

CONFIDENTIAL

Champlin Petroleum Company

Loss Control & Safety Audit

Corpus Christi, Texas, Refinery

November, 1980

RECEIVED

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**SAFETY & LOSS
CONTROL DEPT.**

CLARK 000121

CORPUS CHRISTI REFINERY
LOSS CONTROL AND SAFETY AUDIT
1980
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DEC 11 1980

SAFETY & LOSS
CONTROL DEPT.

CLARK 000122

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INTER-OFFICE CORRESPONDENCE

TO: See Distribution

FORT WORTH, TEXAS

FROM: William E. Childers

DATE: October 27, 1980

SUBJECT: Corpus Christi Refinery Audit

Further to my correspondence of September 12, 1980, the 1980 Corpus Christi Refinery Audit will be conducted November 4, 5, 6 in Corpus Christi with the following team and schedule:

AUDIT TEAM

Chet L. Strunk (Chairman)
Ernie Kanak
Jerry Akers
Orie D. Robison
Chet F. Shockley
W. E. Childers/J. F. Gay
Wesley Ott-Independent Consultant

ON-SITE COUNTERPART

Leon P. Shelton
Ray C. Duvall
Jim H. Tansey
Guy D. Whipple
Brack D. Routh

Accommodations have been booked in the name of William E. Childers for all visiting audit team members at the Sheraton Marina Inn, Corpus Christi (Phone 512-883-5111) for arrival November 3 and check out on November 6. Should there be a need for additional lodging time please advise this office.

Transportation arrangements should be made by the individual team members.

All visiting team members should further be encouraged to arrange to vote absentee for the upcoming election as the audit dates include November 4.

Inspection Schedule

Tuesday, 9:30 a.m.	Meeting - Refinery Conference Room. Discussion of purpose of inspection and assignment of responsibilities for team members. Each team will outline plan for their respective inspections. Begin inspection.
Wednesday, 8:30 a.m.	Conclude inspection.
Thursday, 8:30 a.m. to 10:00 a.m.	Meeting - Refinery Conference Room. Inspection teams to discuss reports and formulate verbal presentation for local management.
10:30 a.m.	Meeting with local management for verbal presentation of each inspection.

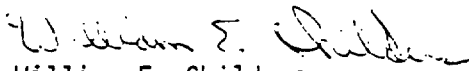
Note: A written report will be prepared by each inspection team member and submitted to the team chairman within one week. The chairman will consolidate these reports and submit a final written report to local management. A copy of the final report will be submitted to the appropriate members of management as designated by Mr. Cal Barnes.

CLARK 000124

Corpus Christi Refinery Audit
October 27, 1980
Page Two

Review of the 1979 audit recommendations and their status will also be included in the scope of this audit. The chairman will have the responsibility for updating the team members on the past year's audit.

The effectiveness of these audits will be largely dependent on advance preparation by each team member and a free exchange of unbiased information.


William E. Childers

WEC/od

DISTRIBUTION:

E. Kanak
J. Akers
C. G. Barnes
W. E. Biggerstaff
R. C. Duvall
P. D. Fritz
R. M. Ponder
O. D. Robison
B. D. Routh
L. P. Shelton
C. F. Shockley
C. L. Strunk
J. H. Tansey
G. D. Whipple
Mr. Wesley Ott

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INTER-OFFICE CORRESPONDENCE

TO: C. G. BARNES

FORT WORTH, TEXAS

FROM: C. L. STRUNK

DATE: 11/24/80

SUBJECT: 1980 LOSS CONTROL & SAFETY AUDIT EVALUATION
CORPUS CHRISTI REFINERY

The third Loss Control and Safety Audit Evaluation for the Corpus Christi Refinery was conducted from November 4 thru November 6, 1980. As in the past, all team members were requested to comment on areas of good report as well as those areas in need of attention. Recommendations were encouraged from all team members.

To insure continuity, the same general format was used this year as before with special emphasis requested on equipment grounding, automatic control installations, safety relief installations, inspection of equipment in multiple service. A review of the Beard Regulation, Light Duty Practice and Major Incident Reporting was also requested.

Generally, the refinery was found in a much improved condition than during the 1979 Audit. The concentrated efforts by Leon Shelton and his staff has had a noticeable effect on all personnel. (Attached is a copy of Leon Shelton's instructions to his Department Heads dated 12/11/79). The cooperation of everyone during this inspection was appreciated. The wrap-up meeting was particularly informative and characterized the importance placed on this activity. A few general comments follow; but for specific reference, please read the entire report:

1. Recommend Corporate Safety Department reassess all four installations (Corpus Christi, Wilmington, Enid and CCPC) for uniform minimum application of Beard Rule and Light Duty utilization. Corpus Christi's mandate on no light duty appears to be an unfair comparison to industry practice.
2. Recommend Department Heads, including the Plant Manager, make weekly plant inspections in rotated, designated areas with the ranking HOURLY person in charge. This not only displays positive interest from the top, but gives an opportunity to spot-survey housekeeping, equipment operation, maintenance, personnel activity, morale and many other important management considerations.

CLARK 000127

CORPUS CHRISTI REFINERY
1980 LOSS CONTROL AUDIT
Page 2 - EVALUATION

3. Recommend tighter control on safety relief valve installations. Too often, block valves under relief valves are not locked open. Consideration should be made to remove these block valves to eliminate this potential hazard. All equipment flow circuits should be checked for adequate relieving devices -- particularly in reboiler service.
4. Recommend more involvement of Department Heads in safety. The Central Safety Committee should be chaired by the Plant Manager. Better communication needed through all levels of management in safety emphasis evaluation of near accidents as well as accidents. More formal procedures for investigation of loss accidents and near misses. Stronger participation by the Safety Department to insure proper operability of all safety equipment as well as recommendations on improving this year's safety record. For more specific recommendations, see Wes Ott's report.

In summary, this report indicates considerable improvement over the 1979 Audit report, particularly in housekeeping, smoking practices, use of automated controls (except by certain operators), and the development of preventive maintenance programs for major equipment. Major emphasis for this next year must be on personnel safety practices, investigation of all incidents, and effective loss control communication to all refinery personnel.

Chester L. Strunk

CLS/czh

cc: Joe Gay
Leon Shelton (4)

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START-UP MEETING
CORPUS CHRISTI REFINERY
LOSS CONTROL AND SAFETY AUDIT

1980

- I. Introduce all members of Audit Team
- II. Describe purpose of audit - Childers, Ott
- III. Assignments
 - OSHA Bill Childers
 - MAINTENANCE Guy Whipple/Orie Robison
 - OPERATIONS Ray Duvall/Ernie Kanak
 - TECHNICAL SERVICE Jim Tansey/Jerry Akers
 - SAFETY Braxton Routh/Chet Shockley
 - SAFETY CONSULTANT Wesley Ott
 - ADMINISTRATIVE Leon Shelton/Chester Strunk
- IV. Review of 1979 Loss Control Audit
 - (See Evaluation & Notes) (Chester Strunk to review recommendations with Leon Shelton)
- V. SPECIAL EMPHASIS:
 - A. Review all automatic controls - activated or manual, maintenance. List control loops installed - active or inactive
 - B. Safety relief valves with block valves - Physically inspect for compliance. List specific locations
 - C. Electrical grounds - List specific locations not grounded
 - D. Existing Beard Regulation
 - E. Existing Light Duty Practice
 - F. Equipment inspection in multiple service
 - G. Major incident or potential major incident reporting. Procedure for investigation

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CORPUS CHRISTI REFINERY
LOSS CONTROL & SAFETY AUDIT
START-UP MEETING 1980
PAGE 2

VI. Closing:

- A. Meals in Conference Room Tuesday and Wednesday -- 12 Noon
- B. Meet in Conference Room at 8:30 a.m. Wednesday
- C. Keep notes each day.
- D. Meet in Conference Room 8:30 a.m. Thursday for Team reporting finalization.
10:30 a.m. - Report to local management
- E. Turn in finished report to Chairman in Fort Worth within one week
- F. Include a final report, recommendations for improving next year's audit.

WRAP-UP MEETING
CORPUS CHRISTI REFINERY
LOSS CONTROL AND SAFETY AUDIT
1980

- I. Reports by each team member to request
- II. Report by Wesley Ott
- III. Corporate Safety Department presentation on Incident Reporting
including near misses
- IV. Distribution of final report -- Barnes, Shelton
- V. Lost-Time Inquiry Reportin - Discussion including Light Duty
- VI. Beard Policy
- VII. Summary

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INTER-OFFICE CORRESPONDENCE

TO: All Department Heads

OFFICE: C. C. Refinery

FROM: Leon P. Shelton

DATE: December 11, 1979

SUBJECT: 1979 Loss Control/Safety Audit

The following assignments are being made to clarify responsibilities for ongoing safety performance, and to correct deficiencies noted in the audit. Completion dates for these assignments are included, and should be reported upon completion. Progress on those items which will be completed after January 1, 1980, should be reported monthly for inclusion in the monthly operations review booklet.

All Departments

- 1) Indoctrination and re-emphasis of safety procedures and rules including housekeeping and smoking. This can best be done in the weekly safety huddles, and monitored by supervisors housekeeping tours.
- 2) Monitor and report unsafe acts.

Safety

- 1) Emphasize housekeeping in each monthly safety meeting - continuous
- 2) Define smoking areas more thoroughly. Work with Operations to initiate work orders for signs, painting butt cans, etc. and report monthly on progress - completion March 1, 1980.
- 3) Police smoking violations and unsafe acts - continuous
- 4) Police Hot Work Permit System.
Initiate and implement Work Condition and Work Permit Inspection reports and provide weekly feedback to appropriate Superintendents and Managers - implement by Jan. 1, 1980.
- 5) Define ignition sources for vehicle and equipment entry permit requirements. Initiate and implement Entry Permit System for same and monitor through Work Condition and Work Permit Inspection - implement by Jan. 15, 1980, monitor as above.
- 6) Set up procedures to monitor and control (unauthorized) use of firewater system - completed but monitor as above.
- 7) Implement report of monthly summary of:
 - (a) Safety activities by Dept. and area
 - (b) Safety Dept. inspection activities
 - (c) Success of weekly housekeeping inspections

CLARK 000134

Safety (cont'd)

- 8) Increase inspection of plant fire and safety equipment - inspect monthly.
- 9) Implement schedule for ongoing Fire Brigade Training sessions. Set schedule by Jan. 1, 1980
Training outlines - due Jan. 15
Begin training by Feb. 1

Operations

- 1) Set up housekeeping areas and assign individual responsibility to supervisors - assign by Jan. 1, 1980.
- 2) Set up procedure to check relief valves and safety shutdown bypasses weekly. Use check lists for each. Implement procedures to give positive control of shutdown bypasses (authorization and record keeping). Implement above by Jan. 15, 1980.
- 3) Review Chemical Delivery Procedure and report on proposed changes or improvements. Report by Jan. 1, 1980.
- 4) Improve emergency training for operators situational emergencies such as operational, natural, fire, etc. Incorporate Safety Dept. expertise and training programs to facilitate. Maintain records and report on both hourly and supervisory involvement - implement by Feb. 1, 1980. Report monthly
- 5) Provide Safety Dept. with work schedules for fire brigade members so that ongoing training schedules may be planned - continuous.
- 6) Initiate written Pump Switching Procedure with records where applicable. Procedure used in the Terminal can be used as a guideline. Implement by Mar. 1, 1980

Maintenance

- 1) Set up housekeeping areas and assign individual supervisor responsibility. Coordinate with Operations Dept. to determine if all plant and terminal areas are assigned. Monitor by weekly housekeeping inspections - assign areas by Jan. 1, 1980.
- 2) Provide plant cleanup as required by inspections and resulting work orders. Report excessive cleanup work orders as well as the area involved - report monthly.

Maintenance (cont'd)

- 3) Include predictive maintenance on fire pumps and related equipment - completed. Report program status monthly.
- 4) Review Hot Work Procedures with supervisors. Review with all by Feb. 1, 1980. (Include present or potential leadermen)
- 5) Repair heater/boiler instrumentation as required by work orders.

Technical Services

- 1) Review all plant modifications and installations for conformance with approved standards and safety regulations (consult Safety Dept. as required) - continuous.
- 2) Implement review of all requisitions for new and replacement pressure vessels and equipment for conformance with applicable standards and provide lists of approved fabricators to Purchasing Dept. for preliminary quotations. (Includes handling equipment for all hazardous materials) - Continuous
- 3) Establish annual conservation vent cleaning and inspection program along with lists and records. Establish by Feb. 1, 1980.
- 4) Upgrade present vessel, relief valve, vent, piping, etc. inspection procedure (more frequent) and initiate cathodic protection report for all facilities - implement by Feb. 1, 1980, report status monthly.

Purchasing

- 1) Police all requisitions for proper approvals and pertinent specifications. Return incomplete requisitions to writer. Report abuse in this area in monthly Operations Review - continuous.

Personnel

- 1) Monitor morale of employees both hourly and supervisory and report in monthly review. Report number of employees interviewed (min. 10 per month suggested). Attempt to pinpoint problem areas if any.

Security

- 1) Implement New Vehicle Control Procedures - implement by Jan. 1, 1980.
- 2) Work with Maintenance Dept. to improve in plant transportation system in order to eliminate excess traffic.

Security (cont'd)

3) Monitor and report speeding violations.

The above assignments are not to be taken as our only safety responsibilities but are intended to be specific areas which require additional emphasis at this time. These improvements will require a team effort, and I'm sure each member will do his part.

Leon P. Shelton
Leon P. Shelton

GP

cc: R. C. Duvall
J. H. Dobson
W. B. Duckworth
M. L. Hansen
M. M. Horseman
J. H. Tansey
W. A. Thompson

CLARK 000138

CREW SAFETY HUDDLE

PURPOSE

The Crew Safety Huddle is to discuss relevant and pertinent points of safety, to direct safety aspects of jobs to be performed, to promote higher participation in safety activities, and to increase the level of safety awareness.

RESPONSIBILITY

It is the responsibility of each supervisor to conduct the Safety Huddle. The Safety Department will supply upon request safety related resource material to assist the supervisors in preparing for their respective Safety Huddles.

FREQUENCY

Weekly

PARTICIPANTS

The participants of the Crew Safety Huddle will be as follows:

Supervisors
Crew
Safety Department (randomly)
Departmental Management (randomly)

DISTRIBUTION

Line Manager
Department Manager
Safety Department

INSTRUCTIONS FOR USE

1. The supervisor will set the time for huddles and see that the crew attends.
2. The supervisor and crew should come prepared to discuss a specific safety topic each huddle.
3. Weekly crew meetings should be 5-15 minutes in length directed by the supervisor.
4. Each supervisor will fill out a Safety Huddle Report, supervisors' name, date, subject, points discussed, attendance and distribution.
5. Each supervisor will route the completed Crew Safety Huddle report through his respective department management and then to the Safety Department.

champlin 

SUPERVISOR _____

DATE _____

CREW SAFETY HUDDLE

SUBJECT:

POINT DISCUSSED:

ATTENDANCE:

_____	15 _____
_____	16 _____
_____	17 _____
_____	18 _____
_____	19 _____
_____	20 _____
_____	21 _____
_____	22 _____
_____	23 _____
_____	24 _____
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_____	26 _____
_____	27 _____
_____	28 _____

CUTTING:

CLARK 000140

STOP UNSAFE ACTS OBSERVATION REPORT

PURPOSE

To increase safety awareness of job related acts and conditions, to increase management participation in a comprehensive safety program, and to provide an on-going management action to correct safe acts and conditions discrepancies.

