE DELTA-P TRANSMITTER IS 5 INCHES OF WATER.

REVISED: NLC
1/23/92
BLOCK 762

(UPDATED: JML
12/01/93

DO A 133855
CONFIDENTIAL

GT-100/200 OFF-LINE WATER WASH COMPRESSOR

1. GET SOAP TANK FROM WAREHOUSE AND BRING TO SITE.
2. CLOSE DISCHARGE B/V ON SOAP TANK, THEN POUR FIVE GALLONS OF SOAP IN TANK THROUGH TOP FILL VALVE. CLOSE FILL VALVE.
3. HOOK WATER HOSE TO WATER IN FROM SUPPLY.
4. HOOK WATER HOSE FROM WATER OUT TO NOZZLE HEADER.
5. MAKE SURE ALL FOUR (4) NOZZLE B/V'S ARE OPEN.
6. OPEN DRAIN AT BOTTOM OF U-DUCT. INSURE THAT DRAIN IS NOT PLUGGED.

NOTE: CONFINED SPACE ENTRY PORTION OF THE MULTI-WORK PERMIT AND ENTRY SUPPLEMENT FOR ENTERING THE U-DUCT SUMP IS REQUIRED.

7. INSURE ALL THREE COMPRESSOR DRAINS ON THE NORTH SIDE TURBINE ARE OPEN.
8. PRIOR TO START OF STARTING MOTOR, MAKE ANNOUNCEMENT OF INTENT.
9. HAVE BOARD OPERATOR BRING TURBINE UP ON STARTING MOTOR TO 500 RPM'S AND HOLD.
10. PLACE THE (3) THREE WAY VALVE HANDLES IN THE UP POSITION WHICH ALLOWS AIR TO THE BLEED VALVES. THIS WILL CLOSE THE BLEED VALVES.
11. BOARD OPERATOR SHOULD VERIFY THAT THE "BLEED VALVE MALFUNCTION" ALARM IS IN "ALARM".
12. OPEN WATER SUPPLY TO TANK; THEN OPEN OUTLET B/V ON TANK. NEXT, OPEN WATER WASH HEADER B/V.
13. WITH INLET DOOR OPEN, CHECK ALL NOZZLES TO ASSURE FLOW.
14. LET WASH UNTIL COMPRESSOR DRAINS ARE CLEAR OF SOAP THEN BLOCK WATER IN AND PICK UP ALL EQUIPMENT.
15. CONTINUE RUNNING TURBINE ON STARTING MOTOR FOR A FEW MINUTES TO DRY OUT.
16. RETURN BLEED VALVE ISOLATION SWITCHES TO "AUTO" POSITION BY PLACING THE (3) THREE WAY VALVE HANDLES IN THE DOWN POSITION.
17. TAKE UNIT OFF OF STARTING MOTOR.
18. CLOSE (3) NORTH SIDE COMPRESSOR DRAINS AND THE U-DUCT DRAIN.

NOTE: RINSING CAN BE ASSISTED WITH WATER HOSE IF NEEDED. BEFORE ENTERING INLET, THE FOLLOWING NEEDS TO BE TAGGED FOR VESSEL ENTRY ALONG WITH A CONFINED SPACE ENTRY PERMIT. ALSO, REMOVE ALL LOOSE OBJECTS FROM PERSON ENTERING INLET.

RED TAG THE FOLLOWING:

1. FUEL GAS
2. STEAM INJECTION
3. PLANT AIR
4. AUTO WATER WASH

DO A 133856
CONFIDENTIAL

EDITED: JML
10/21/92
BLOCK #797

UPDATED: JML
12/01/93

DO A 133857
CONFIDENTIAL

CLEANING 100/200 AWC DISTRIBUTION HOLES AND TOP

TO CLEAN THE AWC DISTRIBUTION HOLES, YOU HAVE TO TAKE A PIECE OF 3/8" TUBING ON TOP OF THE AWC AND TAKE THE TUBING AND ROD OUT OF EACH HOLE THAT IS PLUGGED.

TO CLEAN THE TOP, PICK UP ANY TRASH THAT IS FLOATING ON TOP OF THE WATER AND PLACE IN A GARBAGE CAN.

NOTE: CAUTION MUST BE TAKEN WHEN YOU ARE WALKING AROUND ON TOP BECAUSE THE ALGAE IS VERY SLIPPERY AND THIS COULD CAUSE A SLIPPING HAZARD.

NOTE: CAUTION SHOULD BE TAKEN ON THE SOUTH AWC'S BECAUSE OF THE HIGH VOLTAGE LINES FROM THE GENERATOR. BECAUSE OF THE HAZARDS, IT IS BEST TO HAVE A SECOND PERSON THERE AS A SAFETY OBSERVER.

EDITED: JMI
09/06/91
BLOCK #805

UPDATED: JMI:
2/23/94

DO A 133858
CONFIDENTIAL

UNIT 100/200 FREEZE PRECAUTIONS

LEVEL I

(DATE: _____

LEVEL I FREEZE (TEMPERATURE IS FORECASTED TO STAY ABOVE 20 DEG. F AT NIGHT WITH A WIND CHILL FACTOR ABOVE 0 DEG. F AND ABOVE 32 DEG. F THE NEXT DAY.)

