

LOUISIANA DIVISION

**CONSOLIDATED AUDIT
PROGRAM**

QUESTIONNAIRES

POWER I / UTILITIES

MARCH 10, 11, 12, 1992

DOW CONFIDENTIAL

DO A 121142
CONFIDENTIAL

Dow U.S.A.

Louisiana Division
Consolidated Audit Program Attendance

Plant: POWER 1 / UTILITIES

Date: 3/12/92

Session: Laboratory Audit

Writer: GERALD WAGENER / HOWARD WILKINSON

	Name	Plant/Department	Functional Area
1.	KEVIN D TAYLOR	PLR / UTIL	
2.	ROE TIEPER	TECH CENTER, FREEPORT	
3.	KEN FOX	POWER & UTILITIES	
4.	Joe Rawlings	Power / Utilities	
5.	Steve Parker	Safety Supt	Safety
AT 6.	Gerald Wagener	R&D	LAB AUDIT
AT 7.	Joe Schell	R&D	Reactive Chemicals
Presenter 8.	EM Monroe	Power & Utilities	
AT 9.	Howard Wilkinson	IH / Auditing	Facilitator
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			

3/10/92

Power 1/Utilities Consolidated Audit

Opening Presentation:

ATTENDANCE

NAME

AREA

Gervey Smith

RANDY ANSELMO

MARTY MARRISON

BUCK BAILEY

Gary Meier

Geoff Kusch

Steve Parker

Craig Olphant

GEORGE NIELSEN

DAL JONES

Jodie Band

Jim Stewart

Tom Fox

ROB FIEPER

KEVIN D. TAYLOR

JOE RAWLINGS

Maralee Marchant

Safety Power I/Utilities

Quality / TRAINING Power & UTILITIES

Environmental / IH / Projects Power / Utility

LOSS PREVENTION

Ind Hygiene / Consol Audit

Medical / Occup. Health

Safety Supt.

Tech Support A (CEI)

TECH SUPPORT A (CEI)

SAFETY

Ind Hygiene / Occup. Health

Fire / Safety

Power 1 & Utilities

PGU TECH CENTER

Power & Utilities

Industrial Hygiene / Occ. Health

DOW U.S.A.
LOUISIANA DIVISION
CONSOLIDATED AUDIT
PROGRAM
POWER I/UTILITIES

Date: March 10,11,12, 1992

Time: 7:30 a.m. - 4:00 p.m.

PLACE: TUESDAY, MARCH 10, 1992 7:30 a.m. to 10:30 a.m.
B-819 CONF. RM.

TUESDAY--Lunch and Evening, WEDNESDAY and THURSDAY
all day in the CAUSTIC PLANT CONF. RM.

Plant Superintendent: Ken Fox

Major Manager: Paul Rozas

Plant/Department "CAP" Administrator: Marty Morrison

QUESTIONNAIRES

ASSIGNMENTS

REACTIVE CHEMICALS

MARTY MORRISON

SECURITY

JOE RAWLINGS

SAFETY

GERVEY SMITH

CHEMICAL EXPOSURE INDEX

MARTY MORRISON

LOSS PREVENTION

JOE RAWLINGS

OCCUPATIONAL HEALTH

MARTY MORRISON

HMTR

MARTY MORRISON

ELECTRICAL 5-POINT

LONNIE MARCHAND

CONSOLIDATED AUDIT AGENDA

Tuesday, March 10

7:30 - 10:30	Department Presentation (B-819 PCM CONF. RM.) (see separate detailed guideline)
10:30 - 11:30	Power I/Utilities Plant Tour
11:30 - 12:00	Lunch (CAUSTIC CONF. RM.)
12:00 - 1:30	Hazardous Material Transportation Review (HMTR)
1:30 - 1:45	Break
1:45 - 4:00	Chemical Exposure Index Review (CEI)

Wednesday, March 11 (CAUSTIC CONF. RM.)

7:30 - 8:00	Electrical 5 - Point Audit Summary
8:00 - 11:30	Loss Prevention/Fire Audit
11:30 - 12:00	Lunch (CAUSTIC CONF. RM.)
12:00 - 4:00	Occupational Health Audit

LAD
Consolidated Audit
BLDG. 819 (PCM)

Date: March 10, 1992
Time: 7:30 a.m. - 10:30 a.m.

AGENDA

- | | | |
|------|---|------------|
| I. | Department Presentation/Discussion
Process and Unit Operations
*Process Description
*Process Flow Sheets
*Plot Plan Layout
*Instrumentation and electrical
*Critical Instrument Devices and
Function | 85 minutes |
| II. | Organization | 10 minutes |
| III. | Review of Plant/Department Policies/
Procedures and Communications | 15 minutes |
| IV. | Review of Incidents/Major Concerns
*Safety - OSHA Recordable Data last
5 years
*Equipment/Property Loss \$50,000 or
more last 5 years
*Reactive Chemicals Incidents last 5
5 years | 15 minutes |
| V. | Review of Training and Retraining | 30 minutes |
| VI. | Plant/Department Indoctrination Video | 30 minutes |
| VII. | Plant General Tour
(break into functional groups)

*Projects
*Maintenance Shops
*Eating Facilities

*Areas of Concern
*Motor Control Centers
*Labs | 60 minutes |

Thursday, March 12 (CAUSTIC CONF. RM.)

7:30 - 8:00	Laboratory Audit Summary
8:00 - 11:30	Reactive Chemicals Audit
11:30 - 12:00	Lunch (CAUSTIC CONF. RM.)
12:00 - 4:00	Security/Safety Audit
	*Employee Interview Summary Major Manager/Section Manager
	*Employee Survey Summary Area Safety Superintendent
	*Safety Supt./Safety Dept. Housekeeping Inspection

2.24/92:hrw

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Dow U.S.A.

The Dow Chemical Company
P.O. Box 150
Plaquemine, Louisiana 70765-0150

4/29/96

Howard Wilkinson, LAD
Consolidated Audit Program Administrator

Consolidated Audit Program Closure Report: Power 1, Utilities & Power 2

The closure report is enclosed. I have also enclosed your action items for comparison. The documentation of these action items has been completed with only a few left to complete with new completion dates.

If you have any questions, please do not hesitate to ask.

Regards,

A handwritten signature in cursive script that reads "Marty Morrison".

Marty Morrison
Consolidated Audit Coordinator Power and Utilities

Enclosure

DO A 121149
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**DOW CHEMICAL U. S. AREA
CONSOLIDATED AUDIT PROGRAM**

**POWER I/UTILITIES PLANT
LOUISIANA DIVISION
FINAL UPDATE OF THE ACTION PLAN**

OCCUPATIONAL HEALTH AUDIT

ACTION ITEM	DUE DATE/STATUS
GENERAL INDUSTRIAL HYGIENE	
1. Finish 1993 CPAI, Update for 1994	Morrison 12/94 COMP.
HAZCOM	
1. Update written HAZCOM program.	Morrison 10/94 COMP.
2. Label the few bottles without labels - Power 1.	Morrison 9/94 COMP.
HEARING CONSERVATION	
1. Post the requirements for operating shop pedestal grinder.	Morrison 10/94 COMP.
RESPIRATOR PROTECTION	
1. Update written respirator plan with Scott-Acme respirators.	Morrison 12/94 COMP.
VENTILATION	
1. Repair analyzer shacks (2825) exhaust fan.	Crousilac 10/94 COMP.
ASBESTOS	
1. The gasket storage area in Power 1 and Utilities needs to be vacuumed.	Morrison 9/94 COMP.
2. The non-asbestos material needs to be removed from the dumpster.	COMP. Morrison 8/94

ACTION PLAN(cont.)

ELECTRICAL RELIABILITY AUDIT

ACTION ITEM

DUE DATE/STATUS

1. Train block electrical personnel in proper grounding practices. **COMP. Brundage 12/94**
2. Material stored in clearance zone required by National Electric Code. Move material to give required access zone. **COMP Brundage 12/94**

REACTIVE CHEMICALS AUDIT

ACTION ITEM

DUE DATE/STATUS

1. Develop acceptance criteria for the inhibited acid which is used for boiler cleaning and verify by performing positive ID testing. **COMP Rawlings 5/95**
2. Determine if oxygen in the offgas is a credible scenario and provide defenses. **COMP Morrison 11/94**

CHEMICAL EXPOSURE INDEX(CEI)

ACTION ITEM

DUE DATE/STATUS

1. Continue updating P&ID's and implement a method for recording all changes. **Taylor 12/97**

HAZARDOUS MATERIAL TRANSPORTATION REVIEW(HMTR)

ACTION ITEM

DUE DATE/STATUS

1. Develop checklist for chlorine bottles/cylinders. **COMP Morrison 10/94**
2. File the CEI portion of the audit with the Loss Prevention Portion. **COMP Morrison 12/94**

SAFETY AUDIT

To be completed by Gervy Smith SEE ATTACHED.

ACTION PLAN(cont.)

LOSS PREVENTION AUDIT

ACTION ITEM

DUE DATE/STATUS

PROJECT REVIEWS:

1. Document all project reviews and pre-startup reviews and file them in a central location.

COMP Morrison 12/94

FIRE EQUIPMENT OPPORTUNITIES

1. Complete the burner management documentation package to comply with L.P.P.-13.1 and guidelines from the Power Tech Center.

COMP Morrison 3/95

ACTION ITEM

DUE DATE/STATUS

INSURANCE PACKAGE

1. The insurance information form will be completed and reviewed with loss prevention.

COMP Morrison 3/95

POWER 1/UTILITIES Consolidate Audit Summary

May 6, 1996

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Project No.	Project Name	Dept. Responsible	Person Responsible	Est. Start	Est. Finish	Status
DR-1	Documentation Review	Power 1	Gervy Smith	08/01/94	08/20/94	Complete
DR-2	Documentation Review	Power 1	Ronnie E. Daigle	09/01/94	12/31/94	Complete
SQ-F1	Documentation Review	POWER 1	SAFETY COMM.	01/01/94	12/30/94	Complete
DR-3	Documentation Review	POWER 1	ROGER HUDSON	09/01/94	10/15/94	Complete
DR-4	Documentation Review	Power 1	Tommy Rozas	09/01/94	12/01/94	Complete
DR-5	Documentation Review	Power 1	Tommy Rozas	09/01/94	12/31/94	Complete
DR-6	Documentation Review	Power 1	Joe Rawlings	09/01/94	12/31/94	Complete
DR-7	Documentation Review	Power 1	Ronnie E. Daigle	08/01/94	12/31/94	Complete
DR-9	Documentation Review	Power 1	Ronnie E. Daigle	01/01/94	12/31/94	Complete
DR-10	Documentation Review	Power 1	All assigned C-9 activity	01/01/94	12/31/94	Complete
DR-11	Documentation Review	Power 1	Gervy Smith	01/01/94	12/31/94	Complete
DR-12	Documentation Review	Power 1	Ronnie E. Daigle	01/01/94	12/31/94	Complete
DR-13	Documentation Review	Power 1	Gervy Smith	09/01/94	12/31/94	Complete
DR-14	Documentation Review	Power 1	Ronnie E. Daigle	09/01/94	12/31/94	Complete
DR-15	Documentation Review	Power 1	Tommy Rozas/Shift Supervisor	09/01/94	12/31/96	Working
FI-1	Field Inspection #1 at B-2804	Power 1	Tommy Rozas	09/01/94	10/01/94	Complete
FI-2	Field Inspection #1 at B-2804	Power 1	Tommy Rozas	09/01/94	12/31/94	Complete
FI-3	Field Inspection #1 at B-2804	Power 1	Marty Morrison/Gervy Smith	09/01/94	09/15/94	Complete
FI-4	Field Inspection #1 at B-2804	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-5	Field Inspection #1 at B-2804	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-6	Field Inspection #1 at B-2804	Power 1	Glenn Crousillac	09/09/94	11/30/94	Complete
FI-7	Field Inspection #1 at B-2804	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-8	Field Inspection #1 at B-2804	Power 1	Glenn Crousillac	09/09/94	10/31/94	Complete
FI-9	Field Inspection #1 at B-2804	Power 1	Glenn Crousillac	09/09/94	10/15/94	Comple
FI-10	Field Inspection #1 at B-2804	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete

POWER I/UTILITIES Consolidate Audit Summary

May 6, 1996

Project No.	Project Name	Dept. Responsible	Person Responsible	Est. Start	Est. Finish	Status
FI-11	Field Inspection #1 at B-2804	Power 1	Glenn Crousillac	09/09/94	11/30/94	Complete
FI-12	Field Inspection #1 at B-2808	Power 1	Glenn Crousillac	09/09/94	10/14/94	Complete
FI-13	Field Inspection #1 at B-2808	Power 1	Glenn Crousillac	09/09/94	10/14/94	Complete
FI-14	Field Inspection #1 at B-2808	Power 1	Glenn Crousillac	09/09/94	10/14/94	Complete
FI-15	Field Inspection #1 at B-2808	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-16	Field Inspection #1 at B-2808	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-17	Field Inspection #1 at B-2808	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-18	Field Inspection #1 at B-2808	Power 1	Glenn Crousillac	09/09/94	10/15/94	Complete
FI-19	Field Inspection #1 at B-2808	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-20	Field Inspection #1 at B-2808	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-21	Field Inspection #1 at B-2808	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-22	Field Inspection #1 at B-2808	Power 1	Gervy Smith	09/01/94	09/01/94	Complete
FI-23	Field Inspection #1 at B-2808	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-24	Field Inspection #1 at B-2808	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-25	Field Inspection #1 at B-2808	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-26	Field Inspection #1 at B-1802	Utilities	Glenn Crousillac	09/09/94	10/15/94	Complete
FI-27	Field Inspection #1 at B-1802	Utilities	Gervy Smith	09/01/94	09/01/94	Complete
FI-28	Field Inspection #1 at B-1802	Utilities	Glenn Crousillac	09/09/94	10/15/94	Complete
FI-29	Field Inspection #1 at B-1802	Utilities	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-30	Field Inspection #1 at B-2804	Power 1	Glenn Crousillac	09/09/94	12/31/94	Complete
FI-31	Field Inspection #1 at B-2804	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-32	Field Inspection #1 at B-2804	Power 1	Auditor	07/07/94	07/07/94	Complete
FI-33	Field Inspection #1 at B-2804	Power 1	Glenn Crousillac	09/09/94	11/30/94	Complete
FI-34	Field Inspection #1 at B-2804	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-35	Field Inspection #1 at B-1802	Utilities	Glenn Crousillac	09/09/94	10/31/94	Complete

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POWER 1/UTILITIES Consolidate Audit Summary

May 6, 1996

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Project No.	Project Name	Dept. Responsible	Person Responsible	Est. Start	Est. Finish	Status
FI-36	Field Inspection #1 at B-1802	Utilities	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-37	Field Inspection Team #2	Power 1	Operations/Glenn Crousillac	09/09/94	11/30/94	Complete
FI-38	Field Inspection Team #2	Power 1	Operations	09/09/94	12/31/96	Working
FI-39	Field Inspection Team #2	Power 1	Gervy Smith	09/09/94	09/09/94	Complete
FI-40	Field Inspection Team #2	Power 1	Ronnie E. Daigle	09/09/94	10/31/94	Complete
FI-41	Field Inspection Team #2	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-42	Field Inspection Team #2	Power 1	Operations	09/09/94	09/30/94	Complete
FI-43	Field Inspection Team #2	Power 1	Glenn Crousillac	09/09/94	11/30/94	Complete
FI-44	Field Inspection Team #2	Power 1	Glenn Crousillac	09/09/94	11/30/94	Complete
FI-45	Field Inspection Team #2	Power 1	Glenn Crousillac	09/09/94	10/31/94	Complete
FI-46	Field Inspection Team #2	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-47	Field Inspection Team #2	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-48	Field Inspection Team #2	Power 1	Glenn Crousillac	09/09/94	11/30/94	Complete
FI-49	Field Inspection Team #2	Power 1	Glenn Crousillac	09/09/94	09/30/94	Complete
FI-50	Housekeeping (not listed on Audit report, but should be done).	Power 1	Shift Supervisor/Tommy Rozas	09/12/94	10/31/94	Complete

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POWER 1/UTILITIES CONSOLIDATED AUDIT ACTION ITEMS

Project No: Priority: Status:

Cross Reference:

Project Name:

Project Description:

Document training of operators on the following:

"See Actions Needed"

Estimated Start: Estimated Finish:

Department Responsible:

Person Responsible: Supervisor:

Actions Needed:

- * Steps for each operating phase including startup, normal operations, temporary operations, emergency shutdown, emergency operations, normal shutdown, and startup following a turnaround or emergency shutdown.
- * Operating limits including consequences of deviations and steps required to avoid deviations.
- * Safety and health considerations
- * Safety systems and their functions

Completion:

Comp. Date: Approval: By:

[M:POWER 1/SAFETY/AUDITS]CONAUD94.DOC

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POWER 1/UTILITIES CONSOLIDATED AUDIT ACTION ITEMS

Project No: Priority: Status:

Cross Reference:

Project Name:

Project Description:

Process Area

Estimated Start:

Estimated Finish:

Department Responsible:

Person Responsible: Supervisor:

Actions Needed:

Not a lot of stenciling of lines in the process area. Other than road crossings there does not seem to be a lot of line contents identification.