RESPONSIBILITY

It is the responsibility of each exempt employee to turn in a STOP UNSAFE ACTS OBSERVATION REPORT.

FREQUENCY

Weekly

DISTRIBUTION

Each exempt employee will route his card through his department line management to the Safety Department.

INSTRUCTIONS FOR USE

1. Each exempt employee will enter any unsafe act or condition observed.
2. The corrective management action taken by that exempt employee will be entered.
3. The employee enters their name and the date of the final day of the work week.
4. The report(s) will be routed as appropriate at the end of each work week.
5. The report(s) will be received by the Safety Department by Tuesday noon the following week.

STOP UNSAFE ACTS

OBSERVATION REPORT

Unsafe Acts Observed	Action Taken

Name _____

Date _____

CLARK 000141

AREA SUPERVISORS WEEKLY AREA HOUSEKEEPING AND SAFETY INSPECTION

PURPOSE:

To promote a working environment that allows safe, orderly, effective plant operations; to instill an on-going emphasis on supervisory responsibility and accountability on housekeeping and safety.

RESPONSIBILITY:

It is the responsibility of the area supervisors to conduct a weekly inspection of their area of responsibility. (The Terminal Supervisor will check the Control Rooms and dock areas weekly; the Tank Farm areas will be inspected on a designated area basis over a monthly basis.)

It is the responsibility of the respective operating superintendents to insure the actual inspections occur. Accompanying the area supervisors is appropriate.

FREQUENCY:

Weekly.

DISTRIBUTION:

Operations Superintendent
Operations Manager
Safety Department
File

INSTRUCTIONS FOR USE:

1. Each area supervisor will physically walk through each unit, noting discrepancies of items noted on the inspection list.
2. The area supervisor will discuss and correct through the appropriate supervisor and unsafe acts he observes. The unsafe act and the correction are to be noted in the "Remarks & action taken" section.
3. The area supervisor will be responsible for initiating the appropriate Work Orders to eliminate any unsafe conditions. The unsafe condition and the Work Order number are to be noted in the "Remarks & action taken" section.
4. The area supervisor distributes the Area Supervisors Weekly Area Housekeeping and Safety Inspection as appropriate.
5. The area supervisor insures appropriate follow-up on the initiated Work Orders.

12/79

CLARK 000142

Area Supervisor: _____

Date - week of : _____

AREA SUPERVISORS
WEEKLY AREA HOUSEKEEPING & SAFETY INSPECTION

- (1.) Hoses rolled.
- (2.) Litter (cups, cans, bottles, etc.) picked up.
- (3.) Pump seals checked for leaks.
- (4.) Oil leaks.
- (5.) Gas leaks.
- (6.) Steam leaks.
- (7.) Ladders in proper place.
- (8.) Comfort Stations & Main Control Room.
- (9.) Proper operation of equipment.
- (10.) Caustic leaks.
- (11.) Acid leaks.
- (12.) Safety Showers, Eye Wash System.
- (13.) Champlin personnel wearing proper safety equipment.
- (14.) Contract personnel wearing proper safety equipment.
- (15.) Scott Air packs in place.
- (16.) Fire extinguishers - Seals & Press.
- (17.) Smoking areas.
- (18.) Check work permits at random.

Remarks & action taken: _____

Distribution: J. O. Cooper B. Routh
R. C. Duvall File

CLARK 000143

Area Supervisor: _____

Date - week of: _____

AREA SUPERVISORS

WEEKLY AREA HOUSEKEEPING & SAFETY INSPECTION

- (1.) Hoses rolled.
- (2.) Litter (cups, cans, bottles, etc.) picked up.
- (3.) Pump seals checked for leaks.
- (4.) Oil leaks.
- (5.) Gas leaks.
- (6.) Steam leaks.
- (7.) Ladders in proper place.
- (8.) Control Rooms/Smoke Stations.
- (9.) Proper operation of equipment.
- (10.) Caustic leaks.
- (11.) Acid leaks.
- (12.) Safety Showers/Eye Washes.
- (13.) Champlin personnel wearing proper safety equipment.
- (14.) Contract personnel wearing proper safety equipment.
- (15.) Scott Air packs in place.
- (16.) Fire extinguishers - Seals & Press.
- (17.) Check work permits at random.

ks - Action Taken: _____

Distribution: Bob Barker B. Routh
R. C. Duvall File

12/79

CLARK 000144

Area Supervisor _____

Date/Wk of: _____

AREA SUPERVISORS
WEEKLY AREA HOUSEKEEPING & SAFETY INSPECTION

- _____ (1) Hoses Rolled.
- _____ (2) Litter (cups, cans, sample bottles, etc.) picked up.
- _____ (3) Pumps seals checked for leaks.
- _____ (4) Oil leaks.
- _____ (5) Gas leaks.
- _____ (6) Steam leaks.
- _____ (7) Ladders in proper place.
- _____ (8) Comfort Stations.
- _____ (9) Proper operation of equipment.
- _____ (10) Caustic leaks.
- _____ (11) Acid leaks.
- _____ (12) Safety Showers/Eye Wash fountain
- _____ (13) Champlin personnel wearing proper safety equipment.
- _____ (14) Contract personnel wearing proper safety equipment.
- _____ (15) Scott Air packs in place.
- _____ (16) Fire extinguishers - Seals & Press.
- _____ (17) Control Rooms.
- _____ (18) Smoking areas
- _____ (19) Analyzer room.
- _____ (20) Check work permits at random.
- _____ (21) Docks,

_____ ks/Action taken: _____

_____ Distribution: L. E. Franke/R. C. Duvall/B. Routh/File

CLARK 000145

champlin

SAFETY MANAGEMENT REPORT FOR MONTH OF November

Department/Area		General Safety Meeting Attendance				Safety Huddle Meetings (Number)	Accidents		Permit Compliance (Percent)	Training Program Participation (Number)	Stop Compliance (Percent)
		Non-Exempt		Exempt			Report	Goal			
		Number	Percent	Number	Percent						
Operations	Old Plant	193	—	2/7	29						
	New Plant	180	—	0/8	0						
	Terminal	144	—	0/1	0						
	Pipeline	12	—	0/4	0						
	Total	108/29	49	2/33	6		4	2			
Maintenance	Unit Maintenance	16	—	3/8	37						
	Shop Maintenance	85	—	1/4	25						
	Planning	16	—	0/3	0						
	Total	77/86	90	4/16	25		1	1			
	Inspection	0/2	0	0/1	0						
Technical Services	Engineering	0/4	0	0/13	0						
	Laboratory	29/34	85	2/4	50						
	Total	29/40	73	2/14	11						
	Warehouse	0/10	0	0/2	0						
	Purchasing	0/2	0	0/3	0						
Purchasing	Total	0/12	0	0/5	0						
	Safety	0/1	0	3/3	100						
	Employee Relations	0/2	0	0/1	0						
	Economics & Planning	0/6	—	0/6	0						
	Administrative	0/16	0	0/5	0						
Refinery Totals	Current Monthly					5	0	0			
	Average Monthly	—	—	—	—	—	.42	.25			
	Year-to-date	—	—	—	—	—	5	3			

General Safety Meeting Topics:

"Let's Pretend"

80 Contractors Attended

Safety Huddle Topics:

Join the Switch to Current Safety

Air Packs, Fire Extinguisher, General Cleanup & Grating

Housekeeping as Related to Safety (2)

Ladder Use, Ladder Replacement and Ladder Repair

Reportable/Lost Time Accidents:

0 for November

YTD off the Job shows 21 accidents resulting in a total of 127 days lost

Permit and Work Condition Violations:

NA - A compliance report is being developed for implementation in December

Training Program Topics:

No Training Activities Scheduled in November

STOP Actions:

NA - All exempt employees are to turn in a STOP card on a weekly basis

Safety Bullentins Mailed/Issued:

Safety Activities Planned For December:

CLARK 000147

Fire Brigades are to be established / Schedule for weekly training sessions will be determined
First Aid and CPR sessions for Maintenance and Laboratory Personnel.

CLARK 000148

CLARK 000148



INTER-OFFICE CORRESPONDENCE

TO: C. L. Strunk

FORT WORTH, TEXAS

FROM: W. E. Childers

DATE: November 24, 1980

SUBJECT: Corpus Christi Refinery
Safety Audit - 1980

Attached are the results of the Corporate Safety Department audit of the Corpus Christi Refinery. These results are presented in two parts.

1. Implementation of Recommendations of 1979 Audit
2. Specific items noted during the physical tour of the facility.

A handwritten signature in dark ink, appearing to read "William E. Childers", written in a cursive style.

William E. Childers

WEC/od

Enc.

CLARK 000149

CORPUS CHRISTI REFINERY - 1980 ANNUAL SAFETY AUDIT

In conformity with instructions from the chairman of the Audit Team this report will address the apparent progress toward implementation of recommendations made in the 1979 Audit.

I. HOUSEKEEPING

Housekeeping within the refinery has improved since the 1979 Audit. Dramatic improvement was noted in the operating areas, the maintenance shop areas and along the primary roadway through the installation. While the obvious pick up-paint up effort is commendable there still remains a need for improvement in some areas of the tank farms, the effluent treatment area, and the outlying off sites areas.

II. SMOKING

Considerable progress toward an adequate and consistent program to control smoking activities within the refinery was noted. Proper signs have been posted indicating Smoking Areas. There have been marked butt cans provided in most designated areas. The smoking areas and smoking activities appear to be policed fairly well. Spot discussions with refinery personnel indicated an acceptable degree of understanding of the smoking procedures and policies as well as general agreement with their application.

III. CONTROL OF IN-PLANT DELIVERIES

A specific program has been established whereby control of chemical deliveries and other major shipments within the refinery, not going to the warehouse, are held at the gate, met by responsible supervisory personnel or their designate, and accompanied to the area of delivery. At that point there is an individual assigned to that delivery, that according to procedure, is on hand throughout the delivery operation, clean up and exit of the delivery vehicle from the unit.

The color coding of vessels and pipelines specifically handling caustics and acids has not been implemented. There is a general and rather loose color coding of different equipment in various parts of the plant. However, in conformity with the recommendations of the audit the vessels and containers of acids or caustics have been indicated by lettering stating their contents. Similar treatment has been given some but not all of the larger piping.

IV. NEW FACILITIES INSTALLATION OR FACILITIES MODIFICATION CONTROL

A program has been established to implement control of these facilities and additions. The Purchasing Department has initiated a summary check

list that is prepared for all new facilities or facility modifications. Specifications for bids going through the Purchasing Department are approved by the Engineering Department prior to issuance for contract bid. The procedure also provides that final check out and approval of the necessary requirements be routed through and approved by the Mechanical Inspection Department. It further provides for designation by the Mechanical Inspection Department of approved vendors or constructors of equipment whereby the Mechanical Inspection Department checks the vendors for quality of work, facility capability and contract performance.

V. HOT WORK PERMITS

General compliance with the recommendations relative to the improvement of the Hot Work Permit program appeared to have been initiated. There still appears to be work that should be done on this program as well as continual upgrading and indoctrination in the use and enforcement of the Hot Work Procedures as written. The Refinery Safety Department has rewritten/updated the Hot Work Procedures since the 1979 Audit. The supervisory personnel, craftsmen, and operators within the refinery, as well as most of the outside contractors appear to have been indoctrinated or at least advised of the necessary requirements resulting in more effort directed toward control of hot work. Better definition of the Safety Department's responsibility with regards to signing off on certain types of hot work has been basically established by assignment of a specific safety engineer to designated areas within the refinery with the responsibility for this type of work. A need for additional emphasis and monitoring of the safety engineer's responsibilities and performance relative to the assigned areas is indicated.

VI. EMERGENCY TRAINING FOR OPERATORS

The recommendations relative to this subject have been partially initiated. The old refinery areas have established definite emergency procedures and in at least some cases have printed these procedures, have gone over these procedures with the operating personnel, and tested some of the operating personnel for their understanding and retention of these procedures. The new plant has produced a basic outline type set of procedures for some emergency situations. I was unable to determine any actual training of the operators in these procedures other than to provide them with access to the written procedure. There was no indication in either section of the refinery of any specific exercise or trial run relative to emergency situations.

VII. REFINERY FIREWATER SYSTEM

The firewater system has not been separated from the plant service water or the plant process water systems. There are no apparent specific plans or intentions to accomplish this recommendation. The permanent temporary connections reported in last year's audit still exist with very little effort being made to correct this situation. I was unable to determine any action having been initiated toward providing the enclosures or the upgrading of the firewater pumps according to the recommendation of the 1979 Audit. While I was informed that the routine checking and testing of the fire pumps was done on a scheduled basis, I was unable to acquire any documentation to this effect. I was unable to verify any specific check list or other indication of the specific functions checked on each fire pump on a routine basis. The 1979 recommendation for a study of the makeup capabilities of the firewater system from the city water line has not been implemented. The updating for accuracy of the current firewater print of the refinery firewater systems reportedly is in progress. A procedure has been established by the Safety Department to monitor and control unauthorized use of the firewater system through a log kept by the department secretary. However, observation of the functioning of this system would indicate a mere noting of who and when a call was received and what was stated. There appears to be no effort or program directed toward control or restriction of non-emergency use of the firewater system.

VIII. PREVENTIVE MAINTENANCE

1. An inspection and documentation program for relief valves has been established and computerized by the Mechanical Inspection Department. This program provides the criteria for the maintenance, testing and setting. It provides for a record format, a location notation, valve number assignment, serial number of the valve, the pressure setting of the valve, record of certification, and by whom. The program further provides for witnessing of certain valve testing by the Mechanical Inspection Department as well as a visual inspection of the internals of each relief valve that is dismantled.

2. Conservation Vents and Flame Arresters

The Mechanical Inspection Department has established a procedure to initiate a yearly check and maintain records on the conservation vents and flame arresters for tanks. This program incorporates provisions to inspect and maintain records on the foam makers for tanks as requested through work orders or other indication from the Safety Department.

VIII. PREVENTIVE MAINTENANCE

3. Spare Pump Run-Ins

There is believed to be an established procedure on spare pump run-ins. However, there is some confusion as to how effective it is or how consistently it is applied.

4. Instrumentation Check-Out

This item is addressed in depth by another audit team member. (Reference Jerry Akers report.)

IX. SAFETY DEPARTMENT DUTIES AND RESPONSIBILITIES

1. The responsibilities for recommending proper location, selection, purchase, and installation of fire extinguishers and other fire fighting equipment is recognized and accepted by the Refinery Safety Manager. However, it is unclear as to exactly when and how the implementation of this function is accomplished in all instances.

2. Responsibility for maintenance and replacement of fire extinguishers and related items.

A program has been established whereby the proper maintenance of all fire extinguishers is accomplished through an outside contractor as well as records pertinent thereto. The records are produced and maintained by the outside contractor with a copy being retained by the contractor as well as a copy of these records being provided to the Champlin Safety Department.

3. Responsibility for the inspection and tagging of the extinguishers is recognized and accepted by the Champlin Refinery Safety Department. However, spot surveying in the field indicated that the majority of the extinguishers within the old refinery section were last checked in July or August of this year rather than on the prescribed monthly schedule. The new refinery area did appear to have been checked on a monthly basis throughout this year.
4. The responsibility for location, storage, and serviceability of fire fighting chemicals is recognized and accepted by the Corpus Christi Safety Department. The necessary inventories, pertinent manufacturer's test records and other related necessary documentation appears to be adequate.