IN/OUT

- ___1___ 1. TURN ON STEAM TRACINGS. CHECK FOR ADEQUATE FLOW.
 - ___1___ A. SOUTH SIDE OF HRU 100
 - ___1___ B. SOUTH SIDE OF HRU 200
 - ___1___ C. 30" STEAM LINE NE CORNER OF C/R BUILDING
- ___1___ 2. ESTABLISH FLOW THRU FAUCETS IN BLDG. 3703
- ___1___ 3. BLOCK IN PROCESS H2O SERVICE HEADER AT PROCESS H2O BACK-UP TO COOLING TOWER. ESTABLISH FLOW THRU THE BLEED VALVE UPSTREAM OF 2" SERVICE BLOC VALVE. OPEN DRAIN VALVE DOWNSTREAM OF COOLING TOWER FLUSH CONTROL VALV AND DOWNSTREAM OF 2" PROCESS H2O VALVE. ALSO DRAIN EACH SERVICE WATER STATION. DRAIN CAR WASH SYSTEM. ALSO DRAIN DEAD-END (TUBING) OUTSIDE CONTROL ROOM EAST DOOR.
- ___1___ 4. OPEN DRAIN ON TOP OF PROCESS WATER HEADER AT NE CORNER OF B-3703.
- (___1___ 5. ESTABLISH FLOW ON CONDENSATE TO BATTERY ROOM IN BLDG. 3703.
- ___1___ 6. PUT COOLING TOWER FILL CONTROL VALVE ON MANUAL, OPEN ABOUT 5%, ALSO OPEN THE BLOWDOWN VALVE TO CONTROL LEVEL, BUT DO NOT CLOSE COMPLETELY.
- ___1___ 7. ESTABLISH GOOD FLOW THRU CHLORINATOR.
- ___1___ 8. INSURE CHLORINATOR HEATER IS PLUGGED IN.
- ___1___ 9. OPEN CROSS CONNECTION VALVE BETWEEN 2" COOLING H2O SUPPLY AND RETURN LINES AT S. DEAD ENDS OF N/S PIPE-RACK.
- ___1___ 10. ESTABLISH FLOW THRU DRAINS ON POTABLE H2O MAKE-UP LINE. ALSO FAUCET AT BLOCK LIMITS.
- ___1___ 11. CRACK DRAINS ON 900 AIR RECEIVER, COOLER, PRE-FILTER, AND AFTER FILTER. ESTABLISH FLOW THRU STAND-BY COMPRESSOR OIL COOLER. TURN ON HEATER FD DRAIN ALL.
- ___1___ 12. BLOCK AND DRAIN THE PROCESS H2O TO OLD WAREHOUSE.
- ___1___ 13. BLOCK AND DRAIN C/R EYE WASH.
- ___1___ 14. OPEN DRAIN ON POTABLE H2O TANK. INSURE FLOW THRU MAKE-UP LINE, OPEN BLEED ON TANK BY-PASS LINE.
- (___1___ 15. PUT SAFETY/EYEWASH HEATING SYSTEM IN SERVICE.
- ___1___ 16. INSURE FLOW THRU LUBE OIL AND HYDROGEN COOLERS AND TO STARTING MOTORS.
- ___1___ 17. OPEN BLEED ON CONDENSATE LINE TO BLDG. 3709 BATTERIES.
- ___1___ 18. MAINTAIN 100/200 AWC LEVELS AT 80%.

- ___1___19. CRACK OPEN BLEED ON DISCHARGE OF THE STANDBY PUMPS ON T-1250 SYSTEM.
- ___1___20. OPEN DRAINS UPSTREAM OF WEST RETURN, CA II, DEMIN, AND POWER I COND. DUMP VALVES.
- ___1___21. OPEN 3/4" BY-PASS LINE AROUND COND. MOV 1250.
- (___1___22. CHECK INSTRUMENT AIR HEADER DEADEND FOR MOISTURE.
- ___1___23. OPEN DRAINS ON DEMIN LINE AT NE CORNER. (2)
- ___1___24. INSURE FLOW IN AND OUT A/C IN MCC 100/200.
- ___1___25. INSURE CHEMICAL FLOW TO C.T.
- ___1___26. INSURE ADEQUATE FLOW THRU ALL BOILER SAMPLE COOLERS.
- ___1___27. INSURE ADEQUATE FLOW THRU HIGH PRESSURE BFP SEAL COOLERS.
- ___1___28. OPEN BLEEDS ON CONDENSATE TO GT MANUAL WATERWASH LINES.
- ___1___29. DOUBLE BLOCK AND BLEED MAIN WATER WASH LINE DOWNSTREAM OF STRAINERS ON 100/200. ALSO MISALIGNED PIPING AND CAP.
- ___1___30. OPEN BLEEDS ON CENTRIFUGES PRIMING LINE.
- ___1___31. INSPECT GAS TURBINE INLETS FOR ICE FORMATION AT THE INLET SCROLLS AND THE 100/200 SCREENS.
- ___1___32. MAINTAIN FLOW THROUGH C.T. STANDBY PUMP THROUGH DISCHARGE BLEED VALVE.
- (___1___33. INCREASE BOILER SAMPLE FLOWS.
- ___1___34. DRAIN GT 100 AIR INLET P-TRAP.
- ___1___35. DRAIN GT 200 AIR INLET P-TRAP.
- ___1___36. ESTABLISH FLOW THROUGH BLEED ON EYEWASH STATION IN T-1250 AREA.
- ___1___37. INSURE ELECTRICAL HEAT TRACING ARE ON AT T-1250 CONDENSATE AREA. BREAKER IS IN BLDG. 3704, LIGHTING PANEL - F, BREAKER #24
- ___1___38. CRACK OPEN DRAINS ON NORTH SIDE OF HRU 100/200 HYDRO LINES.
- --39. INSURE CARRIER WATER FLOW TO DEAERATOR AND STEAM TRACING IS ON.