Completion:

Comp. Date:

Approval:

By:

[M:POWER 1/SAFETY/AUDITS]CONAUD94.DOC

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**DOW CHEMICAL U. S. AREA
CONSOLIDATED AUDIT PROGRAM**

**POWER II PLANT
LOUISIANA DIVISION
FINAL UPDATE OF THE ACTION PLAN**

OCCUPATIONAL HEALTH AUDIT

ACTION ITEM	DUE DATE/STATUS
GENERAL INDUSTRIAL HYGIENE	
1. Move the coffee pot in the warehouse.	COMP. Daigle 8/93
2. Complete 1992 I. H. Report	COMP. Morrison 9/93
GENERAL MEDICAL	
1. Procedure - Contact medical when an employee transfers into the block.	COMP. Smith 6/94
RESPIRATOR PROTECTION	
1. Update written respirator plan.	COMP. Morrison 12/93
2. Conduct monitoring for ceramic fibers. Include monitoring results in written report.	COMP. Morrison 8/93 COMP. Morrison 10/94
3. Add monthly SCBA inspection to C-9.	COMP. Smith 12/93
VENTILATION	
1. Document weekly/quarterly checks of lab fume hood.	COMP. Morrison 1/94
2. Evaluate sandblast cabinet for cyclone/dust collector.	COMP. Daigle 12/93
3. Post signs in warehouse associated with welding rods used.	COMP. Morrison 8/93
ASBESTOS	
1. Move the packing material to the designated storage area and dispose of any unnecessary packing.	COMP. Daigle 10/93
2. Put a line on the floor designating the boundry of the storage area and move the "Do Not Sweep" sign to the floor.	COMP. Daigle 10/93

ACTION PLAN(cont.)

REACTIVE CHEMICALS AUDIT

ACTION ITEM	DUE DATE/STATUS
1. Establish a procedure to purge the generators to 2% oxygen before reintroducing hydrogen.	COMP Daigle 8/93
2. Review/amend disposal of fuel gas filters.	COMP. Morrison 11/93
3. Determine if syngas/fuel gas condensate are compatible with each other during upsets.	COMP. Geoffroy 11/93

CHEMICAL EXPOSURE INDEX(CEI)

ACTION ITEM	DUE DATE/STATUS
1. Conduct 1 emergency drill simulating an in-block chlorine release at least once pre year.	COMP. Smith 12/93

HAZARDOUS MATERIAL TRANSPORTATION REVIEW(HMTR)

ACTION ITEM	DUE DATE/STATUS
1. Give Hazcom training concerning chlorine.	COMP. Morrison 12/93
2. Give "First Alert" Training concerning chlorine cylinders.	COMP. Morrison 12/94

SAFETY AUDIT

ACTION ITEM	DUE DATE/STATUS
EMPLOYEE TRAINING	
1. Set goals for taking IPT modules.	COMP. Rozas 12/93
2. Schedule the writing and answers for IPT's.	COMP. Rozas 12/93

ACCIDENT/INCIDENT INVESTIGATION AND REPORTING

1. Become familiar with the "root cause" process.	COMP. Smith 10/93
2. Track accident/incident data to determine needs for special emphasis.	COMP. Smith 10/93

ACTION PLAN(cont.)

SAFETY AUDIT(cont.)

ACTION ITEM

DUE DATE/STATUS

SAFETY SUGGESTION SYSTEM

1. Consider implementing a safety suggestion program separate from the use of unsafe condition report form. **COMP. Smith 8/93**

AWARD/RECOGNITION SYSTEM

1. Re-evaluate the award program to encourage participation by more people. **COMP. Smith 8/93**

CONTRACTOR SAFETY

1. Develop checklist that documents the pre-job safety conferences including small jobs. **COMP. Daigle 12/93**

OFF THE JOB SAFETY

1. Develop a form that will track off-the-job safety. **COMP. Smith 12/93**

COMMUNICATIONS

1. Audit all forms of operational communications to insure their effectiveness. **COMP. Rozas 12/93**

AUDITS

1. Promote the cross-audit practice. **COMP. Smith 8/93**

SAFE WORK PRACTICES

1. Establish guidelines and timetables for training operators on the 401 job procedures. **COMP. Rozas 4/94**
2. Consider documentation process to insure that all affected people stay up to date on changes in procedures. **COMP. Rozas 4/94**

ACTION PLAN(cont.)

ELECTRICAL RELIABILITY AUDIT

ACTION ITEM	DUE DATE/STATUS
1. Evaluate the need to rehabilitate the terminal enclosures, sandblast and paint MP-1000(A&B).	COMP. Cooper 12/93
2. Evaluate the need to rehabilitate the terminal enclosures, sandblast and paint P2-1 Syn Bus PT enclosure.	COMP. Cooper 12/93
3. Update grounding grid drawings to "as built". Show missing grounding wells as grounding rods.	COMP. Cooper 12/93
4. Replace the broken well cover.	COMP. Cooper 11/93
5. Reseal terminal connections.	
6. Repair/rehabilitate grounding wells having covers partially covered with concrete and/or difficult to remove.	COMP. Cooper 11/93

LCES PREVENTION AUDIT

ACTION ITEM	DUE DATE/STATUS
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ELECTRICAL SYSTEM OPPORTUNITIES

1. The replacement of the Fuji bushing has begun. Bus 300 was completed in August 1993. All the syn-bus tie breakers should be complete by the end of the year. Two buses are scheduled during 1994. The final bushing replacement will take place in 1995. Syn Bus Tie Bkrs. Completed 1993, Bus 4, Bus 200 Completed 1996, Bus 400 Completed 1995, Bus 100 Scheduled 1996 - Craft
2. Cable bus overheating is being monitored. Plans are in progress to modify the existing cable bus system to allow more heat to escape. H-610 will require a new transposition section which has been ordered and is due to arrive in December. Additionally, all the hot cable buses will have their cable bus covers raised. There are presently three cable buses that are overheating; H-402, H-610, and H-304. All three buses should be modified by the end of the first quarter of 1994. Completed 12/94. Gleichman
3. Modification to the relay protection system is in progress. The required changes will be coordinated with plant outages to allow access to different buses. These changes will be on-going in conjunction with the Fuji bushing changes. 12/97. Craft
4. The station service transformers for 100/200 are on hold until better economic conditions exist due to high cost; Approximately \$700,000. Scheduled completion date 8/97 Craft.

LOSS PREVENTION AUDIT

ACTION ITEM

DUE DATE/STATUS

FIRE PROTECTION OPPORTUNITIES

1. GT-300 louvers will be repaired at the next overhaul. **COMP. Cooper 7/94**
2. The Power Tech Center will be contacted concerning hand held HALON fire extinguishers. **COMP. Cooper 10/93**
3. A champs work order was put into the system concerning "Update of the Power 2 Fire Protection Plot Plan. **COMP. Daigle 12/93**
4. Power 2 will contact Fire Protection Department to schedule a meeting discussing a credible fire scenario for Power 2. **COMP. Daigle 12/93**

FIRE EQUIPMENT OPPORTUNITIES

1. The thermocouple runback and trip requirements have been completed on GT-200. These changes will be made on GT-100 during the next available outage. **COMP. Cooper 1/94**
 2. Vibration trip logic changes are in progress. The changes will require software programming upgrades to the tri-sen systems. GT-200 changes will occur during the first available outage of 1994. The vibration system for GT-100 will have to be upgraded before the changes can be implemented. The GT-100 vibration upgrade project has been approved and is scheduled for completion by the end of 1994. The vibration logic changes will be implemented with the upgrade. **Complete 12/95. Gleichman/Craft**
 3. The compressor efficiency calculation program is due to be reviewed by the end of 1993. **COMP. Geoffroy 12/93**
 4. Methods for monitoring generator shaft voltage are being investigated. Plans are to have a method in place by the end of the first quarter 1994. **COMP. Cooper 2/94**
 5. Procedures for the checkout of relay trip circuits are being written by the distribution department as the jobs come up. The procedures are provided to the plant for review prior to the start of the job. MOC also require that procedures be written. **COMP. Taylor 3/94**
- A copy of the Tech Center audit questionnaire was included in the audit document file. **COMP. Rozas 10/93**

ACTION ITEM**DUE DATE/STATUS****CRITICAL INSTRUMENT OPPORTUNITIES**

1. The critical instrument test procedures are in the process of being updated and is expected to be completed by the end of the first quarter 1994. **GT-300/400 PROCEDURES COMPLETED. 100/200 PROCEDURES -COMPLETED 10/94. Gleichman**
2. The failure of the tri-sen modules is currently being addressed with tri-sen. Tri-sen repair reports will now identify the component(s) which failed and whether it appears to have been caused by an external event which we can address and correct. **COMPLETED 12/1994. Gleichman**

ACTION ITEM**DUE DATE/STATUS****CRITICAL INSTRUMENT RECOMMENDATIONS**

1. Procedures are being updated to include testing from the sensing element through the operating device where possible. **COMPLETED 10/94 Gleichman.**
2. The procedures are being updated to include the proper settings for each instrument, as well as, the equipment I.D. **COMPLETED 10/94 Gleichman.**

EMERGENCY BLOCK VALVES OPPORTUNITIES

Emergency block valves are manually operated during each extended outage to ensure that they are working properly. In the future, these functional tests will be documented and any corrective actions required will be noted. **PROCEDURES FOR 300/400 BLOCK/ISOLATION VALVES ARE COMPLETE AND BEING USED. 100/200 PROCEDURES COMPLETED 10/94. Gleichman**

WAREHOUSE STORAGE OPPORTUNITIES

Building 3703 warehouse will be repaired/demolished as soon as the economic picture gets brighter. **BOARDS WERE ENCAPSULATED 10/94 - MORRISON.**

PRESSURE VESSELS/RELIEF DEVICES

The recommendations outlined in the audit done earlier. A time schedule is being developed.
COMP. Daigle, Johnson 10/93

FLAMMABLE MIXTURES

The procedure for purging and checking for oxygen depletion prior to putting the fuel gas lines back in service on GT-100/200 is being developed. **COMP. Rozas 8/94**

MANAGEMENT OF CHANGE

The MOC program has been reviewed to make it a more active program. **COMP. Rozas 10/93**

DO A 121163
CONFIDENTIAL

LOSS PREVENTION AUDIT

ACTION ITEM

DUE DATE/STATUS

INSURANCE PACKAGE

1. A "B" size scaled plot plan drawing will be obtained and included the F&EI calculation circles on it.
COMP. Rozas 3/95
2. The insurance information form will be completed and reviewed with loss prevention.
COMP. Rozas 3/95

CONSOLIDATE AUDIT FOLLOW-UP ACTIONS

The consolidated audit follow-up actions have been reviewed with Bill Sharkey (Plant Superintendent-Power 2) and Johnnie Masey (Major Manager - Hydrocarbons and Power). This review took place during October and November 1993.

Marty Morrison
Power and Utilities

**DOW U.S. AREA
CONSOLIDATE AUDIT PROGRAM**

**POWER II PLANT
LOUISIANA DIVISION
ACTION PLAN**

OCCUPATIONAL HEALTH AUDIT

ACTION ITEM	DUE DATE/STATUS
--------------------	------------------------

GENERAL INDUSTRIAL HYGIENE

- | | | |
|--|----------------|----------|
| 1. Move the coffee pot in the warehouse. | Patot Daigle | COMPLETE |
| 2. 1992 Report. | Marty Morrison | COMPLETE |

GENERAL MEDICAL

- | | |
|--|----------|
| 1. PROCEDURE - Contact medical when an employee transfers into the block.
Marty Morrison, Gervy Smith | 12/31/93 |
|--|----------|

RESPIRATOR PROTECTION

- | | | |
|---|----------------|----------|
| 1. Update written respirator plan. | Marty Morrison | 12/1/93 |
| 2. Conduct monitoring for ceramic fibers. | Marty Morrison | 11/15/93 |
| Include monitoring results in written report. | Marty Morrison | 5/94 |
| 3. Add monthly SCBA inspection to C-9. | Gervy Smith | COMPLETE |

VENTILATION

- | | | |
|---|----------------|----------|
| 1. Document weekly check of lab fume hood. | Marty Morrison | COMPLETE |
| 2. Evaluate sandblast cabinet for cyclone/dust collector. | Patot Daigle | 12/31 |
| 3. Post additional signs in warehouse associated with the type of welding rods used.. | Marty Morrison | 11/30 |

ASBESTOS

- | | | |
|--|--------------|----------|
| 1. Move the packing material to the designated storage area and dispose of any unnecessary packing. | Patot Daigle | 10/31 |
| 2. Put a line on the floor designating the boundary of the storage area and move the "Do Not Sweep" sign to the floor. | Patot Daigle | COMPLETE |

ACTION PLAN (cont.)

REACTIVE CHEMICALS AUDIT

ACTION ITEM	DUE DATE/STATUS
1. Establish a procedure to purge the generators of air to 2% oxygen before reintroducing hydrogen. Ronnie Daigle	COMPLETE
2. Review/amend disposal of fuel gas filters. Marty Morrison	11/15
3. Determine if syngas/fuel gas condensate are compatible with each other during upsets. David Geoffroy	11/30

CHEMICAL EXPOSURE INDEX(CEI)

ACTION ITEM	DUE DATE/STATUS
1. Conduct 1 emergency drill simulating an in-block chlorine release at least once per year. Gervy Smith	12/31/93

HAZARDOUS MATERIAL TRANSPORTATION REVIEW(HMTR)

ACTION ITEM	DUE DATE/STATUS
1. Give Hazcom training concerning chlorine. Marty Morrison	COMPLETE
2. Give "First Alert" Training concerning chlorine cylinders. Bruce Cooper, Marty Morrison	12/31/93

SAFETY AUDIT

ACTION ITEM	DUE DATE/STATUS
--------------------	------------------------

EMPLOYEE TRAINING

1. Set goals for taking IPT modules. All	COMPLETE
2. Schedule the writing and answers for IPTs. Tommy Rozas	12/31/93

ACCIDENT/INCIDENT INVESTIGATION AND REPORTING

1. Become familiar with the "root cause" process. Gervy Smith	11/30/93
2. Track accident/incident data to determine needs for special emphasis. David Geoffroy, Gervy Smith	COMPLETE

ACTION PLAN (cont.)