5. Fire Pumps

- a. The responsibility for inspection and testing of all fire pumps on a scheduled and routine basis with assistance from the Operations and Maintenance Departments, witnessed and recorded by the Safety Department has not been established. This responsibility seems to be lacking acceptance within the Safety Department. It was indicated that as it was a maintenance function, the Maintenance Department was taking care of it. The Safety Department was aware that maintenance started the pumps on a weekly basis. That was approximately the extent of the knowledge of the function. They were not aware of recordkeeping. The assumption was made by the Corpus Christi Refinery Safety Department that the records were being kept by maintenance. Checking with the Maintenance Department, Maintenance Superintendent Guy Whipple is of the opinion that they are not kept on a formal basis.
- b. Responsibility for initiating prompt work orders for repairs of the fire equipment, is in the opinion of the Safety Department, a shared responsibility with maintenance. The Safety Department will issue work orders for work that they recognize needs to be done, but it is maintenance responsibility to issue work orders relative to all checks that they make on a weekly routine basis.
- c. Housekeeping violations in the fire equipment areas are orally communicated to the Operations Department by Safety with little to no documentation or followup.

6. Safety and eye wash showers throughout the refinery have been upgraded to an acceptable standard.

7. Firewater System

An analysis recommended and/or the improvements indicated in the last audit on a general basis have not been implemented.

8. Safety Lectures

The recommendations in the 1979 audit relative to safety lectures have resulted in improved attendance to the monthly safety lectures. However, the recommendations as such basically have not been implemented. The Safety Department is currently still conducting all monthly operations and maintenance safety meetings with the attendance of some supervisory personnel with the expressed intent of seeing the roster lists are signed by the employees legibly and indicating their affiliation. According to records provided by the Corpus Christi Refinery Safety Department, there has not been a department head attend a monthly safety meeting since the last audit. A concerted effort has been initiated by the Safety Department to provide variety, including film strips, timely subjects, varied formats, guest presentations, and group discussions.

CLARK 000155



INTER-OFFICE CORRESPONDENCE

TO: C. L. Strunk
FROM: Jim Tansey/Jerry Akers
SUBJECT: Safety Audit Comments

FORT WORTH, TEXAS

DATE: 11/11/80

The comments we have from our notes are as follows:

1) Emergency generator - new plant:

It was difficult to pinpoint who was responsible for a routine checkout of this machine. Operations area supervisor claimed they were not responsible nor did they know when it was run last. The electrician maintenance supervisor said they were told by Operations they could not put a load on the machine because of the risk of shutting down a unit. The Machine Shop maintenance supervisor did not have any record of a preventive maintenance program to show me, because they were rained on or thrown away. The diesel mechanic did say it was run routinely, and they plan to keep future records.

2) The batteries in the battery backup had evidence of being well maintained.

3) The substations were clean and free of litter.

4) "C" Boiler -

The procedures for startup were clearly posted and laminated in plastic. There was much evidence that John Kapura, Utilities Superintendent had a very positive effect on boiler operation. All keys for the boiler bypasses have been removed from the board and are in control by shift foreman. All devices are in service.

5) "A" Boiler -

The operator had to climb up conduit and piping to get to sight glass on drum to put it back in service after repairs. The operator (James Smith) said he has been trying for over a year to get a ladder and platform, to no avail. He also pointed out the non-return valve on the same boiler was inaccessible from any ladder or platform.

6) Heater logic:

a) Crude and vacuum heaters - all devices are in service with the exception of fire eye that is jumpered behind the board. The keys are still in the board.

b) Unibon heater - the shutdown devices are in service.

c) 40 Block heater - the shutdown devices are in service, but there are four jumpers behind the board.

d) 50 Block - Sulfur plant: The shutdown devices are in service.

7) Beard policy -

From the people I talked to, it is my understanding that all Champlin employees and routine contractors are required to be clean shaven. However, other temporary people, such as visitors, servicemen, delivery personnel are not required to be clean shaven, but a Champlin sponsor must sign a form for them at the gate.

CLARK 000156

8) Light duty policy -

The stated policy is that personnel returning from an industrial or off-the-job accident or illness must have a full release from the doctor prior to coming to work.

9) Emergency procedures -

The results were mixed. The new Crude, Vacuum, Unibon, and Demex units have procedures that are easily accessible, but the new FCC, Sulfur Plant, and 40 Block do not. The #4 Platformer and the Alky Unit do not, but the cumene has the SIP Operating Manual available.

The attitude for most operators and shift foremen was that they know what to do, and they do train their personnel, but they really don't need a written procedure.

There is a very good program of reviewing all personnel in existence once a week. The personnel are asked to demonstrate their capabilities in a dry-run situation, and the results are filed. There is also a fine procedure to rotate pumps and verify what emergency devices have been bypassed. One shift foreman, Jim Reeves, is doing a very good job in reviewing and training personnel.

- 10) In the Demineralizer, one sulfuric acid pump is out of service, and the other has a leaking seal. From conversation with the operator, shift foreman, area supervisor, and machinist leaderman, it has been out for a while. Maintenance is expediting parts or replacement pump.
- 11) Cumene unit control room automatic fire extinguisher Halon bottle not connected.
- 12) Cumene unit hot oil heater furnace shutdown by-passed.
- 13) New FCC surge protection for air blower in manual.
- 14) Area 85 sub-station alarm "loss of normal power" turned on...alarm on crude unit control board did not go off.
- 15) "Low instrument voltage" alarms on Area 4 boards - operators need training on the prompt action this requires. Mainly, call instrument man NOW!!!
- 16) Demineralizer computer cabinet air filter too small for opening. Dust will eventually overheat computer.
- 17) Graduated cylinder full of dilute caustic left sitting on caustic regen. skid at demineralizer.
- 18) Crude furnace 11-H-1 low process flow shutdown by-passed.
- 19) Vacuum furnace 11-H-2 low process flow shutdown by-passed.
- 20) Crude furnace - temperature recorder and extension cord being used in hazardous area. Does not meet electrical classification.
- 21) 20 Block sub-station - cover left off power supply for panalarm.
- 22) FCC #2, regen. cat. slide valve - manual hand crank is missing coupling pin.

- 23) Sat. gas furnaces -- fuel oil meters - steam tracing should have traps.
- 24) 40 Block -- sub-station "loss of pressure" alarm - stays on all the time.
- 25) 40 Block -- old sponge absorber chromatograph is surplus - remove it.
- 26) Alky heater -- "firebox hi pressure shutdown" by-passed HS-030
"ARKA C.W. Lo Press Interlock" HS-034 by-passed.

A general survey of instruments in the High Sulfur Crude Facilities control room was made by surveying the operators and boardmen. They were asked to list two classes of instruments. The first class is instruments which no longer have any function, "ones that are never used". The second class was instruments which are never used in automatic.

The loops which are never used are listed below. The list is subjective, because operations of some of these loops is dictated by the economics of the refinery, or the operations of currently mothballed process equipment. It is hoped the list was on the high side.

Controllers which are never used:

61-FIC-113 - Cooling Water Blow-down.

11-FIC-034 - Distillate to Gas Oil.

11-PIC-004 - Vacuum Tower Flash Zone indicator is used but never the control valve.

31-FIC-006 - Slurry Recycle

31-FIC-066 - Clarified to Fuel Oil

32-FIC-015 - Strip. Overhead Control Indicator is used. This controller is primary of a cascade loop. Secondary is used but cascade is never closed.

32-FIC-027 - Dryer Overhead to Compressor

32-FIC-009 - Deb. Btms. to Prim. Obs.

This second list covers instruments, which are never used in automatic. It should be noted this list is subject to great variations based on the particular boardmen involved. In my judgment one of the better shifts of boardmen made this list. As a result, it's shorter than would be made by a less experienced, poorer trained crew.

Controllers which are never used in automatic:

11-PIC-051 - Fuel Gas Supply Vac. Htr.

11-PIC-048 - Fuel Gas Supply Crude Htr.

11-PIC-031 - Heater Firebox @ Brgwal V.H.

11-PIC-025 - Heater Firebox @ Brgwal C.H.

11-FIC-051 - Air to Vac. Htr.

11-FIC-050 - Air to Crude Htr.

11-FIC-043 - Fuel Oil to Vac. Htr.

11-FIC-041 - Fuel Oil to Crude Htr.

11-AIC-003 - Vac. Htr. Stack O₂

11-AIC-002 - Crude Htr. Stack O₂

61-FIC-106 - Combust. Air to "B" Boiler

61-FIC-103 - Combust. Air to "A" Boiler

61-FIC-101 - Fuel Oil to "A" Boiler

61-FIC-104 - Fuel Oil to "B" Boiler
61-AIC-101 - Excess Air S.P. to "A" Boiler
61-AIC-102 - Excess Air S.P. to "B" Boiler
11-TIC-007 - HVGO Reflux Cooler Bypass
21-AIC-001 - "A" Heater Stack O₂
21-AIC-002 - "B" Heater Stack O₂
31-PIC-018 - Main Air Blower Discharge (Surge Control)
31-TIC-004 - Regen. OHD Water Inj.
31-TIC-005 - Regen. Dilute Phase Snort Valve
31-TIC-001 - Comb. Feed to Rx
31-SIC-001 - Power Recovery Train RPM
31-FIC-008 - Debut. 4th Tray
31-FIC-016 - Stripper BTM to Debut.
41-AIC-002 - Absorber Reboiler Furnace O₂
41-AIC-003 - Debutonizer Reboiler Furnace O₂

Jim Tansey/Jerry Akers



CLARK 000160



INTER-OFFICE CORRESPONDENCE

TO: C. L. Strunk
FROM: Chet Shockley
SUBJECT: Safety and Loss Control Audit

OFFICE: Enid Refinery
DATE: 11 November 1980

Attached is my report of the 1980 Safety and Loss Control
Audit of the Corpus Christi Refinery.

Also included is the completed audit sheet pages 1 thru 9
and 37 thru 43.


Chet Shockley

CS/law

Enclosure

CLARK 000161

PLANT INSPECTION
CORPUS CHRISTI REFINERY
NOVEMBER 1980

1) LABORATORY

- a) Fire extinguishers were spot checked for evidence of current inspection. Some extinguishers have not been signed-off since September 1980. One extinguisher in basement area did not have an inspection tag attached to it.
- b) Basement area is in need of housekeeping and class a combustibile material should be inventoried at a minimum.
- c) Sewer lines in basement are leaking and creating a health problem.
- d) Electrical wiring defects were noted throughout the laboratory.
- e) Air movement at various work stations did not seem to be sufficient. However, instrumentation should be used to determine if proper air flow is being provided.
- f) High pressure cylinders of acetylene and oxygen should be separated a minimum of 20 feet or by a noncombustible barrier at least five feet high having a fire-resistant rating of at least one-half hour.
- g) Vacuum pumps located in the basement should have guards around the exposed belts.
- h) Air movement inside the motor laboratory should be checked out and a vent hood over the knock engines should be considered.

2) REFINERY GENERAL

- a) Various signs through the refinery need to be made legible or replaced with a new sign.
- b) Housekeeping in areas that I saw were improved since I was in the refinery during 1978.
- c) Fire protection items listed in the 1979 audit have been corrected or they are being corrected.

3) CONTRACTORS

Location: Old Vacuum Unit (#3 Vacuum)

- a) Hot work permits were posted, workers understood the need for the permit and were following instructions noted on the permit.
- b) There were violations of correct scaffold erection.
- c) Welders not wearing hard hats in the construction area.
- d) Not wearing industrial grade safety glasses. Sunglasses and street grade glasses were being worn.



CLARK 000163

champlin

INTER-OFFICE CORRESPONDENCE

TO: S. B. HECK

OFFICE: HOUSTON, TEXAS

FROM: D. L. LEVY 

DATE: NOVEMBER 10, 1980

SUBJECT: SAFETY AUDIT

RE: NO. 3 CRUDE AND NO. 3 VACUUM UNITS

Mr. B. D. Routh, Safety Manager of the Corpus Christi Refinery, informed me today, November 10, 1980, that a safety audit was made at the Corpus Christi Refinery the week of November 3, 1980.

During this audit, a question was asked about the electrical grounding in the No. 3 Crude and the No. 3 Vacuum Units. It is our opinion that all equipment has been grounded according to code requirements in both units. Electrical drawings showing this grounding has been given to Mr. Routh for his information.

It is possible that when the safety audit was made in the No. 3 Vacuum Unit, there was not any apparent grounding of pumps; however, this grounding was installed through the control conduit connecting the switch rack to the designated pump motor. A bus bar was installed in the new switch rack for grounding.

In summary, we are stating that all equipment in the No. 3 Crude and the No. 3 Vacuum Units are grounded per National Electrical Code.

DLL:wmr

CLARK 000164

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CLARK 000166

TO: C. L. STRUNK
FROM: W. E. CHILDERS

RE: CORPUS CHRISTI REFINERY SAFETY AUDIT - 1980
COMMENTS & SUGGESTIONS

A walk through tour with David Fuqua resulted in the following observations:

1. There were both wire rope chokers and nylon webbing slings noted in various locations, both in use and idle, which had suffered excessive damage. An adequate program to check, repair and/or replace these items on a consistent and routine basis would appear appropriate.
2. There appears to be an accepted practice of smoking inside the metal building used by the Terminal Department for the repairing of valves. There is no indication that this area has been designated for smoking, nor are butt cans provided for cigarette disposal.
3. Vehicle traffic throughout the tank farm areas appears to continue on a noncontrolled basis. In light of the recognized source for potential ignition of the internal combustion engine, and the severity of the potential of storage area incidents, a program to control this type exposure should be initiated. The current practice of overnight parking of motorized equipment within the diked areas, as well as establishment of contractor's temporary work building within these areas should be eliminated as an integral part of the program.
4. The current practice of maintaining the dike drains in an open position to facilitate water drainage from inside tank dikes should be eliminated as this creates a serious potential of inner dike communication of any large tank spill or fire.
5. The over full gasoline sump north of the TEL building should be reviewed with the expressed intent of providing an installation capable of consistently handling the volume of product necessary to eliminate the one to three inches of gasoline standing in an open pit adjacent to a designated roadway.
6. The pilot head air pressure gauge to the spray system on the TEL storage tank indicates no air pressure. The complete and continuous maintenance of all fixed fire protection systems throughout the refinery should be a priority item.
7. The refinery firewater system is still experiencing excessive use and abuse. Implementation of recommendations necessary to bring the system into compliance with the NFPA standards as well as the elimination of service water ties and control of nonemergency use of the system should be instituted on a priority basis.

CLARK 000168



INTER-OFFICE CORRESPONDENCE

TO: Chet L. Strunk
FROM: Orie Dean Robison
SUBJECT: Corpus Christi Refinery Safety Audit

OFFICE: Enid Refinery
DATE: 20 November 1980

I need to apologize to you and the safety audit team for not being as observant on the safety audit as I should have been. I am selfish in always looking for programs or systems that I can utilize in improving our program at the Enid Refinery. I assure you the time that was spent in the Corpus Christi Refinery was beneficial to me and will prove beneficial to the company as different ideas are combined to improve our system.