REVISED: JMC
03/18/93
BLOCK #803

UPDATED: JMC
03/11/94

DO A 133860
CONFIDENTIAL

HRU 100/200 FREEZE PRECAUTION (DOWN)

LEVEL 1

IF 100 AND 200 IS DOWN AND THE HRU'S NEED TO BE DRAINED FOR FREEZE PRECAUTIONS, THE FOLLOWING STEPS SHOULD BE TAKEN:

1. OPEN HP, MP AND LP BOILER DRAINS - BOTH SIDES WIDE OPEN
2. OPEN ALL ECONOMIZER DRAINS - BOTH TRAINS
3. OPEN DEAERATOR DRAIN AND DRAIN DEAERATOR
4. OPEN HP SUPERHEATER DRAINS AND VENTS - BOTH TRAINS
5. OPEN MP SUPERHEATER DRAIN AND VENT
6. OPEN DRUM VENTS - HP, MP AND LP
7. OPEN DRUM WATER COLUMN DRAINS - HP, MP AND LP
8. OPEN DEAERATOR WATER COLUMN DRAIN
9. OPEN PREHEATER DRAINS - BOTH TRAINS
10. PLACE ALL FEEDWATER REGULATORS ON MANUAL AND OPEN - OPEN ALL BY-PASSES AND OPEN ALL BOILER FEED PUMP DRAINS
11. RACK OUT AND RED TAG ALL BOILER FEED PUMPS ELECTRICALLY
12. OPEN ALL DOWNCOMER DRAINS - BOTH TRAINS
13. OPEN VENTS ON ALL LEAD LINES TO KEEP LEAD LINE HOT UP TO NON-RETURN
14. UNPLUG PD4 AND CONTROL PUMPS - DISCONNECT DISCHARGE PIPING AT PUMP - DRAIN LINE INTO BUCKET AND POUR BACK INTO BULK TANK
15. BLOCK IN PD4 AND CONTROL BULK TANKS - DISCONNECT SUCTION LINE AT PUMP - DRAIN LINE INTO BUCKET AND POUR BACK INTO BULK TANK
16. INSURE SAMPLE COOLERS ARE OPEN - THIS WILL DRAIN CBD LINES - (NOTE: ON 200, DRAINS IN CBD LINES MUST BE OPENED).
17. BLOCK IN STEAM TO DEAERATOR - GROUND LEVEL. BLOCK VALVE UPSTREAM OF CONTROL VALVE AND OPEN DRAINS ON BOTH SIDES OF CONTROL VALVE.
18. CONDENSATE TO UNIT -
 - A. BLOCK IN AT BLOCK VALVE UPSTREAM OF DEAERATOR LEVEL CONTROL VALVE.
 - B. OPEN DRAINS ON EACH SIDE OF DEAERATOR LEVEL CONTROL VALVE.
 - C. OPEN DRAINS ON BOILER FEED PUMP GLAND COOLERS.
 - D. BLOCK IN CONDENSATE TO FLASH TANK.
 - E. AFTER EVERYTHING HAS DRAINED, PROCEED AS FOLLOWS.
 - F. BLOCK IN CONDENSATE TO AND FROM BOILER FEED PUMP GLAND COOLERS.
 - G. CLOSE DOWNSTREAM VALVE ON CONDENSATE TO DEAERATOR - (THIS IS THE LAST VALVE ON THIS LINE)

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- H. CLOSE DRAINS DOWNSTREAM OF DEAERATOR LEVEL CONTROL VALVE.
- I. RUN WATER HOSE FROM DRAIN UPSTREAM OF DEAERATOR LEVEL CONTROL VALVE TO DITCH.
- J. CRACK OPEN CONDENSATE TO FLASH TANK AND ALLOW SMALL AMOUNT OF FLOW THROUGH FLASH TANK AND BACK OUT OF HOSE TO DITCH.
- K. OPEN L. P. BOILER FEED PUMP RECIRCULATION DRAIN AND DRAIN CARRIER WATER LINE.
- L. OPEN CONDENSATE FILL VALVE ON TOP OF SULFITE TANK AND DRAIN LINE.
- M. OPEN CARRIER WATER DRAIN AT DISCHARGE OF SULFITE PUMP AND DRAIN LINE.

EDITED: JML
11/11/92
BLOCK #545

UPDATED: JMF
3/11/94

DO A 133862
CONFIDENTIAL

GT-100/200 BEARING OIL FLUSH PROCEDURE

PREPARATION FOR OIL FLUSH:

1. GET FIVE (5) OIL FLUSH HOSES LOCATED IN THE SIDE COMPARTMENT OF THE METRIC TOOL TRAILER. FOUR HOSES WILL BE THE SAME SIZE; ONE WILL BE LARGER.
2. INSTALL THE LARGEST HOSE IN THE BEARING FEED HOLE OF THE THRUST BEARING. THE OTHER FOUR HOSES INSTALL IN THE COMPRESSOR AND HOT END BEARING - BOTH SIDES OF THE SPLIT LINE.
3. TAKE A BRASS PLUG AND TAP IT GENTLY INTO THE BEARING FEED LINE HOLE JUST UNTIL SNUG.
4. USING TWO SPLIT LINE BOLTS FOR EACH OF THE HOLES, TIE #9 WIRE AROUND THE FLUSH CONNECTIONS AND AROUND THE BOLTS UNTIL VERY TIGHT.
5. INSERT RUBBER HOSES AS FAR DOWN INTO THE DRAIN CAVITY AS POSSIBLE. WIRE THEM DOWN IN THE DRAIN WITH STAINLESS WIRE SECURELY SO THEY CAN'T WHIP OUT.
6. THERE ARE THREE OVERSPEED OIL TUBINGS IN THE HOT END TUNNEL. SLIP A 3/4" BLUE HOSE OVER EACH SWAGelok AND ROUTE THEM INTO THE DRAIN CAVITY OF THE HOT END BEARING. THESE DON'T NEED TO BE SECURED AS THERE IS NO PRESSURE INVOLVED.
7. THE JACK SHAFT COVERS ARE OFF DURING THIS PROCEDURE. THE JACK SHAFT TO THE INTERMEDIATE BLOCK MUST BE DRAPED WITH VISQUEEN AND SECURED BECAUSE OIL WILL SPRAY DOWN THE JACK SHAFT AND OUT ALL OVER THE PLACE.
8. WHERE HOSES ARE INSERTED IN THE SPLIT LINE OF EACH BEARING, A SMALL DAM OF DUCT SEALANT MUST BE MADE AND PUT ON THE HORIZONTAL SPLIT LINE TO PREVENT THE OIL FROM FLOWING OVER THE SPLIT LINE.