SAFETY AUDIT(cont.)

ACTION ITEM

DUE DATE/STATUS

SAFETY SUGGESTION SYSTEM

1. Consider implementing a safety suggestion program separate from the use of unsafe condition report form. **Gervy Smith** **COMPLETE**

AWARD/RECOGNITION SYSTEM

1. Re-evaluate the award program to encourage participation by more people. **Gervy Smith** **11/1/93**

CONTRACTOR SAFETY

1. Develop checklist that documents the pre-job safety conferences including small jobs. **Patot Daigle, Gervy Smith** **11/30/93**

OFF THE JOB SAFETY

1. Develop a form that will track off-the-job safety. **David Geoffroy, Gervy Smith** **11/30/93**

COMMUNICATIONS

1. Audit all forms of operational communications to insure their effectiveness. **Tommy Rozas** **12/31/93**

AUDITS

1. Promote the cross-audit practice. **Gervy Smith** **COMPLETE**

SAFE WORK PRACTICES

1. Establish guidelines and timetables for training operators on the 401 job procedures. **Tommy Rozas** **Done on a yearly bases and will be completed in 1993.**
2. Consider a documentation process to insure that all affected people stay up to date on changes in procedures. **Tommy Rozas** **11/30/93**

ACTION PLAN (cont.)

ELECTRICAL RELIABILITY AUDIT

ACTION ITEM

DUE DATE/STATUS

Note: Bruce Cooper will follow up on electrical items.

1. Evaluate the need to rehabilitate the terminal enclosures, sandblast and paint MP-1000(A & B). 12/31/93
2. Evaluate the need to rehabilitate the terminal enclosures, sandblast and paint P2-1 Syn Bus PT enclosure. 12/31/93
3. Update grounding grid drawings to "as built". Show missing grounding wells as grounding rods. 11/30/93
4. Replace the broken well cover. 11/30/93
5. Reseal terminal connections. 11/30/93
6. Repair/rehabilitate grounding wells having covers partially covered with concrete and/or difficult to remove. 11/30/93

LOSS PREVENTION AUDIT

ACTION ITEM

DUE DATE/STATUS

ELECTRICAL SYSTEMS OPPORTUNITIES

Note: Bruce Cooper will follow up on electrical items.

1. The replacement of the Fuji bushings has begun. Bus 300 was completed in August 1993. All the syn-bus tie breakers should be completed by the end of the year. Two buses are scheduled to be completed during 1994. The final bushing replacement will take place in 1995.
2. Cable bus overheating is being monitored. Plans are in progress to modify the existing cable bus system to allow more heat to escape. H-610 will require a new transposition section which has been ordered and is due to arrive in December. Additionally, all the hot cable buses will have their cable bus covers raised. There are presently three cable buses that are overheating; H-402, H-610, and H-304. All three buses should be modified by the end of the first quarter of 1994.
3. Modification to the relay protection system is in progress. The required changes will be coordinated with plant outages to allow access to different buses. These changes will be on-going in conjunction with the Fuji bushing changes.
4. The station service transformers for 100/200 are on hold until better economic conditions exist due to the high cost; Approximately \$700,000.

15

DUE DATE/STATUS

1. GT-300 louvers will be repaired at the next overhaul. Bruce **NEXT OVERHAUL**
2. Power 2 will follow the Dow guidelines for the phase out of HALON.

1. The Power Tech Center will be contacted concerning hand held HALON fire extinguishers.	Bruce Cooper	10/31/93
2. A champs work order was put into the system concerning "Update of the Power 2 Fire Protection Plot Plan.	Patot Daigle	COMPLETE
3. Power 2 will contact Fire Protection Department to schedule a meeting discussing a credible fire scenario for Power 2	David Geoffroy	11/30/93

Note: Bruce Cooper will follow up on fired equipment concerns.

1. The thermocouple runback and trip requirements have been completed on GT-200. These changes will be made on GT-100 during the next available outage.
2. Vibration trip logic changes are in progress. The changes will require software programming upgrades to the tri-sen systems. GT-200 changes will occur during the first available outage of 1994. The vibration system for GT-100 will have to be upgraded before the changes can be implemented. The GT-100 vibration upgrade project has been approved and is scheduled for completion by the end of 1994. The vibration logic changes will be implemented with the upgrade.
3. The compressor efficiency calculation program is due to be reviewed by the end of 1993.
4. Methods for monitoring generator shaft voltage are being investigated. Plans are to have a method in place by the end of the first quarter of 1994.
5. Procedures for the checkout of relay trip circuits are being written by the distribution department as the jobs come up. The procedures are provided to the plant for review prior to the start of the job. MOC also require that procedures be written.

A copy of the Tech Center audit questionnaire was included in the audit documentation file.

ACTION PLAN (cont.)

ACTION ITEM

DUE DATE/STATUS

CRITICAL INSTRUMENTS OPPORTUNITIES

Note: Bruce Cooper will follow up on critical instrument items.

1. The critical instrument test procedures are in the process of being updated and is expected to be completed by the end of the first quarter 1994.
2. The failure of tri-sen modules is currently being addressed with tri-sen. Tri-sen repair reports will now identify the component(s) which failed and whether it appears to have been caused by an external event which we can address and correct.

CRITICAL INSTRUMENTS RECOMMENDATIONS

1. Procedures are being updated to include testing from the sensing element through the operating device where possible. **12/94**
2. The procedures are being updated to include the proper settings for each instrument, as well as, the equipment I.D. **12/94**

EMERGENCY BLOCK VALVES OPPORTUNITIES

Emergency block valves are manually operated during each extended outage to ensure that they are working properly. In the future, these functional tests will be documented and any corrective actions required will be noted. **Bruce Cooper 12/31/93**

WAREHOUSE STORAGE OPPORTUNITIES

Building 3703 warehouse will be repaired/demolished as soon as the economic picture gets brighter.

PRESSURE VESSELS/RELIEF DEVICES

The recommendations outlined in the audit done earlier. A time schedule is being developed. **Ronnie Daigle, Wes Johnson 10/31/93**

FLAMMABLE MIXTURES

The procedure for purging and checking for oxygen depletion prior to putting the fuel gas lines back in service on GT-100/200 is being developed. **Tommy Rozas 12/31/93**

MANAGEMENT OF CHANGE

The moc program has been reviewed to make it a more active program. **COMPLETE**

ACTION PLAN (cont.)

ACTION ITEM

DUE DATE/STATUS

INSURANCE PACKAGE

1. A "B" size scaled plot plan drawing will be obtained and include the F&E I calculation circles on it.
Tommy Rozas 1/31/94
2. The insurance information form will be completed and reviewed with loss prevention.
Tommy Rozas 1/31/94

OCCUPATIONAL HEALTH AUDIT

(July 7, 1994)

AUDIT TEAM: Bruce Heinze, Jackie Paul, Dave Albert,
Howard Wilkinson

PLANT IH CONTACT: Marty Morrison

ATTENDANCE: Joe Rawlings, Roger Hudson, Ken Fox,
Buck Bailey, Eddie Supple

WRITER: Maralee Marchant

GENERAL INDUSTRIAL HYGIENE/MEDICAL

The I.H. Manual is complete, however, most written programs need to be reviewed and updated as needed. Eating facilities and equipment were clean. Industrial hygiene training was conducted by the shift supervisors on a quarterly basis. The Block Indoctrination video was updated in fall of 1993 and covers the chemical and physical hazards in the block.

Recommendations:

- M 1. The 1993 CPAI is being added to the computer database and needs to be updated for 1994.

HAZCOM PROGRAM

Power I/Utilities employees receive HAZCOM training annually. The 1993 training was performed quarterly by the shift supervisors. The labeling of plant equipment was good. The HAZCOM/MSDS notebooks are readily available in the control room.

Recommendations:

- M 1. The written HAZCOM program needs to be reviewed and updated (written program, chemical list, vessel ID/cross reference table, current MSDSheets).
- M 2. There are a few bottles in the lab which need labels to comply with Dow Hazard Communication labeling requirements.

HEARING CONSERVATION

Annual training was conducted during 1993. The Power 1 block is posted as a hearing protection required area. The Utilities block is posted as needed. Also, high noise areas in the process area are posted with appropriate double hearing protection signs.

Recommendations:

- M 1. The protective equipment requirements for operating the shop pedestal grinder need updating to include the use of hearing protection.

RESPIRATORY PROTECTION

The plants written Respiratory Protection Program is current (5/94), training was conducted third quarter 1993 by shift supervisors. The plant respirator cleaning station located in 2801 is posted and equipped with the necessary supplies. We support your decision to move the Life Air units to the permit writer's office at the Utilities plant to assure maintenance.

Recommendations:

- M 1. The Scott-Acme respirator needs to be added to the written respiratory program.

PERSONAL PROTECTIVE EQUIPMENT

The plant's written program is current for 1994.

Recommendations:

No recommendations at this time.

ERGONOMICS

Recommendations:

No recommendations at this time.

THERMAL STRESS

Recommendations:

No recommendations at this time.

DOW CONFIDENTIAL

M = Must-Do

HR = Highly Recommended

VENTILATION

The laboratory fume hoods are equipped with flow sensing devices and are checked quarterly. The last comprehensive hood survey was performed in December 1992. The housekeeping in the labs and the hoods was good.

Recommendations:

- M 1. Analyzer shack (2825) needs to have the exhaust fan repaired.

WELDING

Signs were posted describing the health hazards of welding. Sources of ventilation for the welding area include wall fans at each end of the building at Power 1, one wall fan at Utilities, and large doorways.

Recommendations:

No recommendations at this time.

ASBESTOS

Inventory of asbestos-containing material was available for 1993 and 1994. Annual training records were documented for 1993.

Recommendations:

- M 1. The gasket storage area in the Power 1 and the Utilities plant need to be vacuumed.
- M 2. The non-asbestos material needs to be removed from the disposal dumpster.

DO A 121175
CONFIDENTIAL

DOW CONFIDENTIAL

M = Must-Do

HR = Highly Recommended

ELECTRICAL RELIABILITY AUDIT SUMMARY

(May 3, 4, 5, 1994)

AUDIT TEAM: Mike Gee

PLANT CONTACT: Gary Landry

WRITER: Mike Gee

The electrical reliability audit for the Power I plant was conducted in May, 1994 as per the Five Point Electrical Reliability Program.

Those items identified with an index of 4 or higher in the Electrical Reliability report need some attention and a response. Please refer to the report.

The overall condition of the electrical assets of Power I reflects a commitment to continuous improvement. The audit team finds Power I has an overall average condition.

Recommendations: Power I

- HR 1. 30 - 40% of junction boxes not properly grounded. Ground junction boxes, bond back panels, and conduits per L7C-0101-00 3.5.1. Train block electrical personnel in proper grounding practices.
- HR 2. 50-60% of motors are improperly grounded. Ground motors per L7C-0101 5.4 and detail L7C 0118-01. Train block electrical personnel in proper grounding practices.
- M 3. Material stored in clearance zone required by National Electric Code. Move material to give required clear access zone. NEC 110-16, 110-34.

Recommendations: Utilities

- HR 1. 30 - 40% of junction boxes not properly grounded. Ground junction boxes, bond back panels, and conduits per L7C-0101-00 3.5.1. Train block electrical personnel in proper grounding practices.

M = Must-Do

DOW CONFIDENTIAL

HR = Highly Recommended

Page 5

DO A 121176
CONFIDENTIAL

- HR 2. 30-40% of motors are improperly grounded. Ground motors per L7C-0101 5.4 and detail L7C 0118-01. Train block electrical personnel in proper grounding practices.
- M 3. Material stored in clearance zone required by National Electric Code. Move material to give required clear access zone. NEC 110-16, 110-34.

CHEMICAL EXPOSURE INDEX REVIEW

(July 15, 1994)

AUDIT TEAM: Greg Nesmith, Buck Bailey

**PLANT
CONTACT:** Marty Morrison

ATTENDANCE: Roger Hudson, Joe Rawlings, Ken Fox,
Howard Wilkinson, Eddie Supple

WRITER: Greg Nesmith

The pre-audit review for the Chemical Exposure Index (CEI) was completed on Monday, July 11, 1994. The following people participated and represented their respective areas: Greg Nesmith, CEI; Marty Morrison, Power I/Utilities; Buck Bailey, Safety and Loss Prevention. The pre-audit simply consisted of a discussion of the CEI calculations, a short review of the previous audit, and an overview of the changes in the plant since the last audit.

During the course of the pre-audit, the only significant events revolved around the CEI calculations themselves. First, aqueous hydrogen chloride (HCl) is a concern at the Utilities plant; however, the present CEI calculation method is not suited for vapor-liquid solutions. Data for anhydrous HCl could be used but would be much too conservative (CEI of more than 700) since it is a vapor at ambient conditions. To compensate, the physical properties of water were substituted to model the solution. Vapor pressure data was based on experimental data for aqueous HCl. The resulting CEI of 9 was assumed to be more accurate based on past experience with aqueous HCl spills.

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M = Must-Do

HR = Highly Recommended

Page 6

DO A 121177
CONFIDENTIAL

On a related note, a slight problem with the Excel spreadsheet program which has been developed for this calculation was discovered in the process of calculating the CEI of chlorine at Utilities. In this program, the total amount released is based solely on the rate of release. The amount contained at the source of the release is not taken into consideration. Hand calculations were completed to compensate for this problem. The CEI for chlorine at Power I/ Utilities was 378.

ACCOMPLISHMENTS/MAJOR CHANGES SINCE LAST REVIEW:

The P&ID's have been upgraded since the last CEI review to reflect existing operations although the effort is not yet 100% complete.

Recommendations:

- M 1. Documentation: Continue updating P&ID's to represent existing operations. Once the P&ID's are up to date, implement a method for recording all changes.

Note: Although the CEI for chlorine at Power I/ Utilities is high enough to recommend a HAZOP review, such action should be postponed at this time. Since these chlorine cylinders are common throughout Dow, a single HAZOP should be conducted for ALL chlorine cylinders rather than redundant doing one for each plant. Power I/ Utilities will be notified if their assistance is needed in such a process and if any recommendations result from such a review.

DO A 121178
CONFIDENTIAL

DOW CONFIDENTIAL

M = Must-Do

Page 7

HR = Highly Recommended

LOSS PREVENTION/FIRE

(Friday, July 15, 1994)

AUDIT TEAM: Buck Bailey, Bill Franklin, Greg Nesmith

PLANT

CONTACT: Marty Morrison

WRITER: Buck Bailey

The Loss Prevention recommendations from the previous Consolidated Audit have been properly addressed, and the Power 1 and Utilities plants appear to be in good condition with no serious loss prevention concerns.

I appreciate the pre-audit activities and preparations by the plant staff.

Following are a few items to be addressed as a result of the current Consolidated Audit:

INSURANCE PACKAGE:

Recommendations:

- M 1. Follow up with Loss Prevention to finalize the package of information for transmittal to the Corporate Loss Prevention Department for the insurance companies.