I teamed up with Guy Whipple, Manager of Maintenance in the Corpus Christi Refinery for the annual safety audit of the Corpus Christi Plant on November 4, 5, and 6, 1980. We were to conduct the survey around Plant Maintenance Practice, Plant Process Equipment Inspection Records and Plant Control of Contractor Personnel. We also was given a list of items to check out as we were conducting our assigned survey. The assigned safety audit sheets are of verbal communication between myself, Guy Whipple, Planning/Scheduling, Pump, Electrical, Instrument, Inspection and Operation personnel.

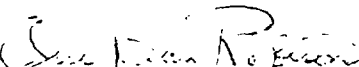
Summarizing the findings on some of the extra items:

- 1) Housekeeping - The appearance of the plant was exceptionally good; fresh paint, clean streets, clean units, and the numbering of the equipment was excellent.
- 2) Smoking habits and areas. The areas were clean but I noticed that the cigarette butts were not confined only to the smoking area but was scattered around the smoking area as well.
- 3) Unit Modification - The intent to have input from all departments is the aim, but with all the activity going on constantly it is apparent that some of the modification is pushed through to keep on schedule with not enough thought or study done on what effect the operation will have on the area surrounding it. (drainage, electrical reclassification, process vapors)
- 4) Preventative Maintenance
 - A) Block valves under relief valves; existing program needs rejuvenated. The Inspection Department is in the process of establishing a procedure concerning the handling of block valves under relief valves. This program will be of the document type and should serve the purpose very well.

Interoffice
Corpus Christi Refinery Safety Audit
Page 2
20 November 1980

4) Preventative Maintenance (Cont.)

- B) Relief valve handling and settling. The Inspection Department has this program under review with some added documented steps that will improve this program.
- 5) Electric Ground System - I found the grounding system to be very good with one or two exceptions in the old part of the plant or on old equipment.
- 6) Beards.- There is a program of who or what type of contractor with beards can work in the plant, it still is up to each Champlin Supervisor to take the responsibility and sign a card for his admittance to the work force. I don't believe this type of program is the answer.
- 7) Light Duty - The Corpus Christi Plant has recently adopted a policy of no light duty. This does take a lot of responsibility off the foreman on where to put the injured individual as not to cause further injury and still not set a practice that other employees may tend to lean on.
- 8) Recommendations to improve the safety audit.
 - A) Corpus Christi complex is to big to even come close to covering in the allotted time (approximately two (2) days).
 - B) Set up different foremen (unit or craft) to give tour of his facilities, programs, and records that are existing or are being set up. Managers and supervisors have to cover too much ground and still be responsible for daily activities to divert complete attention to safety audit.


Orie Dean Robison

ODR/law

cc: Guy Whipple (CC Refinery)
Paul Fritz (Enid Refinery)

CLARK 000170

CLARK 000171

TO: C. L. STRUNK

DATE: 11/11/80

FROM: ERNIE KANAK

SUBJECT: COMMENTS & SUGGESTIONS ON SAFETY IN OTHER AREAS OF THE CORPUS
CHRISTI REFINERY

Housekeeping

In general, the plant housekeeping was good. The unit housekeeping was better than the terminal areas, but this would be expected because of more operators.

In the area of housekeeping, the following were noted:

1. Cigarette butts near the Gauger's Office parking lot. It appeared that persons leaving the building or their vehicles discarded the cigarettes at that time.
2. In several spots in the tank farm area north of the No. 3 Vacuum Unit and the No. 4 Platformer, there were discarded 55 gallon drums, pipe and a pile of rust.
3. Steam leaks were noticed in the terminal piperacks NE of Tank 1003 and NW of Tank 1004.
4. In the asphalt heating and circulation area, leaks from two pumps were spilling asphalt onto the concrete.
5. The dock area housekeeping was good.
6. A box that contained about six (6) rusting spool pieces was left near Tank 231.
7. Oil was leaking from the No. 4 Platformer water injection pump. Someone could slip on this and hurt himself.
8. Near butane sphere 173, there were discarded soft drink cans (probably due to the Goldston people) and on the top platform were rusty bolts and an empty can.
9. Drums, an old fire hose, etc., were lying on the ground near the old lead building.

Fire Protection

1. The LPG pumps near sphere 173 have no visible means of fire protection. None of the monitors can be directed toward them nor are there any fire extinguishers nearby.
2. The LPG spheres north of the No. 3 Vacuum Unit are not diked.
3. Wheeled fire extinguishers were located near the asphalt heating and circulation area and near the dock pump manifolds. This shows recognition of potential hazards and positive action taken by the Refinery.
4. A fire extinguisher was placed near the dock butane handling pumps so that quick action could be taken if a leak occurred -- good.

CLARK 000172

5. All docks had good fire protection (fire extinguishers and water hose connections).
6. No deluge fire protection is available on the LPG bullets and spheres 131, 137, etc. A Refinery work order has been submitted.
7. The fire protection near the BTX section pumps and tank farm was good.

Equipment Grounding

1. The chemical storage tanks near the No. 1 Crude Unit are not grounded.
2. Almost all of the equipment in the No. 1 Crude Unit is not grounded.
3. The desalter for the No. 1 Crude Unit was grounded, but the pre-heater was not.
4. The employee gasoline storage tank north of Platformer No. 4 was not grounded, had no fire arrestor or relief valve. The relief valve may not be needed if overpressure protection is provided.
5. The No. 3 Platformer reactors were not grounded.
6. It is suggested that a Refinery team inspect all the equipment on a unit-by-unit basis to insure that adequate equipment grounding has been provided.

Relief Valves

1. It is not evident from a visual inspection that adequate overpressure protection has been provided for most of the Refinery small tanks and drums. On those vessels having a hinged vent cover capable of being locked closed, it is suggested that all hinges be removed. Should protection from rain or water vapor be needed, then it would seem that a relief valve or rupture disc would need to be added. It is further suggested that the Refinery operating and engineering personnel review all of these tanks to make sure that overpressure protection has been provided and is still adequate. Please note that these tanks include those that contain chemicals, acids, caustic, and hydrocarbons.
2. No relief valve was provided on the fuel oil tank near the old FCC unit.
3. On the Hydrar Solvent Splitter, two (2) relief valves were originally installed. Only one (1) relief valve is now in service. The Refinery engineering personnel should verify that one relief valve will adequately protect the system -- or re-install the second relief valve.
4. The chain operated block valve between the Hydrar Splitter Column and its overhead condensor and overhead drum should be locked open. There is no relief valve on the overhead drum. It is being protected by the RV's on the Hydrar reboiler return line.

Pressure/Vacuum vents

5. The chain operated block valve on the Hydrar splitter should be locked open. The Hydrar Splitter reboiler is being protected by the column relief valve.
6. It is suggested that the Refinery engineering and operating personnel review all P&ID's and piping to insure that all equipment is adequately protected by relief valves.

Tank Corrosion Protection

1. Corpus Christi Safety Procedure No. 29 describes Tank Anti-Corrosion Treatment. Water draining into the Process tank farm area north of the No. 3 Vacuum Unit and No. 4 Platformer is not being adequately drained -- although attempts to do so are evident. Due to poor drainage, water is under some of the tanks.

Tank Drain

1. The drain from Tank 930 is into the diked area where it joins rainwater runoff. This could be a problem if hydrocarbons are inadvertently released into the area.

Standing Water in Tank Farm

1. There is a considerable amount of water accumulating inside the dike near Tank 1032.

Relief K.O. Drum Pump

1. One of the two (2) K.O. drum pumps on slow roll was not operative. A third back-up pump was also out of service.

Safety Shower

1. A safety shower was located near a storage drum containing sulfuric acid -- good.

Pump Cavitation

1. In the tank farm area near the No. 2 Pumphouse, one of the pumps being used to pump out the tanks was cavitating.

Ladder Safety

1. The ladder is loose on the natural gas K.O. drum near Tank 1024.

Firewater Use

1. The firewater system was used to back flush a dike drain between tanks in the tank farm area where a cathodic protection system was being installed. I did not check to verify compliance with Safety Procedure No. 64.

Emergency Shutdown Procedures

1. No emergency shutdown procedures could be found for the No. 1 Crude Unit and the old FCC unit. Copies of same for the other units were in the control rooms.

Leaky Flanges

1. More flange leaks were detected in the new plant. It is probably due to the increased equipment sizes and the equipment necessary to insure good flange sealing.

Fuel Oil in Electrical Conduit

1. On the Cumene heater, fuel oil was backing up from the burner into the electrical conduit.



CLARK 000176

TO: C. L. STRUNK

FROM: ERNIE KANAK

DATE: 11/11/80

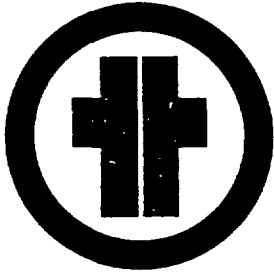
SUBJECT: SUGGESTIONS FOR FUTURE SAFETY AUDIT OF CORPUS CHRISTI REFINERY

1. During the design of all new units, various pieces of equipment are grouped together and protected against catastrophic overpressure. After the unit begins operating, modifications are made to the piping. Perhaps, part of the yearly audit should be for the audit team to review with the Refinery the unit modifications made during the past year to double check the safety of the design. This may increase the scope of Refinery record keeping.
2. It may also be helpful for the audit team to review with the Refinery all new tanks commissioned in the past year. This would serve as a double check of the overpressure protection.
3. It may be useful for the Refinery to furnish the audit team with a listing of all locked open block valves. This would help the Refinery to periodically check them and the audit team could spot check them for compliance.

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CLARK 000178



wesley ott associates, inc.

SAFETY MANAGEMENT CONSULTANTS
P.O. BOX 161 GASTONIA, N.C. 28052 704-866-8001

November 14, 1980

GAY _____
CHILDERS _____
PERRYMAN _____

Mr. J. F. Gay
Champlin Petroleum Company
P. O. Box 9365
Fort Worth, TX 76107

Dear Joe:

Enclosed is my report resulting from the special survey of the Corpus Christi Refinery's current safety management program. I trust this is in agreement with my verbal summary during the wrap-up meeting.

I have tried to highlight what I perceive to be two major areas requiring emphasis: 1) a need for greater intensity of management commitment and day to day demonstration of management's interest and concern, and 2) a need for additional advisory and consulting services from the plant safety staff. Efforts are underway to improve in both of these areas.

Also enclosed are a copy of the "Shapiro speech" and an invoice for the Corpus Christi visit. Please give the copy of the speech to Bill Childers, as I had promised to send him a copy.

Finally, I commend you on your success in continuing to develop a unified, corporate safety and loss control effort in conjunction with the rapid growth being experienced by Champlin. The priority and emphasis you are helping members of top management maintain on safety matters during this period is significant. You and Bill do not have an easy task.

As always, it was a pleasure working with you and other members of the Champlin staff. I hope to be able to assist you again in the future.

Sincerely yours,

Wesley L. Ott
Wesley L. Ott

WLO:ma
Enclosures

LOSS
CONTROL DEPT.

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SPECIAL SAFETY MANAGEMENT SURVEY

CHAMPLIN PETROLEUM COMPANY

CORPUS CHRISTI REFINERY

November 4-6, 1980

INTRODUCTION

A special survey of the safety management program at Champlin Petroleum Company's Corpus Christi refinery was made in conjunction with the annual Loss Control Audit on November 4-6, 1980. The primary purpose of the survey was to assess the current status of implementation of the activities incorporated into the refinery's safety effort as a result of the DuPont safety management consulting program.

OVERALL EVALUATION

A comprehensive safety management program is underway at the Corpus Christi refinery. There are many effective activities underway, some of which are enumerated in the following section of this report. Members of management at all levels are personally involved in these activities.

Many of the activities, such as the safety huddles, investigation of equipment malfunctions, and use of the STOP cards are increasing the emphasis devoted to safety by first-line supervisors. One indicated area for improvement is regarding the intensity or degree of top management's involvement. Several deviations from the original program have resulted. These include a change in chairmanship of the Central Safety Committee, elimination of scheduled management audits and of the overlapping, departmental safety meeting structure.

The safety staff has recently been enlarged and assignments made to provide increased staff support to the operating and maintenance areas.

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Specific suggestions for improvements of refinements of the safety management program are included in the following sections of this report, where appropriate.

Respectfully submitted,

WESLEY OTT ASSOCIATES, INC.



Wesley L. Ott, P. E., CSP
President

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ACTIVITIES OF SPECIAL NOTE

There are many positive aspects of the overall safety effort at the refinery. Some of the activities that are being implemented especially well, and for which management should be commended, include:

- o There is now nearly 100% attendance of hourly employees at the monthly safety meetings conducted by safety department personnel. Most contractor personnel are also in attendance. This is a great improvement over previous attendance at these meetings.
- o Weekly safety huddles are conducted by members of first-line supervision with members of their crew. Suggested topics and resource information for these safety huddles are provided by the safety staff.
- o A committee investigation is conducted on all injuries resulting in lost-time or doctor's treatment.
- o The general publicity and awareness campaigns at the Corpus Christi refinery are excellent. Many persons have mixed feelings about the advantages of these types of programs. Although persons do not always read the signs, posters and safety messages, I feel the concept of subliminal perception is utilized to some degree.
- o A program was recently begun in operations to have the unit operators review an emergency shutdown procedure each week with other unit operators. These reviews are documented.
- o There is an excellent training program underway for Emergency Response Team members.
- o A program has recently begun in operations to have operators document and investigate all equipment malfunctions and process upsets. This program could contribute significantly to ferreting out conditions, operating procedures and possible training deficiencies that lead, not only to equipment malfunctions, but also to employee injuries.

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- o A spot-check of work order logbooks in two control rooms revealed that there is not a large backlog of work orders over three or four weeks old. Also, safety engineers are involved in the scheduling of maintenance work. This helps insure a balanced priority of safety related work orders.
- o Summary reports and resource materials prepared by the safety office are very thorough and provide managers and department supervision with good sources of information to help them maintain an awareness of their areas' performance.
- o The assignment of safety engineers to various areas of the plant is a very positive step which can afford an increased awareness of on-going conditions and practices in the areas. Their increased presence should be beneficial to area supervision as they seek to maintain a safe environment.
- o The practices of labeling individual vessels and pieces of equipment such as heat exchangers and columns is excellent. This practice should be extended to all areas of the refinery. This is especially helpful in training of new employees, operators and maintenance personnel.
- o The laboratory employees recently completed ten years without a lost-time injury. Employees in this department are congratulated on this achievement.

GENERAL AREAS FOR IMPROVEMENT

Based on the review of activities underway and discussions with members of management and operators, there has been a deviation away from the original concepts and approaches to safety management adopted at the refinery in three areas. These include:

- o The Central Safety Committee is not being chaired by the Refinery Manager. Instead, the Safety Manager is chairing this meeting.
- o The cascading or overlapping safety communication structure does not exist. Safety matters are a part of the routine discussions in the morning meetings with the Refinery Manager. These meetings are attended by the Safety Manager.
- o Audits by members of upper management, specifically members of the Central Safety Committee, are no longer conducted. Members of management are sometimes scheduled to participate on the "plantkeeping" inspections and each manager makes individual tours of the refinery areas.

There are continual demands on the time of each member of the staff at the Corpus Christi refinery. These time demands have been compounded by the start-up and operation of new facilities during recent years, revamping older units, and increases in the overall responsibility of each manager.