DURING THE FLUSH:

1. NEED ONE PERSON POSITIONED AT THE HOT END BEARING.
2. NEED ONE PERSON POSITIONED AT THE COMPRESSOR BEARING AND JACK SHAFT.
3. NEED OPERATOR ON INTERCOM TALKING TO MAN IN MCC STARTING AND STOPPING PUMP.
4. NEED A MAN AT THE OIL FILTER WATCHING OIL PRESSURE.

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NOTE: THE ABOVE PEOPLE ARE NOT TO LEAVE AT ANY TIME DURING THE FLUSH.

5. OPERATOR ON THE INTERCOM WILL TELL THE MAN IN THE MCC TO START THE PUMP.
6. WHEN THE OIL PRESSURE REACHES 5#, THE MAN AT THE OIL FILTERS WILL HAVE THE MAN IN THE MCC SHUT THE PUMPS DOWN, AND ALL PERSONNEL WILL CHECK FOR LEAKS OR OTHER PROBLEMS.
7. START THE PUMP AGAIN, BRING TO 15#, SHUT PUMP OFF. HAVE EVERYONE CHECK FOR LEAKS OR SPLASHBACK.
8. START THE PUMP AGAIN, BRING TO 30#, CHECK WITH EVERYONE FOR LEAKS, AND LET IT FLUSH FOR 30 MINUTES.
9. AT THIS TIME, YOU CAN START THE JACKING OIL PUMP AND LET IT RUN FOR 30 MINUTES ALSO, CHECKING THE LINES ASSOCIATED WITH

IT FOR LEAKS.

10. AT THIS POINT, MAKE A COMPLETE ROUND, CHECKING ALL CONNECTIONS AND PIPING FOR LEAKS.

AFTER THE OIL FLUSH:

1. WHEN OIL FLUSH IS COMPLETE, ALL OIL FLUSH HOSES WILL BE REMOVED AND RETURNED TO THE METRIC TRAILER.
2. IMMEDIATELY AFTER REMOVING OIL HOSES, PUT RUBBER STOPPERS IN HOLES.
3. NO WORK WILL BE ALLOWED WITH RUBBER PLUGS OUT OF THE HOLES. THEY WILL BE REMOVED ONLY WHEN YOU'RE READY TO SET THE BEARING CAP BACK ON. IF THIS IS NOT DONE PROPERLY, ANOTHER OIL FLUSH WILL HAVE TO BE DONE.

NOTE: BEARING AREA MUST BE COVERED WITH VISQUEEN OR TARP WHEN WORK IS NOT BEING PERFORMED. THIS INCLUDES BREAKS AND LUNCH BREAKS.

**EDITED: JML
02/04/92
BLOCK #814**

**UPDATED: JML
09/14/93**

OPEN CASE SPINNING GT-100 AND 200

THE PURPOSE OF THIS PROCEDURE IS TO SAFELY SPIN GT-100 OR GT-200 WITH THE COVER OFF OF THE MACHINE. THIS WILL BE DONE FOR THE BALANCE PURPOSES.

NOTE: EXTREME CAUTION MUST BE TAKEN TO PREVENT PERSONAL INJURY AND ANY DAMAGES TO THE MACHINE AS WELL.