FIRED EQUIPMENT:

Recommendations:

- M 1. The Burner Management documentation package should be organized to comply with L.P.P.-13.1 and guidelines from the Power Tech Center.

DO A 121179
CONFIDENTIAL

DOW CONFIDENTIAL

M = Must-Do

HR = Highly Recommended

PROJECT REVIEWS:

Recommendations:

- M 1. To comply with OSHA 1910.119 the project reviews and pre-startup reviews need to be documented and filed so that recommendations are trackable to completion.

CHEMICAL EXPOSURE INDEX:

The CEI calculation for chlorine resulted in value greater than 200, which will normally require further risk analysis reviews. This is to comply with a new Dow "Risk Management Guideline" that is currently being implemented. The source of chlorine in a pressure cylinder which is practically the same as several other users throughout the site and company. So, individual plant risk reviews are not being done.

Recommendations:

- M 1. A separate CEI review summary has been written by Greg Nesmith to summarize the activities and procedures that were involved in the CEI review. Please file it with the Loss Prevention portion of the Consolidated Audit for future reference and documentation.

I appreciate the co-operation and am available as necessary for any follow up or future Loss Prevention activities.

HAZARDOUS MATERIALS TRANSPORTATION REVIEW (HMTR) AND DISTRIBUTION FACILITIES ASSESSMENT (DFA)

(April 8, 1994)

AUDIT TEAM: Dean Smith

PLANT

CONTACT: Donald Yelverton

WRITER: Dean Smith

Comments and Recommendations:

On April 8, 1994 an HMTR/DFA was conducted and completed at the Power I/Utilities Plant as part of the Louisiana Division Consolidated Audit Program. Power I/Utilities Plant does not, as such, ship/transport, load/off-load or store hazardous materials for distribution. Hazardous materials such as chlorine and hydrogen are delivered and used at the facility and the cylinders returned as residue containers. These cylinders being returned have the potential for problem areas as recognized under the US DOT regulations. The Hydrogen tube trailers have recently been cleaned, tested and inspected and are in excellent shape.

Chemicals Reviewed	DRI #	TRANSPORTATION MODE: -All received by Hwy-	PRODUCT (P) FEED (FT)
Chlorine	4	Received in 150# cyl	T-Back-up for water treatment.
Chlorine	4	Received in 1 Ton cyl	T-Sewer treat.
Hydrogen	4	Received in "Tube" trailers	T-Power turbin

HMTR Questionnaire: All areas reviewed were satisfactory.

DFA: Only the Highway Mode was applicable for this part of the HMTR/DFA.

M = Must-Do

DOW CONFIDENTIAL

HR = Highly Recommended

Page 10

DO A 121181
CONFIDENTIAL

Recommendations:

- HR 1. Chlorine cylinders are received and picked up by the vendor, who, in this arrangement of service, have the main responsibility for the proper paperwork and DOT securement checks. However, because this material is classed as a Poison Gas / Inhalation Hazard, the facility must ensure proper marking and labeling is present while in use and prior to return shipment. A checklist and/or written procedure should be used to verify existing cylinders have the proper markings and labels and that those being received have the same. Two 150# chlorine cylinders were noticed to be in bad shape because of corrosion and/or out of date hydrostatic test. These were recommended to be replaced. All of the 1 Ton cylinders were in good order.

The Power I / Utilities Plant is in great shape thanks to the efforts of Marty Morrison. Keep up the good work. Thanks for the continued cooperation.

LABORATORY AUDIT

(June 6, 1994)

AUDIT TEAM: Howard Wilkinson

PLANT CONTACT: Marty Morrison

WRITER: Howard Wilkinson

Overall, the Power I laboratory is excellent shape. The lab inspection found the housekeeping to be in very good condition. Employees have access to all equipment operations manuals and procedures.

Very good job on labeling equipment and cabinets.

Recommendations:

None at this time.

DO A 121182
CONFIDENTIAL

DOW CONFIDENTIAL

M = Must-Do

HR = Highly Recommended

SECURITY AUDIT SUMMARY

(January 4, 1994)

AUDIT TEAM: Al Lott

PLANT

CONTACT: Marty Morrison

WRITER: Al Lott/Howard Wilkinson

All Dow employees are required to wear ID badges. Employees challenge strangers in their work areas. A sign-in/out log is available for visitors to the control room/plant area.

Emergency communications and alert systems are in place and working well. Security awareness seems to be working well at the Power I/Utilities Departments.

Keep up the good work.

Recommendations:

None at this time.

SAFETY AUDIT

(Monday, June 6, 1994; Wednesday, July 13, 1994)

AUDIT TEAM: Don Jones, Eddie Supple, Roddy Peebles,
Howard Wilkinson

ATTENDING: Howard Wilkinson, Buck Bailey, Eddie Supple,
Joe Rawlings, Ken Fox

PLANT

CONTACT: Gervy Smith

WRITER: Don Jones, Eddie Supple

DO A 121183
CONFIDENTIAL

DOW CONFIDENTIAL

M = Must-Do

HR = Highly Recommended

SAFETY QUESTIONNAIRE

A. Program Structure and Planning

See Documentation Review (Safety and Health Suggestions)

B. Employee Participation

No Recommendation

C. Contractor Safety

No Recommendation

D. Accident/Incident Investigation and Reporting

See Documentation Review (Accident/Incident Investigations)

E. Audits

See Documentation Review (Safety Equipment Inspections and Checks)

F. Safe Work Practices

- M 1. Conduct annual performance audits of safe work permits, confined space entry and lockout/tagout. Also, identify deviations and track to completion.**

G. Emergency Planning and Means of Egress

See Documentation Review (Unit Emergency Plans)

H. Employee Training

See Documentation Review (Unit Emergency Plans)

**DO A 121184
CONFIDENTIAL**

I. Safe Operation of Motor Vehicles and Motorized Handling Equipment

No Recommendation

J. Off-The-Job Safety

No Recommendation

EMPLOYEE SURVEY

A new employee survey is being piloted at this plant. The results are still being evaluated and will be forwarded at a later date.

DOCUMENTATION REVIEW

A. Audits

No recommendations

B. Basic Safety

HR 1. Prepare and post safety policy.

C. Unit Emergency Plans

M 1. Update emergency plan.

DO A 121185
CONFIDENTIAL

- M 2. After a drill is conducted the results must be critiqued and the critique documented. If any changes are identified they must also be documented such that the following are shown:
- * What was changed
 - * Who made the change
 - * When the change was made
 - * How the change was communicated
 - * Who communicated the change
 - * Who communicated the change and to whom the change was communicated

D. Job Safety Analysis

- M 1. Operating procedures should include name of person responsible for new or updated procedure instead of shift.
- HR 2. Use a process (i.e. Power II Procedure Revision Form) other than MOC for updating procedures.
- M 3. Deficiencies identified in pre-startup reviews must be documented and corrective actions tracked to completion. Documentation must show:
- * What corrective action was taken
 - * Who completed the corrective action
 - * When corrective action was completed

E. Accident/Incident Investigations

- M 1. Update date due when extends beyond expected. Also, include explanation of why the original date due was missed.

F. Safety and Health Suggestions

- M 1. Assure that all Unsafe Condition Reports are complete.

G. Safety Equipment Inspections & Checks

- M 1. Perform checks on C-9 checklist and sign off on master on or before the due dates. Also complete all blanks including last date, scheduled date, etc.

DO A 121186
CONFIDENTIAL

DOW CONFIDENTIAL

M = Must-Do

HR = Highly Recommended

- M 2. C-9 file documentation (checklists, etc.) incomplete.
- M 3. Deficiencies identified during the C-9 inspections must be documented and corrective actions tracked to completion. Documentation must show:
 - * What corrective action was
 - * Who completed corrective action
 - * When corrective action was completed

H. Hazard Identification Inspections

No recommendations

I. Predictive Preventive Maintenance

No recommendations

J. Variances

- 1. Update variances.

K. Contractors/Vendor/Visitor Orientation

- M 1. Document pre-job meetings.

L. Safety and Operations Training

- M 1. Document training of operators on the following:
 - * Steps for each operating phase including startup, normal operations, temporary operations, emergency shutdown, emergency operations, normal shutdown, and startup following a turnaround or emergency shutdown.
 - * Operating limits including consequences of deviations and steps required to avoid deviations.
 - * Safety and health considerations
 - * Safety systems and their functions

DO A 121187
CONFIDENTIAL

M. Safety Committee Activities

No recommendations

N. Safe Work Practices

No recommendations

FIELD INSPECTION #1

A. LOCKOUT/TAGOUT SYSTEM

- * Red tag masters are located in the same office from which the SafeWork Permits are issued. There is one central location for all masters. Red Tag system/process seems neat and orderly.
 - * Audited 2 masters for accuracy and found all tags to be in place.
- HR 1. Have old masters (1992 & 1993) still active. Although they have been routinely audited and updated, should complete needed work or consider permanent isolation or disabling of equipment in lieu of Red Tags.
- M 2. The masters are not indicating when work crew rosters are NOT used. This practice has been discussed and it is felt that the use OR non use of the work crew roster should be indicated.

B. SAFE WORK PERMITS

No recommendations

C. CONTROL BOARD AREA

No recommendations

DO A 121188
CONFIDENTIAL

DOW CONFIDENTIAL

M = Must-Do

HR = Highly Recommended

D. OFFICE AREAS

- M 1. OSHA and VPP postings present but need to be replaced with new ones, these are tattered.

E. LAB FACILITIES

See Lab Audit portion of Consolidated Audit

F. MOTOR CONTROL CENTERS

See Electrical portion of Consolidated Audit

G. MAINTENANCE SHOP and I & E areas

B-2804

- M 1. Pedestal Grinder
a. No face shield available
2. Pipe threading machine
* No recommendation
- M 3. Drill Press
a. No face shield available
4. Horizontal Band Saw
* No recommendation
- M 5. Welding and Cutting area
a. Use more shielding, only shielded on one side
M b. Modified C-clamps among tools in area
6. Other Equipment
* No recommendation
7. Hand held Power tools
* No recommendation

DO A 121189
CONFIDENTIAL

DOW CONFIDENTIAL

M = Must-Do

HR = Highly Recommended

- 8. Hand tools
 - * No recommendation
- 9. Lifting tools
 - M a. At least one sling found in "annex" that had tape covering a large portion of the sling
 - b. Lifting jib and hoist rating not clearly marked
- 10. Safety Equipment
 - * No recommendation
- 11. Housekeeping
 - HR a. Annex area of shop area used for storage, etc. is in need of housekeeping.
 - b. Compressed gas cylinders storage area holds water, some of the cylinders are standing in water

B-2808

- 1. Pedestal Grinder
 - M a. Top guards out of adjustment
 - M b. Tool rests out of adjustment
 - M c. Tool rests below center line of wheels
 - M d. No face shield available
 - M e. Soft material imbedded in left wheel
 - M f. Right wheel rounded off on inside edge
 - M g. No warning/required safety equipment signs in area
- 2. Pipe threading machine
 - * No recommendation
- 3. Drill Press
 - M a. Face shield in garbage can next to drill press
 - HR b. Metal shavings and small amount of other trash on floor under and around drill press
- 4. Horizontal Band Saw
 - HR a. Minor housekeeping needed, metal shavings and small pieces of cut angle iron on floor under and around saw

DO A 121190
CONFIDENTIAL

- M 5. Welding and Cutting area
 - a. No welding shield available
- M 6. Other Equipment
 - a. Found an extension cord that had exposed wires that had been wrapped with vinyl tape
- 7. Hand Held Power Tools
 - * No recommendation
- 8. Hand Tools
 - * No recommendation
- 9. Lifting Tools
 - * No recommendation
- 10. Safety Equipment
 - * No recommendation
- 11. Housekeeping
 - HR a. Minor general housekeeping needed
 - HR b. Drill press and band saw areas

B-1802

- 1. Pedestal Grinder
 - * No recommendation
- 2. Pipe Threading Machine
 - * No recommendation
- 3. Drill Press
 - * No recommendation
- HR 4. Horizontal band saw
 - a. Has an unconventional means of operation, should be so noted. Have to open valve to bleed press so that blade apparatus will lower once it has been raised

DO A 121191
CONFIDENTIAL

DOW CONFIDENTIAL

M = Must-Do

HR = Highly Recommended

- 5. Welding Cutting Area
 - M a. No welding shield available
- 6. Other Equipment
 - * No recommendation
- 7. Hand held Power Tools
 - * No recommendation
- 8. Hand Tools
 - * No recommendation
- 9. Lifting Tools
 - * No recommendation
- 10. Safety Equipment
 - HR a. Body harnesses not neatly hung
 - M b. Rope wrist harnesses stored with body harnesses, one in particular had hooks with spring loaded safety latches that were not double locking, could have been mistaken for a lanyard (removed and destroyed this one)
- 11. Housekeeping
 - HR a. General housekeeping needed
 - HR b. Remove things stored on floor along walls and on beams on walls

H & I. WAREHOUSES/SPARE PARTS STORAGE

B-2804

- M a. No load limit posted for upstairs storage
- HR b. Grinders, drills, bandsaws, etc., stored in common bin and stacked precariously. Tried to remove one and a number of them began to fall.
- M c. Removed one electrical hand tool that had the ground post missing from the plug
- HR d. Could use general housekeeping
- M e. Flex hoses that had no inspection/test tags

M = Must-Do

DOW CONFIDENTIAL

HR = Highly Recommended

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DO A 121192
CONFIDENTIAL

B-1802

- M a. No load limit posted for upstairs storage
- HR b. Badly in need of housekeeping/cleaning overall

J. MOTORIZED VEHICLES

No recommendation

FIELD INSPECTION TEAM #2

A. PROCESS AREA

* Guarding in good condition, utility stations labeled, special equipment/procedures/requirements are posted as needed. Housekeeping is in good condition.

- HR 1. Noticed a few overhead leaks/drips, i.e. valve packing leak on a steam line above switch for Deluge Valve Station #4, 3 or 4 similar leaks in the area around switch for Deluge Valve Station # 5.
- M 2. Not a lot of stenciling of lines in the process area. Other than road crossings there does not seem to be a lot of line contents identification.

B. EMERGENCY EQUIPMENT

* Safety showers visible and accessible, fire extinguishers in the areas and inspections area current. Respirators are carried on the person, none located in the areas.

- M 1. 5 fire extinguishers with seals broken by Fire Extinguisher station #5.

C. PLANT HEALTH

* Found the plant to be in excellent condition. Painting and insulation good, ditch grating in good shape, no obvious corrosion. Tremendous improvement over 1992 audit.

DO A 121193
CONFIDENTIAL

D. ENCLOSURES

No recommendations

E. ACCESS SYSTEMS

- * Portable ladders are in good condition, also noticed that as a rule they are stored in designated areas and not left out in the areas where they were last used. The fixed ladders are also in good shape and have either swing gates or chains at the elevated entry/exit points.
- HR 1. Noticed some swing gates/chains left in the open/down position on some of the ladders. Remind folks that these are to be left/returned to their intended position (closed/up) after use.