If there is a weakness in the overall safety effort, it is not a lack of desire to operate safely. However, because of the demands on management's time, some of the safety matters are perhaps pursued with less intensity than necessary to provide adequate personal follow-up on programs and activities to insure the required degree of control to achieve the desired performance. Indications of this, in addition to the deviations highlighted above, include:

- o Limited knowledge regarding the number of first-aid injuries in their area,
- o No communication in some departments regarding injuries resulting in other departments, including those with lost time.

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- o Lack of knowledge (by one manager) of how safety programs within the department are functioning.

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SUGGESTIONS FOR IMPROVEMENT

Specific suggestions which are offered to help increase the intensity of managements' emphasis on safety within the refinery include:

1. The original reports resulting from the DuPont study and consulting effort should be reviewed and those sections pertaining to the Central Safety Committee, cascading department safety meetings, and management audits should be reproduced and distributed to Central Safety Committee members. These should be reviewed individually by each member of the Central Safety Committee and scheduled for discussion at a forthcoming meeting.

Management should analyze the current practices and activities and determine if they are sufficient or whether modifications would result in greater management awareness of, and impact on, the safety effort.

A specific discussion and decision should be made on each of the program elements.

2. Management's intensity of emphasis on safety matters could be increased by devoting more attention to minor injuries. These can be used as an effective indicator of performance. They can provide valuable information regarding trends, training deficiencies, or existing employee work practices which need attention, to upgrade performance or reduce exposures.

A plan that could be utilized to accomplish this is outlined below:

- A. Each employee should report to his immediate supervision either before or after treatment at first-aid.
- B. The injury report form should be partially completed in first-aid and returned to the supervisor, preferably by the employee.
- C. Upon receipt of the forms, the supervisor should make some investigation and inquiry regarding the circumstances surrounding the injury and complete the remaining information.

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- D. Communication regarding the injury, circumstances surrounding the injury, and follow-up action taken should be conveyed to other levels of supervision no later than the day following the injury. For example, at the meeting between the superintendent and his staff, a brief discussion regarding the injury would be appropriate. If the injury is of a serious nature, more detailed investigation should be planned.
 - E. Similar discussion should take place in the refinery managers' meeting to communicate the fact that an injury occurred and supervision reacted to it. Where the potential was very serious, detailed discussion may be in order and plans for correction of similar exposures should be made.

The detail of the verbal reports should be consistent with the seriousness of the injury.
 - F. When necessary, the safety engineer representing the area in which the injury occurred should do some independent investigation regarding the circumstances surrounding the injury. On occasion, he may prod area supervision into making more detailed follow-up investigation.
3. Another method of increasing managements' emphasis on safety would include a verbal communication with their staffs to discuss the investigation results of serious injuries and equipment upsets. Some minimal verbal communication should be held on all injuries upon which an investigation is made. The extent of the discussion and follow-up would depend on the investigation results and recommended actions.
 4. The area safety engineers can provide a valuable assistance and advisory service to management by monitoring effectiveness of safety huddles, stop card use, work practices, investigation of equipment malfunctions or process upsets, and the extent of emergency shutdown training, etc. Their feedback to management can allow them to become personally involved when needed or provide added emphasis to insure that area programs function effectively.

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SUPPLEMENTAL SUGGESTIONS

The following sections of this report include comments on specific activities or elements of the safety program.

Light Duty Policy

Corpus Christi management has recently adopted a firm stance against light duty for injured employees. This has had the effect of increasing the number of injuries that are classified as "lost-time" injuries and the number of lost workdays experienced by employees. Future lost time injury performance will not be as good as that experienced in the past, when light duty or restricted work assignments were utilized.

Mr. Gay, Corporate Safety Director, has been requested to review the corporate stance on light duty, and develop a proposed guideline for refinery review. Refinery personnel should have an opportunity to participate in the development of this proposal.

Monthly Safety Meetings

In spite of the improvements made in the attendance of the monthly safety meetings, and other refinements of these meetings, there are still employees who comment negatively regarding the interest level of the meeting topics. This is to be expected, considering the number of employees in attendance each month.

A schedule has been developed for 1981 meeting topics. One suggestion to help overcome some of the adverse reactions to the meetings is to involve representatives from the various departments in the preparation of the meeting resource material. A method of doing so would be to have a task force, composed of area representatives (primarily supervision), assigned the responsibility for planning and procuring meeting resource materials.

Consideration should be given to having a member of the task force also take responsibility for presenting the material. This could require an inordinate demand on their time to do so.

Another approach to varying the presentations would be to rotate responsibility for presentation among different members of the safety staff. This would also broaden their capabilities and provide some variety of the meetings.

STOP

The current program of using STOP cards may be more counter-productive than helpful. Each member of supervision is asked to complete one STOP card each week. The majority of these cards are being returned with the statement "no observation" or "none" on the cards. Also, some departments are not following through with the program. It is suggested that some plan be continued to utilize the STOP cards and apply the concepts of observation established in the STOP training program. Some suggested methods for doing so include:

- o Continue to have each member of supervision make at least one observation per week.
- o Require that each observation be directed at employee work practices. Observations of equipment conditions should not be acceptable. (An alternate would be to accept an employee created condition such as hose left lying on pad, or ladder left in area.)
- o Supervision should observe "positive" work practices as well as violations or unsafe practices. For instance, if an employee is observed drawing a sample, working on a valve, or even just walking through an operating area, this could constitute an observation. If the task is being done safely and in accordance with procedure, and if the employee is using all required protective equipment, he should be commended or thanked for doing so. An observation card might record:

"Observed employee taking sample from splitter. Using all required protective equipment and performing job correctly."
Action taken would be: "Thanked employee for working safely and contributing to a safe operation. Asked employee if he knew of any hazards or problems associated with that task."
- o The employees name should be recorded on the observation cards.

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- o Consideration should be given to advising employees that any violation of standard safe practices or procedures would be considered as a "second offense" violation, and the card would constitute a written warning. A copy of the card should go in his file. Unsafe practices of a "judgment" nature would be considered verbal warnings. The card should be discarded after recording for trends, etc.
- o Regardless of the methods used, it is important that a discussion be held in the Central Safety Committee to determine the procedures to be followed, and a uniform method for use of the cards established. The plan for use should be verbally transmitted through each level of the organization.
- o The above method of using the STOP cards would be a method of getting supervision to apply the concepts of observation contained in the STOP program and apply the techniques of "positive re-enforcement" to obtain the desired behavior. Current safety researchers and practitioners are beginning to agree that this is a more effective method of obtaining the desired level of safe performance than the punitive or negative approach.

Safety Huddles

The safety huddles are an excellent method of establishing communication between the first-line supervisors and their crews. If the supervisors or employees begin to react negatively to the topics and materials prepared by the safety staff, an alternate approach to select topics would be:

- o Use a periodic meeting to develop a list of topics or potential danger sources or hidden hazards. In this way, operators or mechanics would have input into the topics they felt should be reviewed to contribute to a safer operation or help make them aware of hazardous operations in their area.
- o An alternate approach would be to make assignments to one or more members of the crew each week, asking for a report at the next safety huddle. For example, operators could be

asked to survey the areas for safety signs that might need to be replaced, to comment on areas where signs could be placed, to make a survey for hard to operate valves, etc.

Safety Department Responsibilities

Emphasis on having safety engineers assume responsibility for specific areas of the plant should be continued. Each member of the safety organization has special skills in a particular area such as training, fire protection, emergency equipment, etc. The assignment to a particular area and assumption of total responsibility for that area should help to broaden the safety engineers' capabilities. Some of these responsibilities include inspecting emergency equipment within the area on the scheduled frequency, monitoring area inspections of this equipment, investigating injuries and potentially serious injuries, participating in follow-up investigations of equipment malfunctions, monitoring work practices, and effectiveness of training such as shutdown procedures, etc. Such area representation should help the safety personnel become more effective in performing their role as consultants and advisors to the line organization. Their increased presence and follow-up in the areas should help them to more quickly detect potential trends and deficiencies in the area and to suggest corrective action.

A suggestion to help insure uniform understanding of the desired working relationships is to have each department head prepare an outline of what he would like to receive in regard to safety advisory and support services. The department head could meet with members of the safety staff and outline his expectations and suggestions on "How you can help me administer the safety effort in my area."

Laboratory

A walk-thru of the laboratory facilities and discussion with the laboratory supervisor revealed serious deficiencies regarding laboratory ventilation. These deficiencies are recognized and an AFE has been authorized to revamp and improve the laboratory facilities, but no definite plans have been made to do so. Some

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problems are anticipated by the laboratory supervisor regarding continued operation during the remodeling, when it is undertaken.

It is suggested that a thorough discussion and review of existing laboratory deficiencies be conducted. The hazards associated with the current facility should be enumerated and a hazard classification placed on these. Consideration should be given to the potential exposure to laboratory employees, potential OSHA citations and their effect, and the effect of continued operation on employee morale. A decision should be made on the seriousness of the above, and plans made regarding future operation of the laboratory and for modernization.

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John. C. ...

CHAMPLIN PETROLEUM COMPANY

SAFETY AUDIT

Date November 5, 1980

Plant Name: Champlin Petroleum Company

Location: Corpus Christi, Texas

Number of Employees: 476

Senior Management Official: Mr. Leon Shelton

Nature of Business: Manufacture of Fuel Oils

Principal Problem Areas: (1) Supervisory Training

(2) Protective Equipment Enforcement

(3) Corrective discipline for infractions

Accident Experience: Based on 200,000 manhours exposure

This Year to Date September

Total Reported Injuries 90 OSHA Recorded Med. Cases 5 L. T. I's 9

Man-hours to date 838,999 Freq. Rate 2.14 Sev. Rate 48.6 SII

Property Damage Down Time

Last Year 1,093,005

Total Reported Injuries 98 OSHA Recorded Med. Cases 4 L. T. I's 4

Man-hours to date 1,903,005 Freq. Rate .420 Sev. Rate 15.24 SII
145

Property Damage Down Time

Previous Year 1,019,151

Total Reported Injuries 95 OSHA Recorded Med. Cases 7 L. T. I's 1

Man-hours to date 1,019,151 Freq. Rate .196 Sev. Rate .392 SII
2

Property Damage Down Time

Fire & Explosion Experience:

This Year to Date

Total Reported 3 Injuries 0 Property Damage 260,000

Business Interruption Loss 297,000

Fire & Explosion (Continued)

Last Year

Total Reported _____ Injuries _____ Property Damage _____

Business Interruption Loss _____

Previous Year

Total Reported _____ Injuries _____ Property Damage _____

Business Interruption Loss _____

Principal Causes of Fires (1) _____

(2) _____

(3) _____

A. ADMINISTRATIVE

1. Safety Policy and Attitude

a. Is there a written accident prevention policy? Yes

b. Is it oriented toward injury prevention only? No

c. Is it oriented toward accident prevention? Yes

d. Is it oriented toward total loss control? Yes

e. Are all supervisory personnel familiar with it? Yes

f. Are hourly workers familiar with it? Yes

g. How does management support the policy? Strong commitment _____

Nominal support Yes Lip Service _____ Indifference _____

h. General Attitude toward safety On a 1 to 10 Scale .

Workers _____ 5

Supervisors _____ 4

Management _____ 3

Polled

S T O P Program
for Hourly Role

i. Do senior management meetings include safety? Yes

j. What are the safety objectives? Safe Production

Current Year 50% reduction in LTI's

Five Year Plan LTI reduction aimed at 0 LTI's

A. ADMINISTRATIVE (Continued)

k. Is success in accident prevention recognized?

Promotions Considered

Appraisals No

Other Recognition & Incentive Awards

l. Is responsibility for safety defined in writing? Yes

Do those responsible understand? Yes

Do all levels understand their responsibilities? Yes

m. Is safety included in job descriptions? No

n. Are accidents and their costs charged against the department? No

o. Are first line supervisors required to submit periodic safety reports
to management? Safety Huddle Reports. Otherwise no.

2. Safety Organization

a. Is there a safety director designated for the operation? Yes

Time spent on safety 100 %

b. Other members of his staff Five

c. Safety Committees

Senior management? Yes

Supervisory? No

Other Union Inactive

d. How often do they meet? Monthly

Report to? Plant Manager

Chairmen? Safety Manager

Agenda prepared? Yes

Are serious accidents and near miss accidents reviewed by this
committee? Yes

How effective are they? Nominal

A. ADMINISTRATIVE (Continued)

3. Safety Education and Training

- a. Is there a formal safety orientation program for newly hired employees? Yes
- b. Are job methods prepared for each job? Yes
- c. Are JSA's prepared for each job? No Are they used in training programs?
- d. What other job training programs are there? HF Acid, Caustics, American Red Cross Standard First Aid and CPR, Emergency Response, College Fire Training Course, STOP Course, DDC.
- e. Is there a planned safety training program? Yes
Who conducts the training? Safety Department
What is the nature of these programs? Programmed Instruction
- f. Is there a training program for industrial power trucks? Yes
Who attends? Potential Fork Lift Operators
- g. How is safety publicized within the plant?
Bulletin Boards Yes Post near misses
Post serious accidents? Newsletters? Yes Other? Pamphlets
- h. Have there been any special educational programs conducted within the last 12 months? Red Cross First Aid & CPR, Fork Lift Training, STOP Courses, ERT
- i. To what extent are the preventive and predictive aspects of safety emphasized in these programs? Given first consideration
- j. Safety award programs? Yes
- k. Are safety rules posted? No
- l. Is there a safety handbook? Yes

B. INSPECTION AND ENFORCEMENT

1. Are regular inspections made of plant areas, facilities, building, machinery, equipment, tools and work methods for accident hazards? Yes
By whom? Plantkeeping Teams How frequently? Weekly
How extensively? Comprehensive How processed? Area Supervisor
2. Is a check list used in making inspections? Yes
3. Are recommendations for correction of accident hazards acted upon promptly? Yes
4. Do supervisors report hazards and advise management of unsafe conditions beyond their control? Yes
5. Is there a safety suggestion program? Yes How is it processed?
Informally
6. Are local safety rules and regulations including those pertaining to the use of personal protective equipment administered in accordance with the plant's current instructions? Yes
7. Is disciplinary action taken towards supervisors who tolerate unsafe conditions or practices? Verbal action
8. Is disciplinary action taken toward employees who refuse to conform with the plant safety rules and regulations? Verbal and Written For failure to use
warnings
protective equipment? Verbal and Written Warnings
9. Do good housekeeping conditions prevail? Yes
10. What special permits are enforced:
Hot Work? Yes Vessel Entry? Yes Lock out? Procedure
Other? Excavation

C. STATISTICS, REPORTING AND ACCIDENT INVESTIGATIONS

- a. Are injury statistics being kept and posted in accordance with OSHA requirements? Yes

C. STATISTICS (Continued)

- b. Is a record made of all injuries? Yes
- c. Is the cost of property damage, material loss and business interruption recorded? Yes
- d. What use is made of these statistics? Create awareness
Broken down into types and causes? Yes
Analyzed and reviewed periodically? Yes
Other? _____
- e. Is there a standardized system for reporting accidents and emergencies?
Yes
- f. Is there an emergency plan? Being developed What does it cover? Falls under Environmental Affairs Coordinator
Fire, Storms, Blackouts, Bomb Threats, Evacuation, Other? _____
- g. Who investigates fires and accidents? Cognizant Supervision and Management
- h. Do supervisors prepare accident reports? Yes

D. MEDICAL PROGRAM

- a. Pre-employment physical? Yes Other examinations? Vital capacity
- b. Are medical and hospital services readily available? Yes
- c. Are dispensary facilities available on premises? Yes
- d. Is it open on every shift? 1st
- e. Is there a plant doctor or nurse on duty? Nurse Company Doctor? Yes
- f. Are there trained First Aid people on every shift? Yes
- g. Are environmental health hazards being monitored? As required
Fumes? Yes Dust? Yes Noise? Yes

E. PERSONAL PROTECTIVE EQUIPMENT

- a. What protective equipment is available to employees?