1. TURBINE DECK MUST BE CLEARED COMPLETELY OF ALL LOOSE MATERIAL AND TOOLS MUST BE REMOVED FROM DECK AND SURROUNDING AREA. ROPES, TARP, VISQUEEN, ETC, MUST ALL BE REMOVED.
2. AIR INLETS NORTH AND SOUTH MUST BE CLEANED AND ALL LOOSE MATERIAL REMOVED. ALSO BURNER DECK MUST BE CLEARED.
3. AREA SHOULD BE ROPED OFF (ALL ENTRANCES TO TURBINE DECK AREA). RED DANGER TAPE SHOULD BE USED RATHER THAN YELLOW CAUTION TAPE.
4. THE TURNING GEAR MUST BE RACKED OUT AND RED TAGGED. ALSO THE TURNING GEAR TIME OUT MUST BE TAKEN OUT OF SERVICE ON TRISEN FOR THIS PROCEDURE.
5. BLEED VALVE PERMISSIVE WILL HAVE TO BE JUMPERED IN THE CONTROL ROOM. THE JUMPER WILL NEED TO BE LAID DOWN ON TERMINAL STRIP AF-11 TO AF-12 BEHIND THE TURBINE CONTROL BOARD PANEL. IF A TRI-SEN ENGINEER IS PRESENT, THIS CAN ALSO BE ACCOMPLISHED THROUGH THE PROGRAM.
6. BOARD OPERATOR WILL MAKE ANNOUNCEMENT OVER BLOCK PA FOR ALL PERSONNEL TO LEAVE THE AREA. NO ONE WILL BE ALLOWED IN THE ROPED AREA WHEN THE MACHINE IS BEING PUT ON STARTING MOTOR. A BLADE FAILURE COULD RESULT IN SERIOUS INJURY OR DEATH TO PERSONNEL.
7. THE SHIFT SUPERVISOR WILL NOW MAKE A FINAL INSPECTION OF THE AREA TO MAKE CERTAIN ALL PERSONNEL HAVE CLEARED THE AREA. HE WILL COMMUNICATE TO THE BOARD OPERATOR THAT THE AREA IS CLEAR.
8. THE STARTING MOTOR BREAKER CAN NOW BE RACKED IN. ONCE THE STARTING MOTOR IS RACKED IN, THIS WILL ALSO BE COMMUNICATED TO THE BOARD OPERATOR.
9. THE BOARD OPERATOR WILL NOW ANNOUNCE OVER THE BLOCK PA THE FINAL ANNOUNCEMENT THAT WE WILL BE SPINNING THE MACHINE AND PROCEED TO DO SO. THE SPEED CONTROL ADJUSTMENT WILL BE SET AT MINIMUM POSITION PRIOR TO STARTING THE STARTING MOTOR.
10. THE MACHINE WILL ONLY BE BROUGHT UP TO APPROXIMATELY 50 RPM'S ON THE INITIAL SPIN AND WILL BE TRIPPED OFF LINE AT 50 RPM'S. DOW PERSONNEL WILL BE ALLOWED IN THE ROPED AREA ON COAST DOWN TO LISTEN FOR ANY UNUSUAL NOISES, RUBS, LOOSE BLADES, ETC. AGAIN EXTREME CAUTION MUST BE TAKEN AS TO PREVENT PERSONAL INJURY.
11. THE STARTING MOTOR MUST BE RACKED OUT AND RED TAGGED BEFORE ANY WORK IS CONTINUED. THIS WILL INCLUDE ADDING BALANCE WEIGHTS TO THE ROTOR.
12. THE ABOVE STEPS MUST BE FOLLOWED EACH TIME THE MACHINE IS TO BE SPINNED THEREAFTER. ON EACH ADDITIONAL SPIN, THE SPEED CAN BE INCREASED UNTIL MAXIMUM STARTING MOTOR SPEED IS OBTAINED.

BLOCK #814

UPDATED: JML
12/01/93

DO A 133866
CONFIDENTIAL

GT-100/200 IGNITOR CHECKOUT PROCEDURE

WARNING: HOT WORK PERMIT IS REQUIRED

1. GET HOT WORK PERMIT.
2. PULL BOTH PILOT ASSEMBLIES. LOCATE IN A POSITION WHERE THE FLAME IS VISIBLE FROM THE GROUND.
3. COVER FLANGE HOLES WITH DUCT TAPE AFTER PULLING PILOT ASSEMBLY.
4. TRISEN PROGRAMMER TO "DISABLE" AND TURN "OFF" THE FOLLOWING THREE VARIABLES.
"CGV4124", "CIGN", AND "CGV4125"
5. CHECK IGNITOR OPERATION - ENTIRE LOOP IS CHECKED BY FIRING IGNITORS FROM TRISEN PROGRAMMER. DISABLE "CIGN" AND TURN ON. TURN LOCAL IGNITION SWITCH TO ON AND VERIFY THAT THE IGNITORS ARE IGNITING. TURN OFF "CIGN". IF IGNITORS DO NOT IGNITE, REPLACE IGNITORS AND REPEAT THIS STEP.
6. VERIFY LOCAL IGNITION SWITCH IS LEFT IN "ON" POSITION.
7. ONCE PROPER OPERATION OF IGNITORS IS CONFIRMED, EXIT COMBUSTOR AREA.
8. PLACE RED "DANGER" TAPE ON DOGHOUSE LADDER AND BURNER ACCESS LADDER.
9. GO TO LOCATION ON GROUND WHERE PILOT FLAME CAN BE DETECTED.
10. CONTACT CONTROL ROOM TO CONFIRM "READY TO TEST". SHIFT SUPERVISOR SHOULD MAKE FINAL ROUND TO CONFIRM AREA IS CLEAR. BOARD OPERATOR WILL MAKE ANNOUNCEMENT "IGNITOR TEST IN PROGRESS - STAY CLEAR".
11. TRISEN PROGRAMMER OPERATOR REMAIN IN CONSTANT CONTACT WITH PERSONS MONITORING FLAME VIA PAGE PHONE.
12. WHEN OUTSIDE OBSERVER GIVES "GREEN LIGHT", PROGRAMMER OPERATOR TO PROCEED AS FOLLOWS:
 - 1). TURN ON "CGV4124" - CLOSSES PILOT VENT
 - 2). TURN ON "CIGN" - ENABLES IGNITION XFMR
 - 3). TURN ON "CGV4125" FOR SIX (6) SECONDS - OPEN PILOT BLOCK VALVES. PILOT FLAME SHOULD BE SEEN ON BOTH IGNITORS
 - 4). TURN "OFF" CGV4125" - CLOSSES PILOT BLOCK VALVES
 - 5). TURN "CIGN" - DISABLES IGNITION XFMR
 - 6). TURN "OFF" CGV4124" - OPENS PILOT VENT
13. IF PILOT FLAME IS VERIFIED FROM BOTH ASSEMBLIES, REPEAT STEP "12" TWICE TO VERIFY REPEATABILITY.
14. IF PILOT FLAME IS NOT CONFIRMED, ADJUST PILOT GAS REGULATOR AND REPEAT STEP "12".