F. OBSERVING PEOPLE WORKING IN AREA

- * Observed FD 2A work. Proper tools, in good condition, permit on site and in good order.
- * Observed two insulators. One was on the ground and one was in the pipe rack sitting on a pipe working. The one in the rack was wearing and using properly the required safety equipment. The one on the ground was going to attempt to throw the Safe Work Permit up to the one in the rack but the one in the rack told him to put it on his buggy on the ground. Stopped the one on the ground and pointed out to him the dangers associated with throwing things from one level to another. He agreed.
- * Observed two folks working on an air conditioner for the control room building. One was using a pipe wrench to hammer on a bolt trying to drive out another bolt, intervened and asked that the proper tools be used. The other worker was not wearing ear protection, intervened and reminded him to wear ear protection as required.

DO A 121194
CONFIDENTIAL

DOW CONFIDENTIAL

M = Must-Do

HR = Highly Recommended

G. ELECTRICAL

- * Start/stop stations, breakers, etc. properly labeled. No loose, exposed wires observed.
- M 1. Noticed that the door was in the open position on electrical panel L-17 for no apparent reason. All panels/etc. should be covered or closed as applicable.

H. OVERHEAD HOISTS

No recommendations

I. HOUSEKEEPING

- * Process areas are in excellent condition
- HR 1. Some housekeeping needed as mentioned in other sections
- HR 2. B-2811 (storage building SW of B-2804) has hoses piled up on and covering most of the floor area. One would have to step on hoses to reach materials stored on shelves or in bins.

J. BLOCK ENTRANCES

No recommendations

GENERAL:

- HR 1. Drip leg traps/drains by inst. air compressor #5 discharge above the intended drain. These should be routed into the drain.
- HR 2. There is a cable running under the top deck of the structure on the far west of the process (directly west of the control room) that should be removed if possible

DO A 121195
CONFIDENTIAL

DOW CONFIDENTIAL

M = Must-Do

HR = Highly Recommended

- M 3. Found one harness that had gray tape on it to hold the ends of the straps in place. The practice of taping harnesses is not allowed because tape can hide problems.
- M 4. Found an extension cord that had been taped up.
- M 5. LOC (on ground just west of stairway on SW corner of the control room deck) has no railing on the top.
- M 6. Scaffold on west side of the roadway in the middle of the plant had a ladder that did not extend above the handrail and there was no apparent reason that it couldn't.

EMPLOYEE/CONTRACTOR INTERVIEWS

No employee/contractor interviews were conducted by the Major Manager.

REACTIVE CHEMICALS AUDIT

(Thursday, June 2, 1994)

AUDIT TEAM: Joe Schell, Gerald Wagener

PLANT CONTACT: Marty Morrison

ATTENDANCE: Roger Hudson, Ken Fox, Joe Rawlings,
Howard Wilkinson, Eddie Supple

WRITER: Gerald Wagener

The pre-audit review was conducted on Thursday, June 2, 1994. Roger Hudson was recently appointed plant superintendent at Power I/Utilities. Roger reviewed the first and second Consolidated Audit Reports, documentation and participated in this Reactive Chemicals Review. It was decided by the audit team and plant supervision that this review would take the place of the new superintendent Reactive Chemical Review requirement.

DOW CONFIDENTIAL

M = Must-Do

HR = Highly Recommended

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DO A 121196
CONFIDENTIAL

Recommendations:

- M 1. Scenario: Catastrophic corrosion of boiler during cleaning due to inadvertent use of wrong or non-inhibited acid.

Develop acceptance criteria for the inhibited acid which is used for boiler cleaning and verify by performing positive ID testing.

- M 2. Scenario: High or steadily increasing oxygen concentration in off gas from LHC 2 & 3.

Determine if this is a credible scenario and, if so, make sure appropriate lines of defense are in place to avoid a flammability problem.

PROCESS CONTROL NETWORK AUDIT

(June 10, 1994)

AUDIT TEAM: Mike Woods

**PLANT
CONTACT:** Marty Morrison

WRITER: Mike Woods

Recommendations:

- M 1. Install a RUSCO card reader on the EMC building to secure MODICON access.
- M 2. Remove memory keys from MODICON. The board person will assume ownership of the access to the MODICONs.
- M 3. Establish a written procedure for the backup of the SPECTRUM/SPEC 200.

DO A 121197
CONFIDENTIAL

60% electricity
OK

POWER 1 DESCRIPTION

- NOT A CHEMICAL PRODUCTION BLOCK. THIS IS A UTILITIES BLOCK GENERATING ELECTRICITY AND STEAM FOR CONSUMPTION IN THE DIVISION.
- ELECTRICITY IS GENERATED FOR USE THROUGHOUT THE DIVISION WITH THE BULK GOING TO THE CHLORINE PLANT FOR ELECTROLYSIS PURPOSES.
- GENERATORS ARE DRIVEN BY THREE CONDENSING AND ONE NON-CONDENSING STEAM TURBINES THAT ALSO EXTRACT 475 PSI, 235 PSI AND 30 PSI STEAM FOR PROCESS USE.
- THE NON-CONDENSING STEAM TURBINE EXHAUSTS INTO A 60-150 PSI HEADER TO THE CAUSTIC PLANT FOR CAUSTIC EVAPORATION.
- FOUR BOILERS GENERATE THE STEAM FOR THIS USE. THE BOILERS ARE MAINLY NATURAL GAS FIRED. TWO OF THE BOILERS HAVE BEEN MODIFIED TO BURN HYDROGEN AND ONE BOILER HAS BEEN MODIFIED TO BURN SYNGAS.
- THE FOUR BOILERS GENERATE 1250 PSI @ 950 DEG F. STEAM TO DRIVE THE TURRBINE/GENERATORS.

JER III 2/28/92 GONSAUDA.GHT

DO A 121198
CONFIDENTIAL

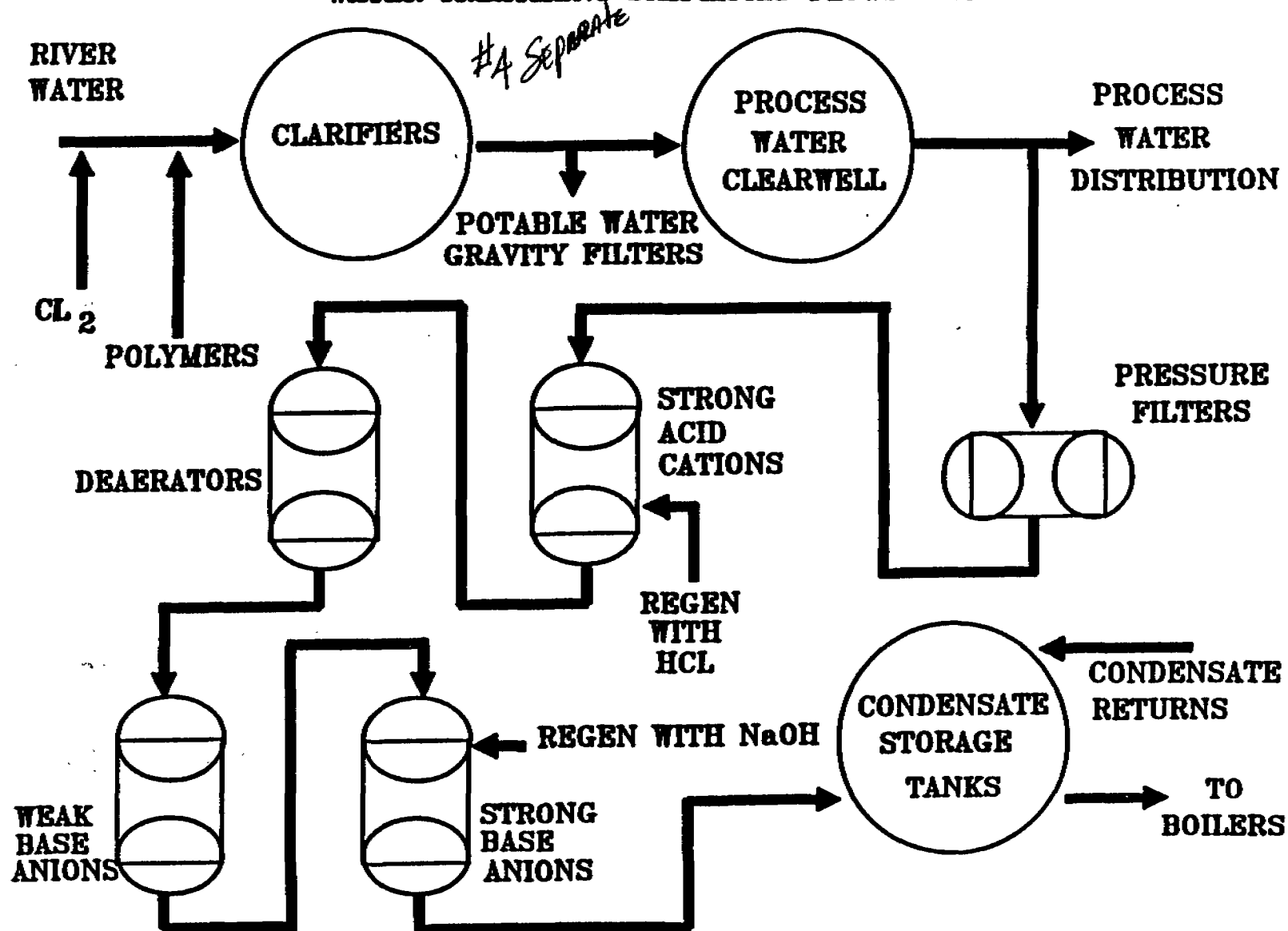
UTILITIES DESCRIPTION

- RAW WATER INTAKE PUMPING STATION
 - 6 PUMPS - CAPACITY 600,000 GPM
- RAW WATER RETURN PUMPING STATION
 - 6 PUMPS - CAPACITY 690,000 GPM
- PROCESS WATER PRODUCTION
 - 4 CLARIFIERS - CAPACITY 45,000 GPM
- POTABLE WATER PRODUCTION
 - 4 GRAVITY FILTERS - CAPACITY 2,000 GPM
- DEMINERALIZED WATER PRODUCTION
 - 6 PRESSURE FILTERS
 - 6 STRONG ACID CATION EXCHANGERS
 - 5 ANION TRAINS (WEAK & STRONG BASE ANIONS)
 - CAPACITY 2,800 GPM
- DIVISION CONDENSATE STORAGE
 - 6 TANKS - CAPACITY 7,500,000 GALLONS
- SEWER SYSTEM
 - 7 SEWER LIFT STATIONS
 - SEWER TREATMENT PLANT - CAPACITY 180,000 GPD
- FIRE PROTECTION WATER WELLS
 - 9 DIESEL POWERED PUMPS - CAPACITY 50,000 GPM
- OXYGEN DISTRIBUTION
 - BIG 3 CONTRACT - 1,180 TONS/DAY
- NITROGEN DISTRIBUTION
 - BIG 3 CONTRACT - 550,000 SCF/HR
- DIVISION INSTRUMENT AIR SYSTEM
 - VARIOUS SUPPLIERS AND USERS

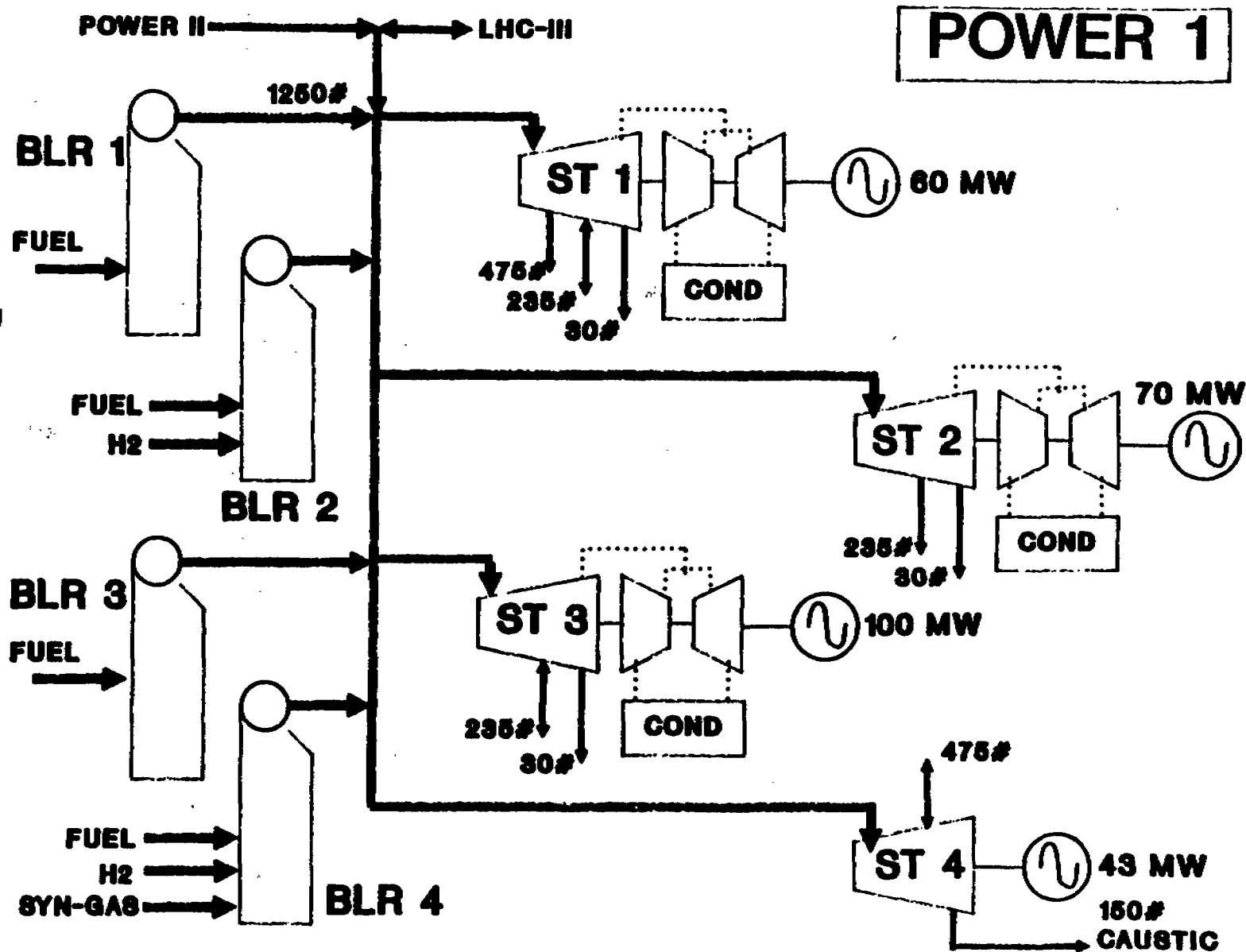
ELECTRICAL DISTRIBUTION DESCRIPTION

- **8 GENERATOR BUSES DISTRIBUTE 15KV POWER FROM THE POWER PLANTS.**
- **26 SUBSTATIONS TRANSFORM 15KV POWER DOWN TO 4600 OR 2400 VOLT POWER FOR DIVISION DISTRIBUTION. EACH SUBSTATION IS FED FROM TWO DIFFERENT POWER PLANT SOURCES. AUTOMATIC TIES EXIST FOR SWITCHOVER ON LOSS OF ONE FEED TO A SUBSTATION.**
- **230KV TIE LINE WITH GULF STATES UTILITIES. TIE LINE TRANSFORMER STEPS THE VOLTAGE DOWN FROM 230KV TO 15KV. TIE LINE TIES INTO THE GENERATOR BUS AT POWER 2.**