Eye glasses? Yes

Safety footwear? Yes

Goggles and face shields? Yes

Self-contained breathing apparatus? Yes

Airline respirators? Yes

Gas masks? No Respirators? Dust

Ear muffs and plugs? Yes

Other? Protective clothing

- b. What instruments are available to check environmental conditions?

Yes Combustible Gas Analyzer?

Yes Toxic gas analyzer?

Yes Oxygen meter?

Yes Noise meter?

- c. Who is responsible for equipment, inspection and maintenance? Safety

Department

- d. Are there maintenance sterilization facilities? Yes

F. ENGINEERING CONTROLS

- a. Is the safety department notified upon requisition and installation of new equipment regarding safety in design and/or alteration of plant facilities, building and layout of machinery or facilities? Yes

- b. Are there special committees to evaluate the impact of changes in environmental conditions that might be brought about by plant alterations and/or expansions? Yes

- c. What equipment and materials are purchased under the direction of the safety department? Personal safety devices, protective clothing and equipment.

F. ENGINEERING CONTROLS (Continued)

- d. Is the fault tree or any other system safety technique used for the purpose of presenting a graphic presentation of parallel or sequential events of the principal hazards? Yes
- e. What other special accident predictive techniques are employed? STOP
Course Cards
- f. Is there an industrial engineering section (job evaluation, methods of improvement, work simplification, quality control, etc.?) No
- g. Is there a planned maintenance program in effect? Yes
Are priorities set for safety items? Yes

G. UNSAFE CONDITIONS

- a. Major structural deficiencies, exits, fire doors, etc.? Yes
- b. Adequate control of fumes, dust, gases, heat and noise? Yes
- c. Safety valves - Periodic inspections made of heat activating devices, automatic releasing devices, audible or visual warning systems, gas analyzers and other devices pertaining to fire and/or accident prevention? Maintenance Department.
- d. Are ANSI Codes employed as a guide to providing safety devices and machine guards for hazardous operations? Yes
- e. Color Coding? Yes
- f. Specific problems noted:
1. Old transite fire line needs to be replaced.
 2. Eroding of tank fire walls (dikes).
 3. Foam protection on tanks needs updating.
 4. Tie-ins needed on loop north of 301-302 over to New Plant.
 5. Loop fire water system to #1 dock.

H. UNSAFE WORK METHODS

A. Specific

1. Failure to use available protective equipment

2. Taking unsafe position or exposure

3. Improper use of equipment or tools

4. Improper use of hands or body parts

5. Failure to secure, warn or operating without authority

6. Inattention to footings or surroundings

7. _____

CLARK 000203

I.

ADMINISTRATION

I. General Care (Maintenance)

- A. Paint - Excellent. Refinery has had an accelerated painting program this past year.
- B. Warehouse Storage - Adequate.
- C. Pump Leaks - Refer to team write-ups.
- D. Stabilized Surfaces - Gravel - Grass - Weeds - Very Good.
- E. Plant Drainage - Good.
- F. Fire Equipment - Continue preventive maintenance and periodic run-in of equipment. Witnessed by Safety Department personnel. This needs to be established.

II. Cleanliness (Housekeeping)

- A. Process Areas - Excellent.
- B. Control Rooms - Improved from 1979 inspection.
- C. Shops - Good.
- D. Warehouses - Good - orderly
- E. Fire Equipment Stations - Good.

III. Supervision (General Attitude)

- A. Cooperation of Employees - Very Good.
- B. Cooperation of Safety Personnel - Very Good.
- C. Cooperation of Management at Closing Meeting - Excellent

IV. General Remarks on Interest and Responsiveness to Fire Protection and Loss Prevention

- A. Fire training conducted annually for employees.
- B. Each area checked by inspection team at least 4 times a year. This program is not sufficient nor has it been effective.
- C. Responsiveness to safety programs poor. Need emphasis from top management through line-level supervisor to each hourly employee.

II.

GENERAL PLANT INFORMATION

I. Type of Plant.

Fully integrated petroleum refinery.

II. Feedstock or Charge Stock.

Various domestic sweet crudes
Various foreign sweet and sour

A. Source - Varies

B. Characteristics - Physical Properties

26 to 45 gravity API
H₂S up to 500 ppm
0.1 to 2.0 wt. % Sulfur

C. Shipping and Receiving Methods

Vessel and pipeline, Barges, Trucks

D. Throughput (Barrels per day) - Use per Day

170 MBPD Capability

III. List major production units

170 M BPD 3 Crude Units
70 M BPD 2 Vacuum Units
15 M BPD Demex
50 M BPD Unibon
25 M BPD Platformer (Motor)
6.2 M BPD Platformer (Motor)
60 M BPD FCCU
12 M BPD FCCU
15 M BPD Alkylation
Sulfur Recovery Unit 150 tons
Steam 415 M LBS/HR 600 psi; 600 M LBS/HR 250 psi
4.0 M BPD Cumene Unit
1.5 M BPD Hydrar

IV. Plant layout (General comments)

Office should be outside to eliminate traffic and unauthorized personnel and for safety of office personnel.

A. Spacing

New plant and Alkylate Units excellent
Old units fair

Old C.U. poor
Office location very poor. Control room location old CU & FCCU,
BTX are poor locations.

B. Utilities unexposed?

No, all types electrical and process water overhead.
Firewater unexposed and main unexposed.

C. Flood Exposure

No heavy rain exposure. No flood exposure except docks and
portion of waste treatment (Hurricane)

D. Outside exposure or adjacent plant exposure

Border with Southwestern Refinery

E. Access under emergency conditions

(a) Two gates East side; (b) One South side; (c) 4 gates from
Lawrence and (d) Four side access and water access (fireboat
available).

F. Security (fencing, lighting, guards, etc.)

Probably OK in normal times; should be improved if radical
encounters increase.

V. Fireproofing

A. Process vessels - Yes

B. Pipeway supports - Some improvement needed in older unit areas.

VI. Flammable liquid pumps

A. Protection - New - Yes. Old - No.

B. Exposure - Inherent

VII. Cooling Towers

A. Protection - Some (where needed)

B. Exposure - No, except old FCCU borderline

VIII. Water Pollution

A. Location of Plant with reference to waterways, marshlands, natural
or manmade drainage facilities: Exposed to ship channel

B. If exposed to water pollution, comment on:

1. Distance from plant to waterway - Immediately adjacent
2. Dike capacity - Adequate
3. Spill Prevention/Containment Plan - Yes.

C. Valving

1. Pipelines pass beneath waterway - 6" crude line across ship channel, valved both sides

IX. Principal Products Produced

Gasoline 3 grades
 Jet A Fuel
 #2 Fuel
 #6 Fuel
 Asphalt
 Sulfur
 Cyclohexane
 Toluene
 Xylenes, mixed
 Propane
 Cumene

- A. How shipped from plant - Vessel, barge, pipeline, truck and rail
- B. Shipping Containers - No drums

X. Business Interruption Potential

A. Feedstock and Source

Vulnerable foreign and all tankers. Crude only. P.L. not vulnerable but have a low volume 28 M BPD limit of 80 M BPD on an emergency basis.

B. Single Train Operation - No

C. Critical Process Equipment (Identify bottlenecks)

New CU 1 wk. furnaces
 New FCCU 1 wk. blower-spare
 Alky 3 days
 #3 Platformer 1 wk. Recycle-spare

D. Interdependency with other company operations

Nothing critical

XI. Manpower

- A. Peak during day shift on week days 213.
- B. Minimum on graveyard shift 42.
- C. On call or call system - Radio - Phone

XII. Storage Facilities

A. Spacing

B. Diking (capacity adequate to contain contents of largest tank)

C. Drainage - Poor, in some diked areas. Work in progress to correct.

D. Weed Control - Yes

E. Exposure - Depending on wind conditions

F. Pollution Exposure - (make specific comments on exposure to waterways, marshlands, natural or man-made drainage facilities, etc.)

The only potential exposure would involve flooding by bay waters via the ship channel. Elevation of most storage facilities is sufficient to preclude flooding except under excessive storm conditions. The ballast tank, sulfur barge-loading tank, oil sludge holding pits are most vulnerable.

G. Visual Inspection conducted on all tanks annually?

Yes - All are visually inspected quarterly by inspection team.

H. Comment on use and condition of shunts installed on floating roof tanks.

Inspected at least once every 6 months to 1 year depending on the service.

Corpus Christi November 4, 5, and 6, 1980

II. PLANT MAINTENANCE PRACTICES

A. Tank Farm

1. Are dikes and drains well maintained? Crude Tank Farm (90 area) tank dikes and drains are well maintained. Area in Crude Tank Farm (90 area) may need better weed control for fire prevention.
2. Are dike drains normally kept free of debris and in a closed position? Most dike drains are free of debris and not covered up. Found some dike valves open, but mostly are in closed position.
3. Are dike drain valves visible and accessible? Yes
4. Are dikes well maintained? Yes - Checked mostly in Crude Tank Farm (90 area).
5. Condition of dike drain valves. Good
6. Is there a regular inspection program on internal and external floating roofs? No
No set or scheduled program in force at this time. Repair work performed on work order request.
7. Is there a regular maintenance program on tank vents and vacuum breakers? Yes
Program is in effect and is documented.
8. Is there a program for on-stream inspection of tanks (metal thickness, painting, etc.)? Yes
Program is in effect and is documented.
9. Is there a documented routine inspection program for remote operating pumps and other rotating machinery? No
No documented routine inspection program in force at this time.
10. Are signs posted indicating remote starting on applicable machinery?
Checked the Crude Tank Farm (area 90) - No Signs posted in this area.
11. Is remote machinery equipped with vibration sensors and shutdown fire detectors?
Not that I could find on safety audit.

III. PLANT MAINTENANCE PRACTICES (Continued)

12. Is there a documented periodic inspection of foam chambers, foam piping, and foam connections? No
Testing and repair work done while tank is out of service for repairs.
13. Is tank farm drainage adequate? Yes
14. Is there a specific entry permit program for entry into tank dikes and is this program generally known, understood and practiced by the employees? No
No tank dike entry permit program in force.
15. Condition of remote pipe racks and piping. Good
16. Is there a documented program for periodic inspection and service at pressure/vacuum vents, static grounding, ponding, level measuring devices, etc.? Yes
Program is in effect. Work is performed by work order request on six (6) month intervals. Records are kept at the Planning and Scheduling Department.
17. Condition of platform and steps around tanks.
Well painted and cared for at time of inspection.
18. Hydrocarbon valve lubrication.
No scheduled program.
 - a. Is there a set program? (Emphasis is to be made on remote, little used valves.)
No
 - b. Responsibility for the above.
Operation has the responsibility of lubricating the valves in their area or unit. Repair work performed by maintenance on work order system.

B. Fireproofing

1. General condition of fireproofing on refinery vessels.
Good in the new area of refinery. Old No. 1 Crude Unit needs to be looked at for setting up in program.
2. General condition of pipe rack fireproofing.
Good in the new area of refinery. Old No. 1 Crude Unit needs to be looked at for setting up in program.

III. PLANT MAINTENANCE PRACTICES (Continued)

3. Are there critical pipe racks that do not contain fireproofing?

As far as I noted all critical pipe racks in the new units contain fireproofing
The program needs to include the old section (example - old No. 1 Crude Unit).

4. Responsibility. On small maintenance items the Inspection Department writes the specification and turned over to Maintenance Department. On new installation or big revamps the Project Department is responsible to include this in original installation.

C. Plant Drainage

1. Is it effective? Yes

2. Would it be effective for a 10 year storm? Plant recently (within last two (2) months) with stood a severe storm with no major damage.

3. Is critical equipment (boilers, main electrical substation) protected from floods? Yes
Installation of equipment is designed with this type of environment in mind.

4. Indications of backup or stoppages.

None

D. Shop Facilities

1. Housekeeping and general condition. Mostly good - some craft shops are in process of moving (welding - pump repair).

2. Safety devices on shop equipment. Are they installed where required? Are they operable? Safety devices not noted on safety audit. Note need to install hydrocarbon monitors with loud alarms in Welding Shop. This is due to welding shop located close to operating unit - compressors.

3. Is the necessary personal protective equipment indicated and available?

Yes - in most cases.

4. Are overhead cranes marked as to capacity? Pump Repair Shop
Yes - didn't find any documented inspection records where overhead cranes have been periodically tested (dead weight).

5. Are adequate records maintained on crane inspections? No

PLANT MAINTENANCE PRACTICES (Continued)

6. Are special safety requirements clearly marked?

In most cases they are marked.

E. Control Houses

1. Are control rooms pressurized? Is source of air for control room from a safe place? Are there alarms for loss of pressure? Are audible alarms for critical services loud enough and long enough to insure being heard?

The new central control rooms are pressurized. The old control rooms are not. All depends on which way the wind blows the HF Alkylation fume. Yes

2. Are windows in control room safety windows?

Not in old section of plant.

3. Is location of control room free from exposure?

Yes- in the newly constructed part of the refinery. The control rooms are exposed to hot oil lines and pumps in the old part of refinery.

4. Do all electrical installations comply with the appropriate area classification?

Most of the new installation does comply, but the program needs to be looked at very hard where new units and tanks are installed around old facilities.

5. Are there clearly defined exits in case of emergency?

Yes

6. Are there any flammable or toxic products piped into control room?

None that was noted on the safety audit.

7. Is computer in safe location free from unnecessary hazards?

For most parts - Yes

8. Is there appropriate fire protection and detection provided for the control house and computer equipment?

Yes

9. Is there an uninterruptible power supply system capable of emergency shutdown needs in the event of the failure of the primary power supply?

There are two (2) electrical services that loop the refinery (138 KV for new part of refinery and 69 KV for old part of the refinery).

III. PLANT MAINTENANCE PRACTICES (Continued)

10. Do computer setpoints and outputs include hi/low limits to prevent erroneous operator entry? Yes (As per information furnished by Jerry Ackers)
11. Does computer system provide specific indication that a given data point is questionable? Yes (As per information furnished by Jerry Ackers)

F. Instrumentation

1. Are program responsibilities clearly designated and assigned?
Yes - by the instrument supervisor.
2. Are equipment shutdown devices checked on a definite schedule?
No schedule - check out and repair when piece of equipment is out of service - unit shutdown or turnaround.
3. Are records maintained and up to date on checking and setting shutdown device?
History file on the work order request - the document on each piece of equipment is not kept up.
4. Are present inspection and repair facilities adequate?
Yes
5. Are safety or shutdown devices on refinery equipment operable and being utilized?
On the majority of equipment.
6. Are the operators aware of what the settings are for safety and shutdown devices? Operations are aware or more concerned about these shutdown devices in the old section of plant than they appear to be in the new section of complex.
7. Is there a reliable back up system for critical instrument power? (Battery for electronic air for pneumatic.)
Yes - most systems are backed by battery power pack.
8. Are instrument spaces behind control panel free of debris and dirt?
Yes - in most cases, but got the impression that the Instrument Department has to work at keeping this area free of accumulation.