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**GT-100/200 START UP
(CONTROL ROOM OPERATOR)**

- 1). INSURE TURBINE IS READY FOR STARTUP - OUTSIDE DUTIES ARE COMPLETE, AND START-UP CHECK SHEET COMPLETED. ALSO, REVIEW STEAM INJECTION STARTUP PROCEDURE AND BEGIN WARMING IT UP.
 - 2). RESET 86 DEVICES.
 - 3). RESET HSDA.
 - 4). SEND O.S. TO TURNING GEAR TO INSURE PAWL IS UP WHEN YOU ARE READY.
 - 5). GO TO STARTUP SCREEN AND DEPRESS "SYSTEM RESET".
 - 6). MAKE BLOCK ANNOUNCEMENT OF GT. STARTUP. AT THIS POINT, TURNING GEAR SHOULD DISENGAGE AND PAWL SHOULD REMAIN UP. CONFIRM WITH O.S.
 - 7). DEPRESS "START" BUTTON. BRING SPEED UP TO ABOUT 800 RPM'S USING MANUAL START-UP SPEED CONTROL.
 - 8). MONITOR PERMISSIVE TO STEP 3A; (IGNITION FLASHINGS).
 - 9). DEPRESS "IGNITION" BUTTON.
 - 10). MONITOR FLAME, TURBINE SPEED, AND EXHAUST TEMPERATURE TO ASSURE IGNITION ON STARTUP SCREEN.
 - 11). MONITOR ALARMS AS TURBINE RAMPS UP TO 3600 RPM'S.
 - 12). WHEN TURBINE REACHES 3600 RPM'S AND FIELD HAS FLASHED, INSURE THAT GENERATOR VOLTAGE IS SLIGHTLY HIGHER THAN SYSTEM VOLTAGE, NOTIFY POWER & CHLORINE OF TURBINE SYNCHRONIZATION (MAKE SURE NEUTRAL IS CLOSED).
 - 13). DEPRESS "AUTO SYNC. AFTER SYNCHRONIZIN BRING GENERATOR LOAD UP TO 20 MEGAWATTS BY SELECTING "TIT CONTROL". THEN HOLD BY DEPRESSING "SPEED CONTROL".
 - 14). ASSURING THAT STEAM INJECTION LINE IS ABOVE 425 DEGREES, CLOSE STEAM INJECTION CONTROL VALVE AND DEPRESS "STEAM INJECTION ON". SLOWLY BRING UP TO ABOUT 10,000 LB./HR.
 - 15). GENERATOR SHOULD HAVE ABOUT 20 MW'S. ADJUST VOLTAGE TO ABOUT 10 MVARs.
 - 16). USING TIT CONTROL, RAISE GEN. LOAD TO 40 MW'S AND HOLD BY DEPRESSING "SPEED CONTROL" UNTIL BOILERS ARE ON LINE.
- NOTE: INSURE SET POINT IS CORRECT THEN SELECT DESIRED TEMPERATURE CONTROL.
- 17). SELECT DESIRED TEMPERATURE CONTROL (SPEED CONTROL, PYRO OR TIT), AND RAISE TURBINE TO FULL LOAD. ADJUST VOLTAGE AS NEEDED.
 - 18). POSITION THE "EPT" SWITCH BACK TO THE NORMAL POSITION.

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PUTTING STEAM INJECTION ON GT-100/200

NOTE: WARMING UP OF THE STEAM INJECTION HEADER SHOULD BEGIN PRIOR TO START-UP SO THAT THERE WILL BE NO DELAY IN START-UP.

- 1). 235# STEAM HEADER WARMED UP TO FIRST MANUAL BLOCK VALVE. BY OPENING BLEED UPSTREAM OF THIS VALVE.
- 2). OPEN DRAINS ON STEAM INJECTION LINE BEFORE CONTROL VALVE AND SECTION OF LINE BETWEEN CONTROL VALVE AND ISOLATION VALVE.
- 3). UNIT 200 ONLY: MAKE SURE 3" LINE TO REGENERATOR LINE IS DOUBLE BLOCKED AND BLED.
- 4). CLOSE CONTROL VALVE.
- 5). CRACK OPEN HEADER BLOCK VALVE AND SLOWLY WARM UP LINE THROUGH DRAINS TO CONTROL VALVE.

NOTE: MANUAL BLOCK VALVE DOWNSTREAM OF ISOLATION SHOULD REMAIN CLOSED UNTIL LINE IS WARMED UP AND READY TO BE PUT ON.

- 6). UNBLOCK MANUAL BLOCK TO 2" WARM UP VENT. ALSO CHECK HANDWHEEL ON TOP OF VALVE AND MAKE SURE VALVE IS NOT MANUALLY CLOSED.
- 7). WHEN NO WATER IS DETECTED FROM DRAINS, CLOSE BACK ON DRAINS AND FULLY OPEN HEADER BLOCK VALVE.
- 8). BOARD OPERATOR CAN NOW SLOWLY CRACK OPEN CONTROL VALVE AND ALLOW STEAM TO START FLOWING THROUGH 2" VENT. OUTSIDE OPERATOR NEEDS TO CHECK AND VERIFY VENT VALVE IS OPEN AND A GOOD FLOW IS ESTABLISHED THROUGH VENT VALVE (APPROX. 5,000 LBS. PER HOUR).
- 9). BOARD OPERATOR WILL MONITOR LINE TEMPERATURE ON TRI-SEN AND ASSURE LINE IS HEATING UP. TARGET TEMPERATURE SHOULD BE 425 DEGREES F.
- 10). WHEN LINE TEMPERATURE REACHES 425 DEGREES F, AND THE PRESSURE PERMISSIVE IS MET WHICH IS 225 PSIG, THE STEAM INJECTION LINE UPSTREAM OF THE CONTROL VALVE ON THE TRI-SEN STARTUP SCREEN WILL TURN FROM A GREEN TO A RED COLOR. THE FOLLOWING SHOULD BE DONE:
 - A). BOARD OPERATOR CAN CLOSE CONTROL VALVE
 - B). OUTSIDE OPERATOR CAN UNBLOCK MANUAL BLOCK TO UNIT.
 - C). BOARD OPERATOR CAN NOW DEPRESS THE (STEAM INJECTION ON) BUTTON ON THE TRISEN CONTROL PANEL.