LOUISIANA DIVISION
WATER TREATMENT SIMPLIFIED FLOWSHEET



*- Power II
near flat out
Power I
Balance*





POWER ROAD

DITCH

FOOT BRIDGE

DITCH

5

4

CONDENSATE
TANK
2

CONDENSATE
TANK
1

WAREHOUSE
2804

BLDG.
2807

BLDG. 2808

1

ROAD

BLDG. 2805

BLDG. 2806

BOILER
#4

BOILER
#3

BOILER
#2

BOILER
#1

CONFERENCE
* ROOM BLDG. 2801

PARKING
AREA

CAUSTIC

S/T 4 5 2 S/T 3

S/T 2 5 2 S/T 1

BLDG. 2803

BLDG. 2802

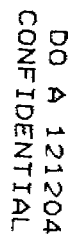
BLDG.
2809

3

2

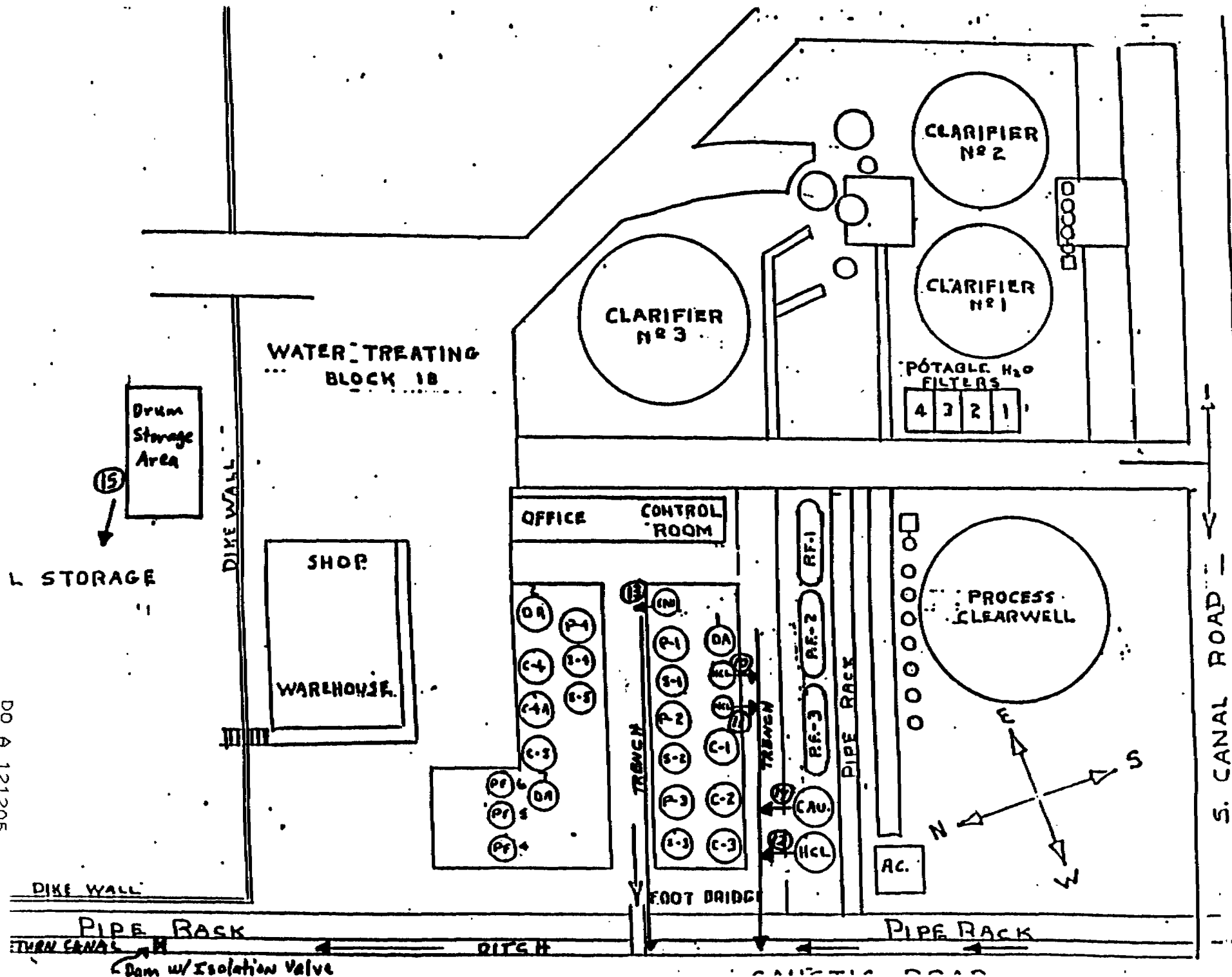
NORTH CANAL ROAD

DO A 121203
CONFIDENTIAL



DO A 121204
CONFIDENTIAL

DO A 121205
CONFIDENTIAL



INSTRUMENTATION & CONTROL

POWER 1/UTIL

- **BOILER COMBUSTION CONTROL**
- **BURNER MANAGEMENT**
- **TURBINE CONTROLS**
- **PLANT AUXILIARIES**
- **PLANT MANAGER MOD V**
- **UTILITIES MOD V**
- **ENERGY MANAGEMENT CENTER**

CRITICAL INSTRUMENTS

POWER 1

- **BOILER TRIPS**
- **FUEL HEADER EBV'S, ANALYZERS**
- **ROTATING EQUIPMENT TRIPS**
- **GENERATOR PROTECTION**
- **DISTRIBUTION BUS PROTECTION**

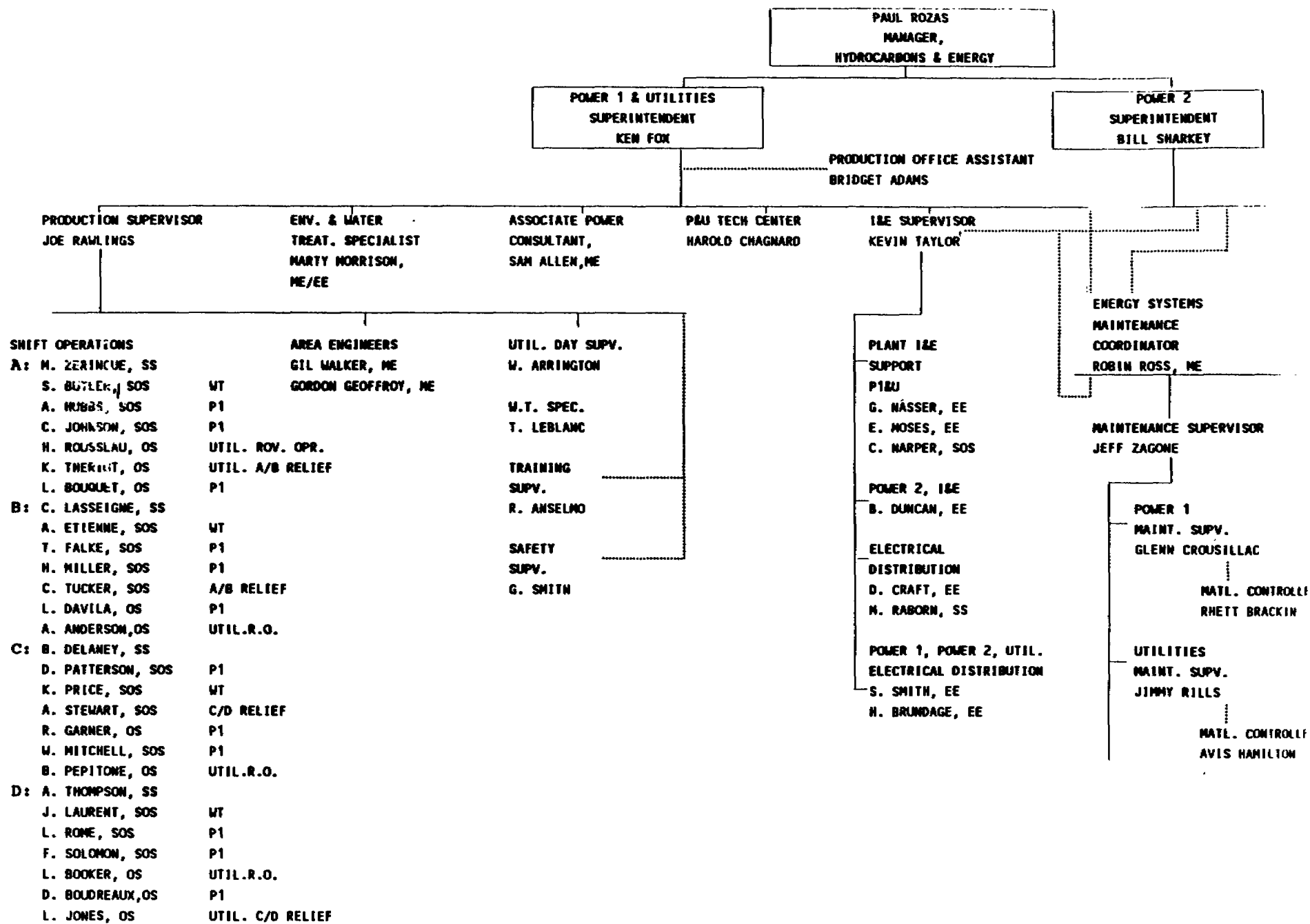
CRITICAL INSTRUMENTS UTILITIES

- **WATER WELL ENGINE OIL PRESS**
- **WW ENGINE COOLING WATER TEMP, LEVEL**
- **PROCESS WATER HEADER PRESS**
- **EBV'S**
- **INTAKE CANAL LEVEL CONTROL**
- **INTAKE/RETURN PUMP MOTOR CONTROLS**

CRITICAL DEVICES

ELECT DIST

- **SUBSTATION BREAKERS, FUSES**
- **PROTECTIVE RELAYS**
- **SUBSTATION SUPERVISORY**



NOTE: DOTTED LINE INDICATES COMMUNICATION & COORDINATION

A:\ORGCNT.XLS
BCA/10/18/91

DO A 121210
CONFIDENTIAL

- 3.10 SITE STUDIES
 - 3.10.1 STYRENE
- 3.11 HYDROCARBONS & ENERGY CAPITAL SPENDING PROJECTS
- 3.12 DEMOLITION PROJECTS
- 3.13 LAD FACILITIES CAPITAL
 - 3.13.1 PRIORITIZED PROJECT LIST
- 4.0 COMPANY/CONTRACT
- 4.1 BIG THREE INDUSTRIES
 - 4.1.1 NITROGEN CONTRACT
 - 4.1.1.1 NITROGEN INVOICES
 - 4.1.2 OXYGEN CONTRACT
 - 4.1.2.1 OXYGEN INVOICES
- 4.2 RILEY STOKER
 - 4.2.1 CORRESPONDENCE
- 4.3
- 4.4 AIR PRODUCTS
- 4.5 BETZ
- 4.6 GENERAL ELECTRIC
 - 4.6.1 T.I.L. (Technical Information Letter)
 - 4.6.2 G.E. CORRESPONDENCE
- 4.7 GSU
 - 4.7.1 GSU BILLS
 - 4.7.1.1 AVOIDED COST
 - 4.7.2 CONFIDENTIALITY AGREEMENT
 - 4.7.3 GSU RATE SCHEDULES
 - 4.7.4 GSU FUEL ADJUSTMENTS
 - 4.7.5 GSU SERVICE TO DOW PIPELINE DEPT.
- 4.8 BF GOODRICH
- 4.9 DEXCO POLYMERS
 - 4.9.1 POWER COST TO VECTOR/TRIBLOCK
- 4.10 MALCO
 - 4.10.1 CORRESPONDENCE

5 CORPORATE POLICY

- 5.1 PROPRIETARY INFORMATION
 - 5.1.1 USE OF FOIA BY DOW
 - 5.1.2 GUIDELINES FOR GATHERING COMPETITIVE INFORMATION
 - 5.1.3 RELEASE OF DOW PROCESS TECHNICAL INFORMATION
- 5.2 RECORDS RETENTION
- 5.3 SAFETY & ENVIRONMENTAL RESPONSIBILITIES OF MANUFACTURING
- 5.4 USE OF PERSONAL AUTOMOBILES ON DOW BUSINESS

6 DIVISION POLICIES/PRACTICES & PROCEDURES

- 6.1 AGENDA TOPICS FOR LADMC & SUNRISE MTG.
 - 6.1.1 FORMS
- 6.2 GENERAL INFORMATION
 - 6.2.1 VISITORS SAFETY INDOCTRINATION
 - 6.2.2 SUBSTANCE ABUSE POLICY
 - 6.2.3 OPERATION UPSWING
 - 6.2.4 ENTERTAINMENT
 - 6.2.4.1 CANTEEN CORP. (CAFETERIA)
 - 6.2.4.2 APPRECIATION DINNER

- 6.3 COMPUTER POLICIES/PRACTICES
 - 6.3.1 COMPUTER SECURITY
 - 6.3.2 IBM
 - 6.3.3 VAX
 - 6.3.4 PC'S
 - 6.3.5 REALLOCATION OR DONATION OF COMPUTER EQUIP.
- 6.4
- 6.5 PERSONNEL
 - 6.5.1 PEER REVIEW
 - 6.5.2 HARASSMENT
 - 6.5.3 MILITARY SERVICE BENEFITS
 - 6.5.4 POLICY ON CHILDBIRTH ABSENCES
 - 6.5.5 FIRST LINE SUPERVISORS POOL GUIDELINES
 - 6.5.6 FLEXIBLE WORK ARRANGEMENT POLICIES
 - 6.5.7 ADOPTION ASSISTANCE PROGRAM
- 6.6 VENDING MACHINES
- 6.7 TELECOMMUNICATIONS
- 6.8 TRAVEL/AIRCRAFT INFO
- 6.9 SUPPLIER PARTNERSHIP
- 6.10 CAR PASSES
- 6.11 ACCEPTANCE OF GIFTS & FAVORS
- 6.12 LITHIUM BROMIDE POLICY
- 6.13 LAD EMERGENCY PLAN
 - 6.13.1 CHEMICAL RELEASE CLASSIFICATION
- 6.14 SHIPPING/RECEIVING
 - 6.14.1 AIR FREIGHT
- 6.15 PROPERTY MANAGEMENT
 - 6.15.1 MORRISONVILLE PROJECT
- 6.16 UNITED WAY PROGRAM
- 6.17 THEFT CONTROL
- 6.18 CONTRACT COMMITTEE
 - 6.18.1 COST PLUS APPROVAL REQUEST
- 6.19 SECRECY AGREEMENTS

7 ENVIRONMENTAL

- 7.1 CLEAN AIR ACT
 - 7.1.1 CLEAN AIR/ACID RAIN LEGISLATION
 - 7.1.2 REPORTS
- 7.2 TOXICS RELEASE PREVENTION ACT
- 7.3 LAD ENVIRONMENTAL PERFORMANCE
- 7.4 WATERWORKS WARNING NETWORK PLAN
- 7.5 ENVIRONMENTAL HIGHLIGHTS
 - 7.5.1 ENVIRONMENTAL MONTHLY REPORT
 - 7.5.2 MINUTES OF ENVIRONMENTAL SUPT. MEETINGS
- 7.6 ENVIRONMENTAL NOTIFICATION
 - 7.6.1 CALCULATIONS FOR SPIL RELEASE QUARTERLY DETERMINA
 - 7.6.2 SPILLS/RELEASES REPORTED
- 7.7 ASBESTOS MANAGEMENT MAINTENANCE PROGRAM
 - 7.7.1 PLANNED SHUTDOWN ASBESTOS QUESTIONNAIRE
 - 7.7.2 ASBESTOS GASKET REMOVAL LOGIC DIAGRAM
- 7.8 AIR EMISSION
 - 7.8.1 TASK FORCE: OZONE NON-ATTAINMENT, NOX REDUCTION