III.

PLANT MAINTENANCE PRACTICES (Continued)

9. Does instrument failure cause effected equipment to remain in desired mode to assure fail-safe operation?
Most of the new equipment is designed with this type of fail-safe operation.
10. What percent of time are alarm systems bypassed or acknowledge buttons jammed? There is some shutdown systems (scanners on fired heaters) that is bypassed at this time. This system will be revamped and the shutdown system removed from unit at next shutdown or turnaround.
11. How often are machine shutdowns and trip points checked?
When piece of equipment is out of service.
12. Are alarm functions checked periodically, or only when failure is noted?
When failure is noted.
13. How often are back-up and parallel power supplies checked for proper operation?
UPS system check every month.
14. Does alarm system notify operator of backup failures in power supplies?
Yes
15. Are control valves stroked periodically to full open or closed to check ability to fail in proper direction during instrument air failure?
No
16. Are system revisions or additions labeled in field?
Yes - new tags or labels are installed on the system in the field.
17. Are loop sheets updated with changes?
Yes
18. Are covers in place?
Yes
19. Are self-powered transmitter boxes properly sealed and/or purged?
All of them are properly sealed with some transmitter boxes purged with nitrogen or instrument air.

There was some conversation on what is determined a proper seal.

III. PLANT MAINTENANCE PRACTICES (Continued)

G. Rotating Machinery

1. Is there an active preventive or predictive maintenance program for rotating machinery? Are the records up to date?

There has been a Preventative Maintenance Program. At the time of the safety audit the present program was in the process of being modified.

2. Is critical rotating machinery equipped with adequate sensing devices? (Vibration, bearing temperature, axial displacement, etc.)

Most of the critical rotating equipment is equipped with sensing devices.

3. Is lubrication checked on a regular basis?

No - in process of setting up a schedule lubrication system.

4. Is there a vibration monitoring program?

On critical pieces of equipment only - this program is in the process of being modified.

5. Is there a machinery history? Are the history cards up to date?

Yes - cards on critical equipment.

H. Electrical

1. Is there a documented program to check important switch gear settings?

Yes - good program is established and documented.

2. Is there a functional and well known electrical lockout-tagout procedure in effect?

Yes - they have a lockout procedure that is in effect and working.

3. Are substation and switch gear rooms inspected at regular intervals? Are these rooms free of debris and dirt? Are they equipped with adequate detection/protection?

Yes - Yes - Yes in the new part of the refinery.

4. Is the emergency power backup system operational?

Yes

5. Is the battery system properly installed and provided with necessary personnel protection?

Yes - system is checked and documented every four (4) months.

III. PLANT MAINTENANCE PRACTICES (Continued)

6. Is the electrical system in reasonable condition for safe operation?

Yes - Electrical Department is responsible for recommendation for updating Electrical System.

7. Are there periodic checks on larger electrical motors?

Yes - program is established and documented.

8. Are guard posts or other devices protecting critical high voltage equipment?

Yes - In the areas that I observed during safety audit.

9. Is there adequate documentation of the impedance testing of the grounding grid system? Underground electrical distribution system should be inspected for flooding of manholes on a periodic basis. No.

Program is underway to establish program.

I. Metals Inspection

1. Are the equipment inspection files in order? Are all inspection of refinery vessels, heaters, exchangers, boilers and important piping well documented with specific follow-up procedures established? Yes

Inspection has good program established.

2. Is there a current onstream inspection program and does it cover all major refinery components? Yes

3. Are corrosion probes pilot hole and/or coupons utilized?

No pilot hole - do use corrosion probes and coupons.

4. Are welder qualification records kept? Are they up-to-date? Are there adequate procedures to verify that company and contract welders are qualified and that all code work is done by qualified personnel?

Yes - Yes - Yes

5. Are the inspectors qualified to read and evaluate weld x-rays?

Yes - both company and contract inspection.

6. Are new pressure calculations for vessels and pipes done by competent technical personnel?

On maintenance items the calculations are performed by the Champlin Inspection Department or registered engineering firm.

III. PLANT MAINTENANCE PRACTICES (Continued)

7. How are deficiency or repair recommendations communicated to the maintenance and operations groups?

Champlin Inspection Memorandum (REF-37) Inspection Practice No. 2.

8. Is there a workable system to prevent non code repairs from being made?

Inspection Department covers all repairs - also good communication between Maintenance Department and Inspection Department.

9. Is there a cathodic protection system in service? Who monitors the system? Yes there is a system now in service. Not all of the refinery is covered but it is in the program and budget. Inspection Department not only monitors the system but is responsible for the design and installation.

10. How is retirement thickness on pipes and vessels calculated? Who is responsible for this?

Calculation is based on individual services - except where a standard can be utilized, that standard would be based on ASME - API Specifications.

11. Are purchases of new pressure vessels reviewed by competent technical personnel? Are shop inspections performed to assure quality? Is adequate and current documentation maintained at each step of process?

The Inspection Department reviews the specification before Purchasing Department goes out for quote. Inspection Department checks and witness the testing.

12. Is material selection for new equipment reviewed by competent technical personnel?

Same as question 11 - Inspection Department reviews the specifications before Purchasing Department goes out for quotes.

13. Are outside services used for welding inspection and/or quality control, if so, who is responsible for results. New installation can be checked by Champlin or Contract Inspector, maintenance repair work is controlled by Champlin Inspector - either case Champlin's Chief Inspector is responsible for results.

J. Relief Valve Inspection Program

1. Who has responsibility for this program?

Inspection Department as of July 1980.

2. Are adequate records kept on each relief valve as to valve type, setting, and date when last tested?

A documented program is now being set up by Inspection Department.

3. Are relief valve records up-to-date?

New program will have the capability of keeping records up to date.

III.

PLANT MAINTENANCE PRACTICES (Continued)

4. Is there a schedule to inspect and check settings at least every five years? Yes
Repairs and setting done on turnaround (maximum of three (3) years).
5. Is the testing program for relief valves adequate? Is this done by a contract shop or own forces? Are the personnel assigned to test relief valves (contract or company personnel) trained and certified? Program appears to be adequate.
Repairs and setting are performed by contract shop with Champlin Inspector or qualified inspector to witness test.
6. Who has responsibility for follow up of relief valve program?
Chief Inspector.
7. Are block valves installed under or downstream of relief valves? Are these valves sealed in the open position? Yes - but program is underway to remove all block valves under relief valves. Chained and locked - key is maintained by the Operation Department.
8. Is there an effective program to assure the communication and documentation of all blocking of valves beneath relief valves? Present system needs tighten up.
Most of these block valves are on the old tanks and installation and valves will be removed as down time permits.
9. Are there adequate and definitive procedures established for correction of deficiencies indicated by the program?
Yes. Present program is adequate in correcting any deficiencies known as of now, if deficiencies do arise they will be corrected by rewriting the program or the procedure.

IV. PLANT PROCESS EQUIPMENT INSPECTION RECORDS

- A. What records are maintained? (Those relating to property loss control not already covered under Instrumentation, Metals Inspection, and Relief Valve Inspection Program).

Records are kept on rotating equipment, electrical, piping, by either the inspection department - pump department or electrical department.

- B. Availability to Plant Personnel

Copies are available to all department managers upon request.

- C. Record Distribution

Inspection reports are distributed to the plant management. Shop records are not distributed but kept in each shop.

- D. Record Protection

Inspection reports are kept in the inspection office with some of the duplicate copies kept in Planner/Scheduler office. No vault or fireproofing room noted on safety audit.

- E. Deficiency Correction

Some of the equipment records may need to be duplicated so that more than one copy exists. Don't know if it would prove beneficial compared to cost of this type of program.

- F. Emergency Shutdown Logic

1. Testing frequency

Steam producing units are inspected annually. The other units are set up and tested on turnaround.

2. Records

Records are kept by the Inspection Department.

PART I

V. PLANT OVERHAUL OR TURNAROUND PRACTICE

(General)

A. Frequency Determination

The turnaround frequency is determined by past experience, catalyst activity, sales demands, and seasonal demands. It ranges from 2-2-1/2 years for the crude (unless shortened by coked heater tubes) and FCC units to yearly for the Unibon, No. 3 Platformer, and the boilers.

B. Is Contract Labor Used?

Contract labor is employed by maintenance and the Safety and Maintenance Departments provide supervision. Champlin has instrument, pump, electrical, and welding labor. It is the responsibility of all Champlin personnel to monitor safety.

C. Is Plant Safety Engineer Active in Planning?

Yes.

D. Are operating procedures relating to shutdown and start-up reviewed before taking unit offstream?

Yes.

E. Records and Reports on Overhaul or Turnaround Findings.

The Inspection Department issues a report to all managers.

F. How are Permits Handled During Plant Shutdowns and Turnarounds?

Burning Permit

The inspector sniffs the area for combustibles and the operator signs the permit.

Entry Permit

Tower is steamed out, sniffed and blowers provided, if required, before entry.

VI. WORK ORDER PRIORITY COVERING HIGH HAZARD EQUIPMENT REPAIRS

A. Priority given High Hazard Equipment Repair

Malfunctioning equipment which creates a hazardous situation is given the highest priority for repair regardless of the type of unit.

B. Plant Records

C. Authority for Priority and Work

The authority for priority and work could rest with the area supervisor, or on serious problems the Refinery Manager may decide priority.

D. Delays Indicated - Why?

E. Management Supervision

VII. HOT WORK AND ENTRY PERMITS

A. Responsibility for Authorization - (written)

1. Daily operations?

The permits must be signed off by the unit operator, maintenance and the area supervisor. The shift foreman has responsibility for authorization at night and the area supervisor has this responsibility during the day shift.

2. Turnarounds?

The area supervisor or maintenance supervisor has responsibility for permits during turnaround.

B. Plant Supervision of Such Work

1. Gas free responsibility

Maintenance and operations are responsible to make sure the unit is gas free.

2. Elimination of exposing flammable material

Elimination of exposing flammable material is the responsibility of maintenance and operations.

3. Supervision of hot tapping - Is hot tapping procedure written?

Champlin Corpus Christi Refinery Safety Procedure No. 26 is a hot tapping procedure. The area and maintenance supervisors supervise the work.

C. Is motorized equipment required to operate under permit? Under what circumstances.

Maintenance question.

D. Plant Records of Permits

Recent and current permits are filed in the control room. (See attached Compliance Report)

E. Responsibility for Area Clearance

It is operations responsibility to insure the area is safe. Before beginning work, the sewers are covered and the area sniffed.

F. Provisions for "On Site" Fire Protection

Hand-held and cart fire extinguishers are available near the work. Also, in some situations the area is wet down and a fire watch maintained.

G. Management Supervision

Management supervision is provided by the area and maintenance supervisors.

H. Management Knowledge and Understanding of Procedures and Practices

1. What parameters govern the issuance of a Hot Work Permit?

The maintenance and operations area supervisors decide when a Hot Work Permit is required.

2. What conditions must be met for authorization of an Entry Permit?

The unit must be made safe by covering sewers and sniffing for explosive mixtures before an Entry Permit is authorized.

VIII. PLANT CONTROL OF CONTRACTOR PERSONNEL On Maintenance and Turnaround Work.

A. Type of pre-entry briefing given contract (Written, oral - or both).

Written and oral briefing are given to the contractors who are engaged in long term work. The short term contractors briefing may need to be reviewed as it appears to be a little lax.

B. Are personnel properly instructed in the use and limitations of personal protective equipment required by entry permit?

Yes

C. Plant safety supervision of contractor personnel.

Maintenance Supervisors in charge of project or turnaround work is responsible for the briefing or presentation.

D. Plant hazard orientation given contractor personnel.

1. When? At the start of job or unit shutdown.
Weekly by Champlin Supervisor in charge of job or turnaround.
Monthly program by Champlin Safety Department.
2. Where? At the job site.

3. By whom? Weekly meeting by Champlin Supervisor in charge of job.
Monthly program by Champlin Safety Department.

E. Program Records

Roster is kept on monthly safety meetings.

F. Director Responsibility for Program

Maintenance Supervisors in charge of job (Maintenance or turnaround)

G. Management Supervision

Manager of Maintenance is responsible for program.

IX. STARTUP AND SHUTDOWN PROCEDURES

- A. Does plant have a formal (written) startup/shutdown procedure for all units?

Yes.

- B. Does plant employ the critical path (arrow diagram) method for startup/shutdown operations, supplemented by detailed check lists?

Check lists, but no critical path diagrams are used for unit startup and shutdown.

- C. What arrangements are made for communications between shifts? Is there a supervision overlap?

Communications between shifts are verbal and by log books.

- D. What provisions are made for coordination between the unit and other units, power station, tank fields, pump houses, water pumping station, etc., on startup and shutdown?

Operator communications are by individual radios and unit telephones.

- E. Are "practice or simulated startups" performed before actual startup?

No, the startups are discussed verbally only.

- F. Startup procedure

AND

- G. Shutdown procedure

These procedures address elimination of air, tightness testing, introduction of fuel gas, elimination of water, pumping out unit, cooling and depressurizing, and removal of hazardous materials.

- H. What records are maintained of these activities?

The records maintained are the unit operator and area supervisor's log books.

I. What communication equipment is available for startup and shutdown?

Telephone and individual operator radios.

J. Operator and maintenance training program

1. Initial Training. Documented program. Planned program outlined.

The operators progress from Trainee 1 to Trainee 4. This training consists of academic studies and on-the-job training with periodic review by the training board.

2. Refresher training, frequency. Program outline. Time requirements.

Safety training is reviewed weekly with the operators.

3. Training program records.

Training program records are kept by the operating superintendent.

4. Are procedures posted at unit?

Operating procedures are kept in each unit control room.

K. Are procedures established? (written down so that they can be reviewed by the operator)

The operating procedures are written and can be reviewed by the operator.

X. UTILITIES RELIABILITY

A. Electrical Power

1. Public Utility

a. Number of feeds

There are two (2) feeds at the new plant and two (2) at the old plant.

b. Construction of poles

Galvanized steel poles are used in the new plant and wooden poles and underground transmission in the old plant.

c. Exposure to transmission lines and transformers

Exposure to transformers is not consistent throughout the Refinery. The transformers near to No. 1 Crude Unit are not fenced.

d. Reliability history

Reliability has been good.

2. Plant electrical generation

a. Capacity

b. Power source

The emergency generators are diesel powered.

c. Protection provided

AND

d. Exposure

The new plant emergency generator is protected by a weather shield. The old plant emergency generators are designed for outside installation.

3. Plant transformers

a. Protection from physical damage

AND

b. Exposure (to and from)

Most plant transformers are protected by fences.

B. Steam Generation

1. Boiler capacity (pounds per hour and psi). Are boiler permits posted or available in plant?

New Plant -- The boiler capacity in the new plant consists of: three (3) 600 psig producing 150,000 lbs/hour each. (Permitted to fire enough fuel to produce 350,000 lbs/hour total). FCC boiler producing 100,000 lbs/hour of 250 psig.

Old Plant -- Four (4) 50,000 lbs/hour boilers producing 250 psig. Two (2) 75,000 lbs/hour boilers producing 250 psig. Two (2) 25,000 lbs/hour and one (1) 50,000 lbs/hour standby boiler producing 250 psig.