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NOTE: GENERATOR LOAD SHOULD BE AT APPROXIMATELY 15 MEGAWATTS.

- 11). STEAM INJECTION CAN NOW BE SLOWLY PUT INTO MACHINE. CRACK OPEN CONTROL VALVE AND MONITOR FLOW ON CHART AND ON CRT. THE EXHAUST TEMPERATURE SPREAD SHOULD ALSO BE MONITORED WHILE PERFORMING THIS STEP. ESTABLISH A FLOW OF APPROX. 10,000#S/HR AND LET MACHINE STABILIZE BEFORE INCREASING.
- 12). GAS LOAD CAN NOW BE INCREASED ALONG WITH STEAM INJECTION. STEAM INJECTION FLOW SHOULD BE KEPT AT A MINIMUM AT LOW TURBINE LOADS. BECAUSE THERE IS A POSSIBILITY OF BLOWING THE FLAME OUT ESPECIALLY DURING LOW TURBINE LOADS. MONITOR NOX EMISSIONS AND EXHAUST TEMPERATURE SPREAD WHILE MACHINE IS LOADING UP. INCREASE STEAM INJECTION FLOW AS NEEDED TO KEEP BOTH WITHIN CONTROL PARAMETERS. NOX < 100 PPM AND SPREAD < 250 DEGF.

13). WHEN TURBINE IS FULLY LOADED, STEAM INJECTION CAN BE PUT ON RATIO

TEMPERATURE SPREAD SHOULD ALSO BE MONITORED WHILE PERFORMING THIS STEP. ESTABLISH A FLOW OF APPROX. 10,000#'/S/HR AND LET MACHINE STABILIZE BEFORE INCREASING.

(12). GAS LOAD CAN NOW BE INCREASED ALONG WITH STEAM INJECTION. STEAM INJECTION FLOW SHOULD BE KEPT AT A MINIMUM AT LOW TURBINE LOADS, BECAUSE THERE IS A POSSIBILITY OF BLOWING THE FLAME OUT ESPECIALLY DURING LOW TURBINE LOADS. MONITOR NOX EMISSIONS AND EXHAUST TEMPERATURE SPREAD WHILE MACHINE IS LOADING UP. INCREASE STEAM INJECTION FLOW AS NEEDED TO KEEP BOTH WITHIN CONTROL PARAMETERS. NOX < 100 PPM AND SPREAD < 250 DEGF.

13). WHEN TURBINE IS FULLY LOADED, STEAM INJECTION CAN BE PUT ON RATIO CONTROL TO RAMP AS NEEDED WITH THE FUEL GAS FLOW.

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GT-100/200 SHUTDOWN PROCEDURE

1. COMMUNICATE WITH POWER 1 AND CL2 TO INSURE THE NECESSARY LOAD INCREASES AND CUTS WILL BE MADE TO BALANCE THE SYSTEM.
2. NOTIFY PIPELINE AND INFORM THEM OF THE SHUTDOWN.
3. PROCEED WITH SHUTDOWN BY PRESSING THE "NORMAL STOP" BUTTON LOCATED ON THE TRISEN BOARD.
4. MONITOR TURBINE DURING SHUTDOWN. MAKE SURE STEAM INJECTION IS CUTTING BACK AS TURBINE LOAD DECREASES. KEEP MEGAVARS APPROXIMATELY HALF OF MEGAWATT LOAD.
5. PUT "LPT" SWITCH TO THE BACK-UP POSITION.
6. AT APPROXIMATELY 15 MW, THE TRISEN WILL STOP CUTTING LOAD AND INSTRUCT OPERATOR TO CALL POWER 1 TO INSURE LOAD SHEDDER IS NOT PICKING ANY TRIPS. ALSO, LET CL2 KNOW THAT WE'RE SHUTTING DOWN TURBINE AND WHAT RECTIFIER IT MIGHT AFFECT.
7. AGAIN, DEPRESS "NORMAL STOP" BUTTON ON TRISEN BOARD TO RESUME NORMAL STOP.
8. BREAKER WILL OPEN, NEUTRAL WILL CLOSE AUTOMATICALLY.
9. FUEL GAS WILL REMAIN OPEN FOR APPROXIMATELY 5 MINUTES FOR TURBINE COOL DOWN.
10. AFTER 5 MINUTES OF COOL DOWN, TURBINE WILL TRIP. FUEL GAS VALVE WILL CLOSE, FIELD BREAKER WILL OPEN, STEAM INJECTION WILL SHUT OFF. MACHINE WILL COAST DOWN AND GO ON TURNING GEAR.
11. SHUTDOWN BFP'S IMMEDIATELY AFTER TURBINE TRIP. HAVE AUXILIARY OPERATOR CHECK PUMPS TO ASSURE THEY AREN'T BACKSPINNING.
12. OPEN NECESSARY VENTS AND DRAINS ON BOILER.
13. BLOCK IN FUEL GAS TO TURBINE. DO THIS BY BLOCK IN MAIN FUEL GAS VALVE. DEPRESSURE SCRUBBER BY OPENING FUEL GAS VALVES TO BLOWDOWN TANK. WHEN PRESSURE IS DEPLETED, BLOCK IN FUEL GAS TO BLOWDOWN AND OPEN VENT. ALSO BLOCK FUEL GAS VALVE AT SCRUBBER, OPEN VENT BETWEEN SCRUBBER AND MAIN BLOCK VALVES. DEPRESSURE FUEL GAS SYSTEM THROUGH FUEL GAS BLOWDOWN TANK ONLY. IF N2 PURGE IS REQUIRED ON FUEL GAS SYSTEM, FOLLOW N2 PURGE OF 100/200 FUEL GAS PROCEDURE.
14. RED TAG PERTINENT EQUIPMENT NECESSARY FOR THE SHUTDOWN.
15. IF THE TURBINE HAS TO BE COOLED DOWN FOR ANY REASON, THE UNIT CAN BE PUT ON STARTING MOTOR, USING THE NORMAL START STEPS. THE UNIT MAY BE KEPT ON STARTING MOTOR FOR AS LONG AS NECESSARY TO COOL THE UNIT. THE STARTING MOTOR SHOULD BE RUN AT MAXIMUM RPM'S FOR THE COOL DOWN CYCLE. AS THE TURBINE COOLS, THE STARTING MOTOR SPEED SHOULD BE LOWERED TO HAVE THE COMPRESSOR DISCHARGE TEMPERATURE LOWER THAN THE EXHAUST TEMPERATURE.