- 7.8.1.1 ADMINISTRATIVE CONTROLS
 - 7.8.2 AIR PERMITTING PRIORITIES & TIMING
 - 7.8.3 DEQ COMPLIANCE ORDER
 - 7.8.4 URBAN AIRSHED MODEL
 - 7.8.5 SYN GAS ANNUAL REPORT
 - 7.8.6 FUGITIVE EMISSIONS
 - 7.8.7 EIQ REPORTS
 - 7.8.8 HOUSEKEEPING FOR REDUCTION OF ORGANIC COMPOUNDS E
 - 7.8.9 NOX REDUCTION PROGRAM AND TECHNOLOGY
 - 7.9 LAD PRIORITIES
 - 7.10 ENVIRONMENTAL ACRONYMS
 - 7.11 SYNGAS PERMIT
 - 7.12 MISCELLANEOUS COMMUNICATIONS & INFO.
 - 7.12.1 DRAGER TUBE SHELF LIFE & DISPOSAL
 - 7.12.2 DEQ/ENVIRONMENTAL ADVOCATE
 - 7.12.3 DOW WASHINGTON OFFICE PRINCIPAL ISSUES
 - 7.13 P1&U ENV. SAMPLES
 - 7.14 ENVIRONMENTAL AWARENESS TEAM
 - 7.15 SARA
 - 7.16 WATER EMISSIONS
 - 7.16.1 WATER PERMIT
 - 7.17 EARTH DAY
 - 7.18 CONSTRUCTION POLICIES
 - 7.18.1 AUTHORIZATION TO CONSTRUCT
 - 7.19 GROUNDWATER MANAGEMENT PROGRAM
 - 7.19.1 LAD GROUNDWATER ASSESSMENT
 - 7.20 TSCA (TOXICS SUBSTANCE CONTROL ACT)
 - 7.21 ENVIRONMENTAL REPORTING REQUIREMENTS
 - 7.21.1 REPORTABLE QUANTITIES
 - 7.22 ENVIRONMENTAL TECH CENTER - MEMO
 - 7.22.1 TABLE OF CONTENTS
 - 7.22.2 TM 29 CONTINUOUS EMISSION MONITORS
(CEM) FOR OXIDES OF NITROGEN FROM COMBUSTION
SOURCES
 - 7.23 TECH CENTER WASTE DATA COLLECTION
- 8 GOVERNMENTAL
- 8.1 OSHA
 - 8.1.1 HEARING CONSERVATION-DOW PROGRAM REQUIREMENTS
 - 8.2 PUBLIC UTILITY REGULATORY POLICIES ACT
 - 8.3 U.S. DEPARTMENT OF ENERGY
 - 8.3.1 ANNUAL NON-UTILITY POWER PRODUCERS REPORT
 - 8.4 TAX EXEMPTIONS
- 9 INSURANCE
- 9.1 TRAVELERS - MECHANICAL LOSS
 - 9.2 CIGNA
- 10 PERSONNEL
- 10.1 PERSONNEL FILES
 - 10.1.1 DAILY PERSONNEL SHEETS
 - 10.1.2 TIME INPUT SHEETS
 - 10.1.3 ATTENDANCE AWARDS
 - 10.1.4 OVERTIME REPORT

- 10.2 EXPENSE REPORTS
- 10.3 CAR MILEAGE
- 10.4 MILITARY LEAVE
- 10.5 RANDOM DRUG TESTING
- 10.6 JOB DESCRIPTIONS
- 10.7 PEOPLE MOVEMENT/ACCOUNT CHANGES
- 10.8 VACATION/HOLIDAYS
- 10.9 SMOKING POLICY
- 10.10 BENEFITS
 - 10.10.1 HEALTH CARE
 - 10.10.2 CORPORATE OWNED LIFE INSURANCE (COLI)
- 10.11 OVERTIME GUIDELINES
 - 10.11.1 POWER 1 & UTILITIES
 - 10.11.2 OTHER PLANTS
- 10.12 FLEXIBLE WORK ARRANGEMENT POLICIES

11 POWER & UTILITIES

- 11.1 P&U ACCOUNTING ACTIVITIES
 - 11.1.1 UTILITIES PRODUCTION REPORTS
 - 11.1.1.1 WATER TREATING PROD. REPORT PROGRAM
 - 11.1.1.2 DAILY INPUT SHEETS
 - 11.1.1.3 MONTHLY PRODUCTION SUMMARY
 - 11.1.2 POWER 1 DAILY INPUT SHEETS
 - 11.1.2.1 POWER 1 INTEGRATOR READINGS
 - 11.1.2.2 POWER 1 AUXILIARY INTEGRATOR READINGS
 - 11.1.2.3 POWER 1 PRODUCTION REPORT PROGRAM
 - 11.1.3 METERING OF UTILITIES
 - 11.1.3.1 VARIANCE SUMMARY
 - 11.1.4 MANUFACTURING COST REPORT SUMMARY
- 11.2 QUARTERLY REVIEW PRESENTATION
- 11.3 UTILITIES BALANCES
 - 11.3.1 PROJECTED SYSTEM DEMANDS
- 11.4 ANALYTICAL REPORTS
- 11.5 HISTORY
- 11.6 TRAINING
 - 11.6.1 CONTINUOUS IMPROVEMENT PROCESS (CIP)
 - 11.6.2 DIVISION CROSS TRAINING
 - 11.6.3 LAD TRAINING SCHEDULE
 - 11.6.4 THE LEARNING CENTER
 - 11.6.5 INPLANT TRAINING - IPT
- 11.7 P&U GOALS
- 11.8 BUILDING RENOVATIONS
- 11.9 COMMUNICATIONS TO/FROM P&U CUSTOMERS
 - 11.9.1 NITROGEN
 - 11.9.2 OXYGEN
 - 11.9.3 POTABLE WATER
 - 11.9.4 CENTRAL AIR SYSTEM
 - 11.9.5 ELECTRICAL POWER
- 11.10 OFFICE EQUIPMENT/FURNITURE
 - 11.10.1 OVERHEAD PROJECTOR
- 11.11 ORGANIZATIONAL CHART
- 11.12 SERVICE INTERRUPTION INVESTIGATION REPORTS
- 11.13 PROPERTY APPRAISAL
- 11.14 WATER TEAM
- 11.15 EMPLOYEE SURVEYS

POWER 1/UTILITIES

PROCEDURE INITIATION/UPDATE/APPROVAL POLICY

NEW PROCEDURES INITIATED OR PROCEDURAL CHANGES OF ANY KIND MUST BE APPROVED PRIOR TO DISTRIBUTION

PURPOSE

1. INSURE ACCURACY AND COMPLETENESS OF PROCEDURES.
2. REDUCE NUMBER OF COINCIDING REVISIONS OF THE SAME PROCEDURE.
3. IMPROVE QUALITY OF DEPARTMENT PROCEDURES.

APPROVAL POLICY

PRIOR TO DISTRIBUTION OF ANY NEW OR REVISED PROCEDURES, THE PROCEDURES NEED TO BE REVIEWED AND APPROVED BY ONE OF THE FOLLOWING PROCEDURAL REVIEW COMMITTEES.

★ SAFETY PROCEDURES

- PRODUCTION SUPERVISOR
- SAFETY SUPERVISOR (OTHER SUPERVISOR CAN BE SUBSTITUTED IN ABSENCE OF SAFETY SUPERVISOR)
- OPERATIONS PERSON - SOS

★ OPERATIONAL OR QUALITY PROCEDURES

- PRODUCTION SUPERVISOR
- SHIFT SUPERVISOR
- OPERATIONS PERSON - SOS
- AREA ENGINEER AS APPLICABLE

DOCUMENTED REVIEW

PROCEDURES APPROVED FOR DISTRIBUTION WILL BE GIVEN TO EACH OF THE SHIFT SUPERVISORS FOR REVIEW WITH APPROPRIATE MEMBERS OF THEIR SHIFT TEAMS. A COPY WILL ALSO BE DISTRIBUTED TO THE STAFF, AFTER REVIEWING EACH PERSON WILL INITIAL THE SIGN OFF SHEET FOR THAT PROCEDURE. A FILE OF SIGN OFF SHEETS WILL BE MAINTAINED BY THE OFFICE PROFESSIONAL AS PART OF THE DEPARTMENT FILES. THE NEW OR REVISED PROCEDURE AFTER REVIEW AND APPROVAL WILL BE INPUT TO THE PDP-1144 SO THAT IT IS ACCESSIBLE TO ALL OPERATIONS & STAFF.

PROCEDURE QUALITY

ALL PROCEDURES SHOULD ADHERE TO THE SAME GENERAL FORMAT AND BE WRITTEN SO THAT A NEW HIRE OR SOMEONE UNFAMILIAR WITH THE P1&U AREAS CAN UNDERSTAND THE PROCEDURE AS WELL AS THE REASON FOR HAVING IT AND POSSIBLE CONSEQUENCE OF NOT FOLLOWING IT.

THE PROCEDURE NEEDS TO INCLUDE:

1. PURPOSE
2. SAFETY CONCERNS (SAFETY EQUIPMENT REQUIRED, HAZARDS, REACTIVE CHEMICAL CONCERNS, ETC.)
3. QUALITY CONCERNS (PROBLEMS THAT MAY OCCUR IF PROCEDURE IS NOT ADHERED TO, SPECIFICS, TARGETS, ETC.)
4. ENVIRONMENTAL CONCERNS
5. BACKGROUND INFORMATION OR HISTORY IF POSSIBLE.
6. DATE REVISED AND PERSON UPDATING PROCEDURE.
7. SPECIFICS. DO NOT ASSUME ANY PART OF AN OPERATION IS "UNDERSTOOD IF SOMETHING IS STANDARD OPERATING PROCEDURE, DOCUMENT THAT IN THE PROCEDURE. IDENTIFY THINGS SPECIFICALLY BY NAME OR DESCRIPTION A NUMBER.

P1 & P2 OVERVIEW	CHLORINE RECTIFIERS	STEAM TURBINE OVERVIEW	BOILER OVERVIEW	FAN BRNG TEMPS PUMP BRNG TEMPS
MINIMUM LOADS	1250# ST 475# ST	TRB #1 TRB #2	BLR #1 BLR #2	HIGH PRESSURE HEATERS
SAFETY VALVES	235# ST 30# ST	TRB #3 TRB #4	BLR #3 BLR #4	PHONE DIRECTORY
FUEL ENERGY REPORT	UTILITIES PRODUCT SPECS	PWR 1 AIR SYSTEM	DIVISION AIR	ONE LINE SYSTEM
PICTURE PRACTICE	UTILITIES SAFE WORK PROCEDURES	CONDENSATE SYSTEM	HYDROGEN SYSTEM	POWER ONE SAFE WORK PROCEDURES

VESSEL ENTRY PROCEDURES	BOILERS STARTUP/ SHUTDOWN	BOILERS *TESTS*	BOILERS BURNERS	BOILERS INSTRUMENT
BOILERS MISC	DEAERATORS	TURBINES	GENERATORS	POWER PLANT ELECTRICAL
ELECTRICAL DISTRIB- UTION	MISC. PROCEDURES	HOUSE- KEEPING AREAS	BUS 4 FUJI BYR ALARM PROCEDURES	COMPUTER ROOM FIRE PLAN
MODIFYING LOAD SHEDDER	TIE LINE OPERATING DISCIPLINE	ORGANICS ANALYZER	ENVIRON- MENTAL	

☐ BOILER 1 START-UP FROM COLD CONDITION

☐ BOILER NO. 3 START-UP FROM COLD CONDITION

☐ BOILER 2 SHUTDOWN PROCEDURE

☐ ISOLATING BOILER NO. 1 FOR INSPECTION AND/OR OVERHAUL

☐ ISOLATING BOILER NO. 2 FOR INSPECTION AND/OR OVERHAUL

☐ ISOLATING BOILER NO. 3 FOR INSPECTION AND/OR OVERHAUL

☐ BOILER 4 SHUTDOWN PROCEDURE

☐ BOILER 4 START-UP FROM COLD CONDITION

☐ BOILER 3 SHUTDOWN PROCEDURE

☐ ISOLATING BOILER NO. 4 FOR INSPECTION AND/OR OVERHAUL

☐ BOILER 2 START-UP FROM COLD CONDITION

☐ BOILER SAFETY DEVICES

☐ BOILER ENTRY PERMIT

☐ FILLING BOILER 3

☐ FILLING BOILER 4

☐ BOILER ONE SHUTDOWN

POWER DEPARTMENT
APPROVED SAFE WORK PROCEDURES

BOILER 1 LIGHT-OFF FROM COLD CONDITION

BOILER
PROCEDURE NO. A-1

BOILER CLOSE-UP AND PREPARATION PROCEDURE

1. INSURE ALL PERSONNEL ARE OUT OF BOILER; YELL INTO EACH OPENING AND EXAMINE INTERIOR WITH FLASHLIGHT BEFORE CLOSING UP. ADVISE CRAFTSMEN SUPERVISOR OF THIS PROCEDURE AND THAT HE IS TO MAKE A HEAD COUNT OF HIS PEOPLE. POWER SUPERVISOR IS TO DO THE SAME FOR POWER DEPARTMENT PERSONNEL.
2. ASK AN INSTRUMENT MAN TO MAKE SURE THAT ALL SWITCHES AND RELAYS RELATED TO THIS BOILER ARE ENABLED IN THE MODICON.
3. STARTING AT TOP OF BOILER, INSPECT EACH ACCESS DOOR INCLUDING TOP AND BACK OF ECONOMIZER SECTION, ACCESS TO SUPERHEATER SECTION, PENTHOUSE, ETC., FOR SCAFFOLDS, LADDERS, TOOLS. INSURE EVERYTHING IS REMOVED BEFORE BOILER ACCESS DOORS ARE CLOSED. INSURE ALL ACCESS DOORS ARE CLOSED AND TIGHTLY BOLTED.
4. INSURE THAT ALL RED TAGS HAVE BEEN PROPERLY RELEASED, CLEARED, AND REMOVED.

SAFETY CONSIDERATIONS FOR BOILER START-UP

1. ABOVE PROCEDURES COMPLETED.
2. ALWAYS TRICKLE FEED BOILER WHEN BRINGING IT UP. OVERHEATING THE ECONOMIZER FROM LACK OF FLOW COULD CAUSE A RUPTURE.
3. ALWAYS USE IGNITORS FOR LIGHTING BURNERS. NEVER TRY TO IGNITE FROM HOT BRICK WORK OR ADJACENT BURNERS.
4. OBSERVE FIRES CLOSELY DURING PRESSURE RAISING.
5. MAKE SURE ALL GAGS ARE REMOVED FROM SAFETY VALVES.
6. WEAR NOMEX SUIT WHEN LIGHTING GAS BURNERS.
7. TRIP BOILER ANY TIME WATER LEVEL DROPS OUT OF SIGHT IN GAUGE GLASS

PRIOR TO LIGHT OFF

DO A 121219
CONFIDENTIAL

LESSEN BLOWING DOWN TO HOLD WATER LEVEL UPON CONTINUED HEATING. FILL WITH MAKE-UP, NOT DEMIN, BECAUSE MAKE-UP WATER HAS A LOWER O2.