2. Fuel (alternate fuel)

The boilers can be fired on either refinery fuel gas or fuel oil, whichever is cheaper.

3. Fuel supply on hand - source of replacement

Natural gas supplements of 3 - 15MMSCFD can be purchased.

4. Number of generators

13 total.

5. Transmission system

The steam systems are 600 psig, 250 psig, 100 psig, and 40 psig.



WORK CONDITION AND WORK PERMIT

COMPLIANCE REPORT

CORPUS CHRISTI REFINERY

Week of 10/20 - 10/24/80

Safety Engineer Kucera

Page 1 of 1

JOB	SUP'T AREA RESPONSIBLE	WORK PERMITS	GAS TESTS	LOCK-OUTS	SAFETY/ FIRE WATCH	PERSONAL SAFETY EQUIP	GENERAL HOUSE- KEEPING	OPERATOR SAFETY VERIFICATION INSP	COMMENTS
Area #2 #1 Crude Unit 1. Main column stabilizer Solder wires for T.V. Security	Sheffield & Johnson	Hot	O.K.	Yes Approved	Fire	Normal	Good	Rogers	
#1 Area 2. Pipe rack north of pump house at #3 Vacuum Unit	Sheffield & Pakebush	Hot	O.K.	No	Fire	O.K.	Good	Levy	
#1 Area 3 V-1 at #3 Vacuum Unit	Sheffield & Pakebush	Hot	O.K.	N.A.	Fire	O.K.	Good	Levy	
#1 Area 4 #3 Vac. Unit fireproofing	Sheffield & Pakebush	Hot	O.K.	N.A.	Fire	O.K.	Good	Levy	
#1 Area 5. Area north of #2 Boiler	Sheffield & Pakebush	Hot	O.K.	N.A.	Fire	O.K.	Good	Levy	
#1 Terminal 6. Top of building	Knight	Hot	O.K.	N.A.	Fire	O.K.	Ex.	Levy	
Overhead pipe rack 7 Sandblast & paint East of office	Knight	Work	N.A.	N.A.	Safety	O.K.	Good	Levy	
8 TRS 1041 - 1042	Knight	Work	O.K.	N.A.	Safety	O.K.	Good	Levy	
9									
10									
11									
12									

CLARK 000229

WATER AND AIR ENTRAPMENT

- I. Spot check plant practice for location drains at low points and vents at high points for process lines, vessels and equipment.
 - A. High point vents and low point drains (3/4") are installed on all new piping.
 - B. Fail open control valves have 3/4" drain on one side.
 - C. Fail closed control valves have 3/4" drains on both sides.
 - D. Vents and drains are plugged per start-up procedures.
- II. Check plant program for draining water from bottom of vessels, low points of lines and exchangers during steaming and startup.
 - A. Lines are walked and bled per start-up check list.
 - B. One man assigned to draining lines during start-up.
 - C. All vents are cracked open during steamouts.
 - D. Some areas used O₂ analyzers for double check during steamout.
- III. Plant practice for draining water from feed tanks.
 - A. Water gauges are taken once a month, or sooner if requested, and at all loadings and unloadings. Intermittent gauges are taken as deemed necessary by Operations.
 - B. Water drawing of tanks is the responsibility of the Pumping and Gauging Department and is done as scheduled by the dispatcher. There is no set frequency for water drawing tanks.
 - C. Slop tanks are water gauged and water drained before being pumped.

ELECTRONIC DATA PROCESSING MACHINE (EDPM) INFORMATION

I. Location of EDPM:

- A. Boiler Feed Water Demineralizer Control -- 60 Block
- B. High Sulfur Crude Facilities -- Control Room - Foxboro
- C. High Sulfur Crude Facilities -- Control Room - AAI
- D. Cumene Unit -- Control Room -- Honeywell
- E. Laboratory -- Hewlett Packard

II. Building Construction:

- A. Metal
- B. Concrete -- Blast resistant
- C. Concrete -- Blast resistant
- D. Concrete -- Blast resistant
- E. Metal

III. Is EDP room physically separated from media storage and adjoining occupancies. Describe.

- A. No - Located in 60-Block Comfort Station
- B. Yes
- C. Yes
- D. Yes
- E. No - In Chemist Office (5 remote terminals)

IV. Protection for EDP room, Media storage and adjoining occupancies:

- A. Automatic protection:
 - (a) Type (sprinklers, CO₂, Halon 1301) -- None
 - (b) Coverage (total flooding, cabinets, under floor)
- B. Smoke detection (type & location of units)
 - (a) None
 - (b) Yes - Floor and ceiling
 - (c) Yes - Floor and ceiling
 - (d) Yes - Floor and ceiling
 - (e) Yes - Halon System
- C. Automatic Alarm:
 - (a) None
 - (b) Yes
 - (c) Yes
 - (d) Yes
 - (e) Yes
- D. First Aid fire appliances:
 - (a) CO₂ Extinguisher
 - (b) CO₂ Extinguisher
 - (c) CO₂ Extinguisher
 - (d) Under construction

(e) CO₂ Extinguisher

V. Occupancy:

A. Hardware/Type used:

1. Texas Instruments - TI 960B
2. Foxboro - Fox-1
3. Interdata - 916
4. Honeywell - 4500
5. Hewlett Packard - HP-3354

B. Function being performed:

1. Process Control
2. Process Control
3. Process Control
4. Process Control
5. Lab Automation System

C. Owned or leased: All are owned by Champlin

D. Back-up facilities: None

E. EDP room is attended on a Hr., basis:

1. 24 Hours, 7 Day
2. 24 Hours, 7 Day
3. 24 Hours, 7 Day
4. 24 Hours, 7 Day
5. 24 Hours, 7 Day

F. Estimated hardware replacement time:

1. Four Months
2. Twelve Months
3. Six Months
4. Five Months
5. Five Months

G. Software:

1. Are duplicate programs maintained: Yes Multiple back-ups.
2. Where stored:
 - (a) One copy on site/Two copies off site
 - (b) 3 copies on site/1 copy off site
 - (c) 2 copies on site/1 copy off site
 - (d) 1 copy on site/1 copy off site
 - (e) 1 copy on site/0 copies off site (Sun Oil)
3. How frequently are duplicates updated:
 - (a) Fixed program - Never
 - (b) One per week
 - (c) Every 3 months
 - (d) Once per week
 - (e) Fixed program

4. Estimated replacement time of programs:

- (a) One year
- (b) 6 months
- (c) 3 weeks
- (d) 2 months
- (e) One day

VI. Business Interruption:

- A. Boiler Feed Water Demineralizer System is required for operation. Loss of Feed Water causes severe problem for Utilities Area.
- B. Loss results in poor operation at lower profit
- C. Loss results in poor operation at lower profit
- D. Loss results in poor operation at lower profit
- E. None - manually operated - with overtime

VII. Emergency Power:

- A. No - Rest of Unit is down
- B. Yes
- C. Yes
- D. Yes
- E. Yes

Emergency power is provided from an 30 KVA uninterruptable power supply (UPS) system. The UPS system consists of the following equipment: Rectifier/battery charger, batteries and rack, inverter and static switch. The UPS batteries have been sized to provide 30 minutes of power to a full load.

The main system is located in the Electrical Equipment Room of the Main Control Room, Computer Building.

The UPS system is fed from the two sources via an auto-transfer switch, normal refinery power or the 500 KW standby generator.

- 1. Cable routes: Armored cable in overhead cable trays
- 2. Fireproofing: None

VIII. Portable appliances (employee convenience items) should not be permitted.

- A. Coffee pots - not permitted near affected equipment
- B. Water heaters - not permitted near affected equipment
- C. Hot plates - not permitted near affected equipment
- D. Sandwich warmers - not permitted near affected equipment

IX. Air Conditioning:

- A. Heating/Air Conditioning -- All five areas have dual air conditioning systems.

X. Security Measures:

Process operators are near equipment 24 hours a day, 7 days per week.

IN-HOUSE INSPECTION PROGRAM

I. Plant Level Safety Program:

- A. Safety men on full-time basis? YES Number? Four: Safety Manager, Industrial Nurse, and three Safety Engineers
- B. Method of Safety Personnel Selection - Employment agency or personal reference and knowledge
- C. Is there a written scheduled inspection program? Yes. Four-man Safety Audit done weekly, including the Supervisor of the area to be audited.
- D. Are written reports prepared? Yes Distribution? Plant Manager and Department Managers.
- E. Plant management supervision and follow-up - Work orders written by recorder, and priorities assigned. (Recorder is a member of the Audit team.)
- F. To whom does Chief Safety Engineer report? Refinery Manager
- G. Liaison with Corporate Director of Safety & Loss Control? Yes, via phone, personal visits and annual audits.
- H. Major Areas of Responsibility other than:
 - 1. Fire Protection
 - 2. Safety
 - 3. Safety and Fire Equipment Inspection
 - 4. Medical Program, Industrial Health/Hygiene Program and Workman's Compensation

PLANT EMERGENCY PROCEDURES

- I. Is written manual available? Yes. Emergency Response Plan dated 1976 by Champlin Petroleum Company. Personnel section needs updating.

II. Mutual Aid

- A. Plant participate in a mutual aid plan? Yes, with industries in the area. In addition, there is the Terminal Fire Company which is a contract Fire Brigade for several industries in the area.
- B. Is inventory of equipment and supplies available and current? Yes.
- C. Call-Out Procedure established? Yes.

CHAMPLIN PETROLEUM COMPANY

Corpus Christi, Texas

SAFETY AUDIT

XVI. FIRE BRIGADE

A. Number of paid full time members: (Background and years experience)

None

B. Number of employee members

25 plus 56 additional Emergency Response Team members.

C. Coverage on each shift and weekends

7:30 a.m. to 4:00 p.m. 5 days - No weekends

D. Liaison with:

1. Public fire department

None

2. Industrial fire brigades

Refinery Terminal Fire Company

E. Training Program (drills - frequency - records - outside help) (Drills at least annually)

Lamar Fire Training once a year for 20 members

4 Drills annually

F. Supervision

5 Safety Department employees

G. Pipe, Equipment, and Adapters for public fire department

None

H. Plans for additional fire fighting support (additional men, foam, fire trucks, hose, etc.)

Refinery Terminal support with adequate assistance

XVII. PLANT EMPLOYEE FIRE PROTECTION TRAINING PROGRAM

A. Which employee Groups receive training?

Maintenance - Process - Laboratory - Terminal - Office

B. Frequency of training - (live fire training at least every 2 yrs.)

Once a year

C. Scope of training

Rackfire extinguishment using hand portables, LPG containment using water fog and pit fire extinguishment using AFFF Foam - dry chemical - water from company fire trucks

D. Training facilities - Description

Professional training ground having various pits, LPG pumps and paint rack

E. Records of employee training

Attendance record with description of training

F. Employee groups not receiving training - Why?

Female office workers who will not be involved in emergency situations

G. Who is responsible for training program?

Safety Department

H. Are professional schools on fire protection being utilized?

Lamar Fire Training School in Beaumont, Texas

XVIII. FIRE LOSS INVESTIGATION AND RELATED RECORDS

A. Describe plant fire loss investigation program

All fires are investigated and a formal report given to Safety Manager

B. Check fire/loss reports

These are written in report.

C. Investigation responsibility

Safety Department

D. Loss report distribution

To top management personnel

E. Action taken on information gained from investigation

Whatever action is deemed necessary

F. Plant management supervision

XIX. FIRE PROTECTION

A. Private Outside Protection

Refinery Terminal Fire Company

B. Water Supply

1. Source

City water main

2. Distribution system (including sectional control)

Fire water lines distributed around and through entire plant area

3. Sectional valves checked at least weekly

Monthly

4. Hydrants - (type and spacing)

American Darling - Mueller - self designed

5. Monitor Nozzles

Stang monitor strategically located throughout plant

6. Fire Hose

Ample hose in reserve at storeroom

7. Tested annually

Hydrostatically tested to 200 psig for 5 min. once a year

C. Fire Pumps

<u>Model or Type</u>	<u>Driven by</u>	<u>Rated Capacity</u>	<u>Rated Discharge-psi</u>	<u>Rated Speed</u>	<u>Manual or Automatic</u>
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* SEE ATTACHMENT NO. 1

IN PLANT

#29 & 30 - Tk 65
Ingersol-Rand Pump
Caterpillar Engine
2000 GPM @ 347 Hd Ft
150 PSI @ 1750 RPM
Both Automatic

#31 & 32 - #1 Boilers
Peerless Pump
Detroit Diesel Engine
150 PSI @ 1500 RPM
#31 Automatic #32 Manual

#33 & #34 East Gate
Peerless Pump
Detroit Diesel Engine
150 PSI @ 1500 RPM
#33 Automatic #34 Manual

OUT OF PLANT - TANK FARM AREA

90-P-2A, B & C
Layne-Bowler Pump
Caterpillar Diesel
3000 GPM @ 339 Hd Ft
150 PSI @ 1750 RPM
Manual

91-P-100 & 101
Ingersoll-Rand Pump
Caterpillar Diesel
150 GPM @ 1750 RPM
Manual

97-P-4 #3 Dock
Layne-Bowler Pump
Caterpillar Diesel
3000 GPM @ 339 Hd Ft
110 PSI @ 1500 RPM

ATTACHMENT NO. 1

CLARK 000240

XIX. FIRE PROTECTION (Continued)

1. Pump started (at least weekly) using automatic or remote means

All pumps activated weekly by manual means

D. Public Protection

1. Public Water Supply

- a. Source

City water main

- b. Volume

Unlimited

2. Distribution System and Hydrants

Water supply throughout plant with adequate hydrants

3. Public Fire Department

- a. Paid or Volunteer

Paid

- b. Distance

1 mile

E. Automatic Sprinklers

1. Water Supply

Fire water system

2. Alarms

None

3. Dry or Wet Systems

Wet

XIX. FIRE PROTECTION (Continued)

- 4. Portions not Sprinklered
 - Vacuum Unit
 - #1 Crude Unit
 - #2 Crude Unit
 - #3 Crude Unit
 - Cat Cracker
- 5. Age of AS Heads
 - 6 months to 5 years

F. Water Spray

- 1. Manual 100%
- 2. Automatic 10%

G. First Aid Fire Appliances

- 1. Extinguishers 381
- 2. Standpipe and Hose
 - Hose - 51 - 2½"
 - 73 - 1½"

H. Motorized Equipment

- 1. Trucks, Trailers, etc.
 - 2 Fire suppression trucks
 - 2 Foam trailers

I. Fire Alarm Systems

- 3 for entire plant

J. Special Hazard Protection

- 1. Deluge System
 - Truck loading rack

XIX. FIRE PROTECTION (Continued)

2. Monitor Nozzles

52

3. Carbon Dioxide

Laboratory has one system

4. Foam

25 drums AFFF

5. Dry Chemical

432 Total - 51 Hand Portables 150# and 350#
381 Other

6. Halon 1301

2 systems

K. Watchman and/or Security Guards

1. Number

33

2. Own Employee or Outside Agency

Outside Agency - Burns International Security

3. Area Covered

Entire plant - Tank area - Docks - Buildings

4. Patrol Frequency

24 hours

6. Radio Equipment

Hand portable radios and telephones

L. Private Fire Brigade

See Separate Report