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NOTE: THIS PROCEDURE IS FOR GT-100 ONLY.

NOTIFY BOARD OPERATOR THAT YOU ARE ABOUT TO SWAP LUBE OIL EVACTORS.

- NOTE: SNUFFING STEAM WILL TRIP AND CANNOT BE RESET, IF BOTH EVACTORS ARE RUNNING.

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ISOLATING G1-100/200 DC SEAL OIL PUMP

NOTIFY BOARD OPERATOR THAT YOU ARE TAKING THE DC SEAL OIL PUMP OUT OF SERVICE.

RACK OUT AND RED TAG THE DC SEAL OIL PUMP BREAKER IN CONTROL ROOM.

NOTE: START BUTTON SHOULD BE TESTED TO INSURE PROPER PUMP IS RACKED OUT.

2. BLOCK AND RED TAG SUCTION AND DISCHARGE BLOCK VALVES.
3. BLOCK AND TAG DC SEAL OIL PUMP WARM UP TUBING.
4. DC SEAL OIL PUMP IS NOW READY TO BE DISCONNECTED ELECTRICALLY AND ALL PIPING MAY BE OPENED.

NOTE: TO DEPRESSURE THIS PUMP, THE PRESSURE GAUGE ON THE DISCHARGE MUST BE REMOVED.

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CHANGE OUT H2 SAFETY ON UNIT 100/200

NOTE: THE UNIT DOES NOT HAVE TO BE DOWN TO CHANGE OUT H2 SAFETY

- (BLOCK IN MAIN SUPPLY VALVE UPSTREAM OF H2 REGULATOR AND TAG.
- (BLOCK AND TAG BYPASS VALVE.
- 3. UNLOCK GEN. SUPPLY VALVE AND CLOSE AND TAG.
- 4. OPEN VENT TO BLEED THAT SECTION OF LINE AND TAG BLEED.
- 5. REMOVE PIPING FROM SAFETY (VENTY SIDE, SUPPLY SIDE).
- 6. INSTALL 3/4" 150# BLIND FLANGE ON SUPPLY SIDE, AND 3/4" PLUG ON VENT SIDE.
- 7. ONCE BLIND AND PLUG HAS BEEN INSTALLED, CLOSE VENT AND REMOVE TAGS.
- 8. DURING THE TIME THE SAFETY IS OUT AND YOU HAVE TO ADD H2, USE BYPASS VALVE AND GEN. SUPPLY VALVE TO FILL UNIT.

REINSTALLING H2 SAFETY

- 1. INSTALL TAGS ON MAIN H2 SUPPLY VALVE, GEN. SUPPLY VALVE AND BYPASS VALVE.
- 2. OPEN VENT TO BLEED AND TAG.
- (3. INSTALL SAFETY AND PIPING.
- . CLOSE VENT.
- 5. OPEN MAIN H2 SUPPLY TO REGULATOR.
- 6. CHECK FOR LEAKS (ONCE IT IS ESTABLISHED THERE ARE NO LEAKS, PRESSURE UP ALL THE WAY). SYSTEM IS NOW BACK IN SERVICE.

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ISOLATION OF AC SEAL OIL PUMP 100/200

NOTE: IN ISOLATING THE AC SEAL OIL PUMPS ON 100/200 YOU NEED TWO OPERATORS

1. START DC SEAL OIL PUMP AND INSURE PUMP IS PUMPING.
2. SHUTDOWN AC SEAL OIL PUMP (WATCH DC PUMP DISCHARGE PRESSURE, AND PRESSURE WITH DC RUNNING; IT SHOULD READ ABOUT 5# DIFF. OF H2 PRESSURE).
3. RACK OUT BREAKER IN 3704.
4. BLOCK IN SUCTION VALVE AND TAG.
5. BLOCK IN DISCHARGE VALVE AND TAG.

AC SEAL OIL PUMP START UP

1. UNBLOCK SUCTION VALVE.
2. UNBLOCK DISCHARGE VALVE.
3. RACK IN BREAKER AND START UP PUMP.
4. CHECK OUT FLOW AND DISCHARGE PRSSURE OF AC PUMP. ONCE PUMP HAS LINED OUT, SHUT DOWN DC SEAL OIL PUMP.

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