2. OPEN THE FOLLOWING VALVES.

- ☐ A. EYE-HYE WATER COLUMN AND DRAIN BLOCK VALVES (AT DRUM).
- ☐ B. DRUM VENTS. (2 TURNS)
- ☐ C. SUPERHEATER OUTLET VENT. (FULLY OPEN)
- ☐ D. EAST & WEST SUPERHEATER DRAINS ON DRAIN MANIFOLD (FULLY OPEN)
- ☐ E. DRUM PRESSURE GAUGE.
- ☐ F. CONTINUOUS BLOWDOWN VALVES (AT THE DRUM)
- ☐ G. CHEMICAL FEED VALVES.
- ☐ H. FLOW AND PRESSURE TRANSMITTERS.
- ☐ I. ECONOMIZER INLET.
- ☐ J. DRAIN ON BOILER SIDE OF MOV FOR BOILER STEAM LEAD LINE.
- ☐ K. FLASH TANK BY-PASS.
- ☐ L. DRUM LEVEL TRANSMITTERS.
- ☐ M. ALL BLOWDOWN VALVES.
- ☐ N. AUTO BLOWDOWN BLOCK VALVES.
- ☐ O. H. P. H. FEEDWATER B. V. 'S

(U)

3. CLOSE THE FOLLOWING VALVES:

- ☐ A. GAUGE GLASS WATER COLUMNS AND DRAINS.
- ☐ B. ECONOMIZER DRAIN (AT DRAIN MANIFOLD).
- ☐ C. FEEDWATER MOTOR OPERATED SHUTOFF VALVE.
- ☐ D. 2" MANUAL FEEDWATER BY-PASS VALVE.
- ☐ E. FEEDWATER MOTOR OPERATED BY-PASS VALVE.
- ☐ F. AUTO BLOWDOWN VALVE AND SHUT-OFF.
- ☐ G. 4" FILL VALVE ON S. H. OUTLET HEADER.
- ☐ H. CONTINUOUS BLOW DOWN GRADUATED VALVE.
- ☐ I. FLASH TANK B. V. AND STM. B. V. TO DEAERATORS.

4. PLACE SUPERHEATER DAMPER IN 100% POSITION. (ALL FLUE GAS THROUGH THE PRIMARY SUPERHEATER)

5. PLACE AIR PREHEATER BY-PASS DAMPERS IN OPEN POSITION.

6. OPEN ALL BURNER AIR REGISTERS.

7. CLOSE ALL BURNER GAS COCKS.

8. TURN ALL BURNER GAS SWITCHES AND IGNITOR SWITCHES OFF.

9. INSURE THAT OUTLET DAMPERS ON FD FANS ARE OPEN AND LOCKED IN POSITION.

10. INSURE THAT FLEXIBLE CONNECTOR IS REMOVED FROM S. H. OUTLET HEADER FILL VALVE AND PLUG IS INSTALLED IN GRALOCK FITTING PRIOR TO LIGHTING OFF SCILER.

11. START EDTA AND CONTROL PUMPS AND SET FOR NORMAL PROJECTED BOILER LOAD

12. INSURE THAT INSTRUMENT AIR IS TURNED ON TO FAN VANE OPERATORS

13. INSURE THAT LEVEL S. H. OUTLET IS INDUCED DRAFT AND FORCED DRAFT

1. ESTABLISH NECESSARY AIR FLOW FOR PURGING (APPROX. 60%)
2. "VALVES CLOSED" LIGHT ON. THE FOLLOWING VALVE SHOULD BE CLOSED:

IGNITOR SSO
GAS SSO
3. DISABLE DRUM LEVEL TRIP SWITCH " LOW DRUM TRIP " LIGHTS SHOULD FLASH.
4. ESTABLISH AND MAINTAIN APPROX. 40# GAS PRESSURE ON GAS LINE.
5. SET MIN GAS FLOW CONTROL VALVE AT 20% ON MANUAL.
6. "OPEN CV" LIGHT FLASHING.
7. OPEN GAS CONTROL VALVE.
8. "OPEN SSO" LIGHT FLASHING.
9. OPEN GAS SSO VALVE.
10. "GAS SSO OPEN" LIGHT ON.
11. BURNER HEADER PRESSURE (25#) MUST BE ESTABLISHED WITHIN 30 SECONDS THEN GAS SSO VALVE CLOSES AUTOMATICALLY.
12. CLOSE GAS CONTROL VALVE.
13. "PURGE ON" LIGHT ON; HEADER PRESSURE PROVING; AIR PURGE ON; GAS HEADER PRESSURE MUST REMAIN ABOVE 10 PSIG FOR 5 MINUTES TO CONTINUE.
14. AFTER A 5 MINUTE DELAY, "OPEN SSO" LIGHT FLASHING.
15. OPEN GAS SSO VALVE.
16. "GAS SSO OPEN" LIGHT ON.
17. BURNER HEADER WILL PURGE 2 MINUTES.
18. "END PURGE" LIGHT ON.
19. ADJUST AIR FLOW TO APPROX. 25%. IF AIR FLOW IS ALLOWED TO DROP BELOW 25% PRIOR TO LIGHT-OFF, BOILER WILL TRIP.
20. RESET ALARMS AND TRIPS.
21. OPEN IGNITOR SSO HEADER VALVE.
22. "L.O. READY" LIGHT ON.

SAFETY TRIP CHECKS (ROUTINE)

USE MODICON TRIP CHECK LIST

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

BURNER LIGHT-OFF (TYPICAL FOR #1 IGNITOR)

1. AIR FLOW SHOULD BE 25%; CLOSE AIR REGISTERS ON BURNERS TO BE LIT
2. "L.O. READY" LIGHT ON
3. TURN IGNITOR SWITCH #1 TO ON POSITION.
4. WHEN IGNITOR LIGHTS, OPEN REGISTER TO ABOUT 10%. IF IGNITOR FAILS TO LIGHT, TWO MINUTE PURGE IS REQUIRED. AFTER TWO MINUTES, "L.O. READY" LIGHT IS ON AND IGNITOR IS READY TO BE TRIED AGAIN. ON THE FIRST IGNITOR ONLY, THE BOILER WILL TRIP AFTER UNSUCCESSFUL FLAME DETECTION ON THE SECOND TRY. THIS WILL REQUIRE RE-PURGING OF THE BOILER. AFTER A FLAME IS ESTABLISHED, IGNITORS MAY BE TRIED OVER AND OVER WITH ONLY A TWO MINUTE DELAY BETWEEN TRIES.
5. IGNITOR LIGHT WILL REMAIN ON AS LONG AS IGNITOR FLAME IS PROVEN.

BOILER LIGHT-OFF (GAS BURNER): (TYPICAL FOR #1 BURNER)

NOTE. MAKE SURE WINDBOX IS NO HIGHER THAN 2# PSI TO MINIMIZE BLOW BACK OF GAS THROUGH BURNER GUN.

1. TURN GAS BURNER SHUT-OFF VALVE SWITCH TO OPEN AND HOLD UNTIL "VALVE OPEN" LIGHT COMES ON, THEN RELEASE SWITCH.
2. OPEN GAS COCK ON #1 BURNER, WHILE ADJUSTING AIR REGISTER
3. IF FLAME FROM BURNER IS NOT PROVEN WITHIN 4 SECONDS, BURNER SSO VALVE WILL CLOSE.
4. "FLAME ON" LIGHT IF FLAME IS PROVEN; IGNITOR WILL SHUT DOWN (5 SECOND DELAY). IF NO IGNITORS ARE LIT, THE IGNITOR HEADER VENT WILL BE OPEN; THEREFORE, IT IS BEST TO EITHER HAVE AN IGNITOR LIT OR CLOSE THE IGNITOR SSO VALVE.
5. PUSH DIFFUSER IN UNTIL IT GLOWS, THEN BACK IT OUT UNTIL THE GLOWING STOPS.
6. CLOSE ALL REGISTERS EXCEPT ON BURNER LIT AND THOSE DIRECTLY ABOVE.
7. AFTER FIRST BURNER IS LIT ADJUST MINIMUM PRESSURE FOR 2-3#

END OF PAGE

THROTTLING THE SUPERHEATER VENT AND/OR ADJUSTING MINIMUM BURNER PRESURE REGULATOR.

2. INSPECT FURNACE FREQUENTLY FOR PROPER COMBUSTION.
3. TRICKLE FEED BOILER WITH 1-1/2" BY-PASS AND CONTINUE UNTIL BOILER IS ON THE LINE TO PREVENT WATER FLASHING IN THE ECONOMIZER.
4. BLOW DOWN FRONT AND SIDE HEADERS EVERY 20 MINUTES FOR FIRST TWO HOURS OF FIRING AND EVERY 30 MINUTES THEREAFTER UNTIL BOILER IS ON THE LINE. (OPEN AS FAST AS POSSIBLE AND CLOSE AS FAST AS POSSIBLE)
5. AS BOILER STARTS TO STEAM, SNUG UP ON HANDHOLE AND MAN-HOLE COVERS IF GASKETS HAVE BEEN REMOVED.
6. INSURE THAT CONTINUOUS BLOW-DOWN BLOCK VALVE AT FLASH TANK IS CLOSED AND BY-PASS IS OPEN.

RAISING STEAM PRESSURE:

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

1. CLOSE DRAIN AND VENT VALVES. CLOSE SUPERHEATER DRAINS.
2. GO TO MAIN FEEDWATER REGULATOR AS SOON AS PRACTICAL.
3. ADJUST SUPERHEATER DAMPER TO OBTAIN MAXIMUM OUTLET STEAM TEMPERATURE NOT TO EXCEED 950 DEGREES F. PLACE DAMPER CONTROLLER IN AUTOMATIC AS SOON AS POSSIBLE.
4. CLOSE AIR PREHEATER BY-PASS DAMPERS WHEN OUTLET FLUE GAS TEMPERATURE FROM THE PREHEATER REACHES 212 DEGREES F.
5. AFTER ALL T.C.'S INDICATE THAT THE SUPERHEATER ELEMENTS ARE CLEAR OF CONDENSATE, INCREASE BOILER LOAD TO 100M#/HR AND RUN AT THIS LOAD FOR AT LEAST TWO(2) HOURS BEFORE INCREASING LOAD.
6. INSPECT BOILER THOROUGHLY FOR LEAKS, SIGNS OF UNEVEN EXPANSION, PROPER COMBUSTION, ETC.
7. AS SOON AS PRACTICAL, PUT COMBUSTION CONTROL ON AUTO. AND ENABLE DRUM LEVEL TRIP.
8. INSURE THAT BLOCK VALVES IN FEEDWATER MOTOR-OPERATED BY-PASS LINE ARE OPEN AND ALSO THAT STAND-BY GAS REGULATOR IS READY FOR SERVICE.
9. OPEN BLOCK VALVE TO FLASH TANK AND CLOSE BY-PASS.
10. CLOSE IGNITOR SSO VALVE AS SOON AS ALL BURNERS ARE LIT, OR AT LEAST ONE IGNITOR IS NO LONGER REQUIRED.
11. OPEN C.B.D. GRADUATED VALVE 2-3 TURNS.

REV: 04/24/91 TF

PRESSURE FILTER PFP-4100
INTERNAL INSPECTION

RE: Vessel entry procedure for pressure filter

Willie Arrington
Scott Davis
Jimmy Rills
Gill Walker
Plater Gooden

1. Enter backwash step(246) with DM(246).
2. Enter wait step(241) with DM(241).
3. Enter maintenance step(240) with DM(240).
4. Drain unit by opening vents on each end of filter and open rinse valve DO(244).
5. Close and red tag manual inlet block valve (valve #1 on photo and yellow tag on valve).
6. Close and red tag manual outlet block valve (valve #2 on photo and yellow tag on valve).
7. After unit is drained close rinse valve DO(244).
8. Close and red tag air supply to unit.
9. Check dbl. block and bleed for leakage.
 - a. Blind vessel if valves leak through
 - b. Red tag blinds
10. Contact Plant Security prior to entry.
11. Have vessel entry bag on job site.
12. Have qualified safety observer.
13. Check vessel for oxygen and combustibles.
14. Make on site inspection.
15. Issue permit and begin work.

TEAM ①DATE 20 Feb. 92

DAYS _____

NIGHT ✓BOILERS AND AUXILIARIES

Open Desup Mol's BLR 4 - Spray water block valve $\frac{1}{2}$ turn on
last $\frac{1}{2}$ on BLR 2 to air product
Ch 2 Back on auto - Test finish
Lower all 4 Hired High to 75%
Hot spot on - None.

TURBINES AND AUXILIARIES

Lower voltage on #2 Gen.
Check weather disc, Gland condenser, air ejector traps
for leaks

UTILITIES AND POWER 2

Lower high more vacuum on #4 lathe pump
Street lights east side of Cl₂ road are out
↑ 4.0 mBar

DIVISION LOADS AND PLANS

Caustic finished shooting
Caustic dump controller set @ 15 min
Ch 2 dumping Hi Organic
Ch 2 to end Organic test on all their exchanger to
find back row

EQUIPMENT TO BE SHUTDOWN, STARTED UP, OR RED TAGGED

#5 IAC

PUNCH LIST

1. Street light
2. Vacuum on Turb. 2
3. 3A Circulator
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

MISC. INFORMATION

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

SYSTEM REVIEW

DOW CHEMICAL CO.
FEB 21 1999 PLACEMORE, LOUISIANA
POWER I BOILER

KRF

Attn: Ken Fox, Joe Rawlings, Gordon Geoffroy, Marty Morrison

Date: 2-1

TEST	TEST RESULTS				
	BFW	#1	#2	#3	#4
pH		10.1	10.5	10.4	10.0
Conductivity		61	125	104	76
Phosphate		9.1	12.15	10.85	11.2
Steam Rate K#/Hr.		369	489	632	909
Acct./Target BP, gpd	(78K + P1B)	13+13 13+13	16.5 20	20 25	35 37
Acct./Target CT, gpd		3.0 3.0	3.4 3.2	4.0 4.8	7.0 7.2
Dissolved Oxygen					

	INVENTORY (GALS)	FEEDRATE (GPD)	REMAININ
BP P-1B (Tank 6805)	2040	84.5	-
CT 778P (Tank #8685)	1020	17.4	-
BP 78101	~150	13	-

Comments:

1. BOILER CHEMISTRY ON BOILERS #2, #3, & #4 LOOKS GOOD. PHOSPHATE RESIDUAL ON BOILER NO.1 REMAINS JUST BELOW TARGET. PLANT #1 BP P-1-B FEED TO NO.1 BOILER FROM 13 TO 14.5 GPD. BP 7810 SHOULD REMAIN @ 13 GPD. THANKS
2. CONTROL FEEDRATES LOOK GOOD.
3. THE BOILER OPERATOR TRAINING SESSIONS CONTINUED THIS A.M. THE TRAINING WILL CONTINUE FOR THE NEXT SEVERAL WEEKS UNTIL EVERYONE IS TRAINED.
4. POWER I WILL RECEIVE TWO PRODUCT DELIVERIES TOMORROW FEB. 12 FOLLOWS:
 - BP P-1B - 1200 GALLONS TO TANK # 6805
 - CONTROL 778P - 800 GALLONS TO TANK # 8685
5. AS DISCUSSED W/ JOE RAWLINGS WHEN CURRENT BP 78101 INVENTORY GONE WE WILL TARGET THE NO.1 BOILER WITH ONLY BP P-1B UNTIL SHUTDOWN ON MARCH 9th.

Signed: