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Subj: SCRUBBER PRE-START AUDIT

27-JUN-1991 10:41:48.45

LPP Audit
Section N/142
N/147

SAFETY REFERENCE C-6
PRE-START UP AUDIT

PAGE 1

PLANT: ___Chlorine I_____

PROJECT TITLE:___Air Ecology, Chlorine I (Scrubber Project)___

DATE:___6/3/91_____

1. Has the Technology Center approved the process?

Yes, see attached copy of support letter. Also includes is CATC DesignGuideline Module 14 "Chlorine Scrubber System".

2. Has any reactive chemical data been generated?

Yes, see attached copy of Titanium/Dry Chlorine reaction conditons verses scrubber operating conditions graph. Also attached is Reactive Chemical Committee Support Letters.

3. Has a reactive chemical review been done since the design was finalized? YES Attach the review letter along with a written answer to any questions that were raised during the review. Has reactive chemical checklist been completed?

YES, ATTACHED

4. Has Environmental Control reviewed and approved the project?

Support letter from Environmental Services is attached

5. When the construction project is essentially complete, a job safety inspection should be made. This inspection should include:

Plant Supervisors	Plant Operators
Plant Engineer/Mfg. Rep.	Safety Department

Their inspection should emphasize:

- Pipe, valves, fittings, and associated supports
- Valve location and orientation
- Structures and ladders
- Electrical grounding
- Insulation for personnel protection
- Safety showers
- Fire extinguishers and deluge guns
- Intercom locations
- Lighting
- Line labeling
- Freeze Protection
- PSV's
- Instrumentation

Has such a review been made? No, will be scheduled

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6. Operator training classes should be held. These class s should highlight the following:

- A. Project benefits and expected results.
 - B. Process description (include expected operating conditions)
 - C. Process controls
 - D. Operator responsibilities
 - E. New procedures:
 - 1. Start up
 - 2. Emergency
 - 3. Shutdown
 - 4. Sampling
 - 5. Job Procedures
 - 6. Normal Operating Procedures
 - 7. Red Tag
 - 8. Loading/Unloading
 - 9. Freeze Precautions (normal/severe)
 - F. Lab Procedures
- Has such training been done? YES, see attached training sch.

7. Procedures should be reviewed by as many plant people as possible and revised as necessary. A plant committee of operations and technical people should make a final safety audit of procedures. Has such a safety audit been done?

Yes, IPT modules were generated by operations personnel. These IPT modules used the MOD V program documentation and Operating Discipline as resources.

8. Has the system been pressure tested? No, this will be completed prior to start-up.
Washed or cleaned? No, this will be completed prior to start-up.
How? The system will be "run" on water.
9. Is it possible to have a dry run operation such as operating the system on air, nitrogen, or water? yes If so, has this been done? Not yet Are other plants involved in the new process? no
10. Have all instrument loops been checked and documented? All instrumentation checkout will be completed prior to start-up.
Full range valve stroke? Fail safe valve positions verified? Have critical instruments been identified and registered? in process
11. Has the new electrical equipment been checked out? Are field switches, equipment and MCC starters labeled properly? Refer to S-316 for electrical safety standards.
WILL BE COMPLETED PRIOR TO START-UP
12. Have the block operating manual and emergency procedures been modified to include the new project? yes
13. Have pressure vessels and PSV's been added to the computer list? YES Do PSV's set pressure match design pressures of vessels? N/A
14. Have plant and engineering files and drawings (P&ID's) been updated to include the new equipment? yes

15. Has a list of necessary spare parts been added to the existing spare parts stocking list? _____
16. Have training classes been set up for maintenance of the new equipment: _____
17. Has all associated equipment been checked? _____ YES _____
18. Has a review of the control system been completed? yes _____
If computer control, has a simulation been done? yes _____

This check sheet must be filled out and reviewed with the Plant Superintendent prior to the start up of a new project.

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PROJECT AND MODIFICATIONS SAFETY ASSESSMENT

PLANT __Chlorine I__ TITLE __Scrubber Project__

** those factors which have been changed by the proposal.

PROCESS CONDITIONS

ENGINEERING HARDWARE & DESIGN

temperature

**line diagram

**pressure

**wiring diagram

**flow

**electrical feeders distribution

**level

**plant layout

composition

design pressure

toxicity

design temperature

flash point

**materials of construction

reaction conditions

**loads on, or strength of:

OPERATING METHODS

foundations

**start-up

structures

**routine operation

vessels

**shutdown

pipework/supports/bellows

going through explosive
range

**temporary or permanent:

**preparation for maintenance

pipework/supports/bellows

**abnormal operation

valves

**emergency operation

slip-plates

**layout and positioning of
controls & instruments

restriction plates

ENGINEERING METHODS

filters

trip and alarm testing

**instrumentation

maintenance procedures

**trips and alarms

**inspection

static electricity - grounding

portable equipment

lightning protection

SAFETY EQUIPMENT

radioactivity

**fire fighting &

**rate of corrosion

detection systems

rate of erosion

**means of escape

**isolation for maintenance

safety equipment for

maintenance - electrical

personnel

fire protection of cables

**showers & eyewashes

**handrails

ENVIRONMENTAL CONDITIONS

**ladders

liquid effluent

**platforms

solid effluent

**walkways

gaseous effluent

tripping hazards

noise

**access for:

dust

operation

**diking

maintenance

UTILITIES

vehicles

**power, steam, nitrogen,

plant

water, air, fuel gas

fire fighting

**underground overhead:

service

equipment

safety relief devices

normal freeze protection

severe freeze protection

(20 deg. F, -10 deg. F
windchill)

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