STRATEGIC PETROLEUM RESERVE
PROJECT PROPOSAL

(M&O CONTRACTOR FORM)

SITE(S) AFFECTED: SJ

CONTRACTOR CHANGE NO.: 74-006 REV:

☒ ENGINEERING CHANGE:

☐ OTHER: (ADMIN/NON-ENGR. CHNG)

ECP NO.:

SECTION I - SUMMARY INFORMATION

TITLE: Closure of Tank Overflow Vents

SPONSOR: M. Thompson

ORG: SHELL

PHONE:

RECOMMENDED RANK:

FUNDING/SCHEDULE IMPACT

SOURCE	TOTAL ESTIMATED COST				SCHEDULING
☐ SPR BLI _____	FY	____	____	____	☐ NO IMPACT
☐ CONTRACTOR BASELINE					☐ NEW SCHEDULE REQ'D.
☐ O&M	DESIGN	____	____	____	☐ SCHEDULE CHANGE REQ'D.
☐ LE	CONSTRUCTION/ IMPLEMENTATION	____	____	____	☐ MILESTONE _____
☐ MM					☐ CMCR NO. _____
☐ OTHER _____	TOTAL:	____	____	____	
☐ BCR					

AUTHORITY

☒ PCCB ☒ CLASS I

☐ ECC ☐ CLASS II

☐ CONTRACTOR

FINAL DISPOSITION

☐ APPROVE

☐ CONDITIONAL APPROVAL

☐ DISAPPROVE

☐ CANCEL

SECTION II - DYNMcDERMOTT REVIEW AND APPROVAL (CLASS II)

REVIEWERS (NAME/ORG.)	CONCURRENCE YES	CONCURRENCE NO	COMMENTS:
SITE MANAGER	☐	☐	
SITE ENGINEER	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	

TRB CHAIRMAN	DATE	DISPOSITION	COMMENTS
P. Crawford for K. Hughes See Email	12/12/97	☐ CONCUR ☐ APPROVE ☐ DISAPP. ☐ CANCEL	DM has Reviewed the ECP • E-mail from G. Hughes to P. Crawford dated 12/11/97
O&M PROJECTS COORDINATOR	DATE	DISPOSITION	
		☐ CONCUR ☐ APPROVE ☐ DISAPP. ☐ CANCEL	

TRBSUM2.DOT

74006

OK 1/7/98

STRATEGIC PETROLEUM RESERVE

ENGINEERING CHANGE PROPOSAL

SUMMARY SHEET
CLASS I CHANGE

ECP NUMBER	TITLE
SJ-M/O-4605	Closure of Tank Overflow Vents (St. James Terminal)

BUDGET SOURCE

- ☐ SPR BLI _____
- ☐ CONTRACTOR BASELINE
- ☐ BCR
- ☐ OTHER _____

AUTHORITY

- ☒ PCCB
- ☐ ECC

SCHEDULE

- ☐ YES
  - MILESTONE NUMBER _____
  - CMCR NUMBER _____
- ☒ NO

TOTAL ESTIMATED COST OF CHANGE

	FY 98	FY	FY
DESIGN			
CONSTRUCTION / M&O	$225,000		
TOTAL	$225,000		

PCCB / ECC SIGNATURES	DISPOSITION: CONCUR	NON CONCUR	DATE	COMMENTS CONDITIONS / LIMITATIONS
DOE SENIOR SITE OFFICIAL				
APM TECHNICAL ASSURANCE	✓		1/13/98	
APM SYSTEMS AND PROJECTS	✓		1/13/98	Double level alarm is to be installed by shell. Shell resp. for revenue & liabilities during const. & oper.
APM MAINTENANCE AND OPERATIONS	✓		1/13/98	
DEPUTY PROJECT MANAGER				
DOE CMO				1/13/98
PROJECT MANAGER				
DEPUTY ASSISTANT SECRETARY-SPR				

PCCB / ECC ACTION

- ☑ FULL APPROVAL
- ☐ CONDITIONAL / LIMITED APPROVAL
- ☐ DISAPPROVAL

D-882

STRATEGIC PETROLEUM RESERVE

ENGINEERING CHANGE PROPOSAL

ECP NUMBER	ECP TITLE	PAGE 1 OF 1
	Closure of tank overflow vents	

CONTRACTOR CHANGE NO. / REV.	INITIATED BY	DATE	SUBMITTED BY	DATE
74-006	Mike Thompson	10/22/97	Mike Thompson	10/22/97
PRIORITY	ORG./CONTRACTOR	PHONE NO.	ORG./CONTRACTOR	PHONE NO.
☐ EMERGENCY	Shell Oil Products Co	(713) 241-1937		
☐ URGENT				
☐ ROUTINE				

VALUE ENGINEERING	DRAWDOWN CRITICAL	ROM ESTIMATE
☐ VEP (MANDATORY)	☐ YES	$ 225,000
☐ VECP (VOLUNTARY)	☐ NO	

DESCRIPTION:
PROBLEM / EXISTING CONFIGURATION

The overflow vents on the six tanks at the Sugarland terminal limit the maximum fill height for these tanks.

PROPOSED SOLUTION / ENHANCEMENT

The project will weld insert plates into each of the overflow vents on the tanks. This will increase the maximum fill height of the tanks by 3'7".

REASON / JUSTIFICATION

The project will increase the working capacity of the tanks and improve the operability of the terminal.

CI'S AFFECTED

SJ T1 thru SJ T-6

TECHNICAL ANALYSIS / RECOMMENDATION

IMPLEMENTATION METHOD
- ☐ SUBCONTRACT
- ☐ M&O LABOR (LOE)
- ☐ COMBINATION

ENGINEERING	DATE	DOE SSR	DATE	
				☐ CONCUR ☐ NONCONCUR

D-655

Shell Oil Products Company

PO Box 2099
Houston TX 77252-2099

November 11, 1997

Department of Energy
Strategic Petroleum Reserve Project Management Office
900 Commerce Road East
New Orleans, LA 70123

Dear Ms. Sigur:

SUBJECT: DESIGN CALCULATIONS FOR CLOSURE OF TANK OVERFLOW VENTS

Per your request, attached are calculations showing that the design of the storage tanks at the Sugarland Terminal is adequate for a design liquid level of 36' 10". This 36' 10" level is the top of the tank shell. The calculations were performed by me in accordance with the latest editions of API Standard 650 "Welded Steel Tanks for Oil Storage" and API Standard 653 "Tank Inspection, Repair, Alteration and Reconstruction."

A summary of the results of the calculations is shown below:

Tanks 1, 2, 5, 6 (300' nominal diameter)

Course Number	Actual Thickness	Minimum Required Thickness
1	1.041"	0.965"
2	0.743"	0.692"
3	0.461"	0.426"
4	0.375"	0.202"

Tanks 3,4 (212' nominal diameter)

Course Number	Actual Thickness	Minimum Required Thickness
1	0.789"	0.712"
2	0.600"	0.504"
3	0.468"	0.316"
4	0.406"	0.153"

Please call me at (713) 241-1937 if you have any questions.

Sincerely,

Michael L Thompson, PE

M. L. Thompson, P. E.
Associate Engineer
Shell Oil Products Company
For itself and as agent for Shell Oil Company

Enclosures

cc (w/o encl.): Shell Pipe Line Corporation
M. D. Hays, Business Development Manager
J. L. Horn, Business Development Manager

Michael L Thompson, PE

Calculate min t for shell given increased max fill height.

Use API-653 & API-650.

Since in service tank, calculate design thickness only.

¶3.6.4.3 (API-650)

Calculate t_{pd}

$$t_{pd} = \frac{2.6(H-1)G}{S_d}$$

$D = 300'$ $\quad Y = 32{,}000$
$H = 36.83'$ $\quad T = 58{,}000$
$G = 0.9$
$S = 0.8Y = 25{,}600$
or $0.42T = 24{,}708$ use 24,700

$$t_{pd} = \frac{2.6(36.83)(.9)(300)}{24{,}700}$$

$t_{pd} = 1.047$ Course 1

¶3.6.4.4 $$t_{1d} = \left(1.06 - \frac{0.463(D)}{H}\sqrt{\frac{HG}{S_d}}\right)\left(\frac{2.6HDG}{S_d}\right)$$

$$t_{1d} = \left(1.06 - \frac{0.463(300)}{36.83}\sqrt{\frac{36.83(.9)}{24{,}700}}\right)\left(\frac{2.6(300)(36.83)(.9)}{24{,}700}\right)$$

$$\boxed{t_{1d} = 0.965}$$

¶3.6.4.5 Calculate Ratio

$$\frac{h_1}{(rt_1)^{1/2}} = \frac{109.75}{((1800)(0.965))^{1/2}} = 2.6333$$

Since Ratio is greater than 2.625 $\quad t_2 = t_{2a}$

Michael L. Thompson PE

¶ 3.6.4.6 Calculate t_{2a}

Calc. prelim. value for t_2 using ¶ 3.6.3.2

Matl: SA-131 B
Y = 34,000
T = 58,000
S = 27,200 or 24,700

$$t_u = \frac{2.6(300)(27.7-1)(.9)}{24,700}$$

$$t_u = 0.759$$

Determine distance x = lower of the following:

$$x_1 = 0.61(rt_u)^{1/2} + 3.84\,CH$$

$$K = t_2/t_u = \frac{0.965}{0.759} = 1.27$$

$$x_1 = 0.61(1800(.759))^{1/2} + 3.84(.125)(27.7)$$

$$C = [K^{1/2}(K-1)]/(1+K^{1.5})$$

$$\underline{x_1 = 35.84}$$

$$C = \frac{(1.27)^{1/2}(.27)}{1+(1.27)^{1.5}} = 0.125$$

$$x_2 = 12CH$$

$$x_2 = 12(.125)(27.7)$$

$$\underline{x_2 = 41.55}$$

$$x_3 = 1.22(rt_u)^{1/2}$$

$$x_3 = 1.22[(1800)(0.759)]^{1/2}$$

$$\underline{x_3 = 45.1}$$

¶ 3.6.4.7 $$t_{dx} = \frac{2.6D(H - x/12)G}{S_d}$$

$$t_{dx} = \frac{2.6(300)(27.7 - 35.84/12)(.9)}{24,700}$$

$$t_{dx} = 0.702''$$

Michael L Thompson PE

Repeat. #3.6.4.6 & 3.6.4.7

$t_u = 0.702$

$K = t_L/t_u = \frac{0.965}{.702} = 1.37$

$x_1 = 0.61[(1800)(.702)]^{1/2} + 3.84(0.166)(27.7)$

$C = \frac{(1.37)^{1/2}(.37)}{1+(1.37)^{1.5}} = 0.166$

$\underline{x_1 = 39.34}$

$x_2 = 12(.166)(27.7)$

$\underline{x_2 = 55.2}$

$x_3 = 1.22[(1800)(.702)]^{1/2}$

$\underline{x_3 = 43.37}$

$$t_{dx} = \frac{2.6(300)(27.7 - 39.34/12)(.9)}{24{,}700}$$

$t_{dx} = 0.694$

Repeat one more time $t_u = 0.694$

$x_1 = 0.61[(1800)(.694)]^{1/2} + 3.84(.174)(27.7)$

$K = \frac{.965}{.694} = 1.39$

$C = \frac{(1.39)^{1/2}(.39)}{H(1.39)^{1.5}} = 0.174$

$\underline{x_1 = 40.07}$

$x_2 = 12(.174)(27.7)$

$\underline{x_2 = 57.8}$

$x_3 = 1.22[(1800)(.694)]^{1/2}$

$\underline{x_3 = 43.1}$

$$t_{dx} = \frac{2.6(300)(27.7 - 40.07/12)(.9)}{24{,}700}$$

$t_{dx} = 0.692''$ $\Rightarrow$ $\boxed{t_{d2} = 0.692}$

Michael L. Thompson

Calculate min t for 3rd course

¶ 3.6.4.6 Calc. prelim. value for t_3 using ¶ 3.6.3.2

$$t_u = \frac{2.6(300)(18.54-1)(.9)}{25{,}900}$$

$$t_u = 0.475$$

Matl: SA-283-C
Y = 30,000
T = 55,000
S = 26,400 or
25,960 = 25,900 psi

Determine distance x:

$$x_1 = 0.61\left[(1800)(0.475)\right]^{1/2} + 3.84(.201)(18.54)$$

$$\underline{x_1 = 32.15}$$

$$x_2 = 12(.201)(18.54)$$

$$\underline{x_2 = 44.7}$$

$$x_3 = 1.22\left[(1800)(.475)\right]^{1/2}$$

$$\underline{x_3 = 35.67}$$

$$K = t_4/t_u = \frac{0.692}{0.475} = 1.46$$

$$C = \frac{(1.46)^{1/2}(.46)}{1+(1.46)^{3/2}} = 0.201$$

¶ 3.6.4.7 $$t_{dx} = \frac{2.6(300)\left(18.54 - \frac{32.15}{12}\right)(.9)}{25{,}900}$$

$$t_{dx} = 0.429$$

Michael L Thompson

Repeat: $t_u = 0.429$

$x_1 = 0.61[(1800)(.429)]^{1/2} + 3.84(.254)(18.54)$

$K = \frac{0.692}{0.429} = 1.61$

$C = \frac{\sqrt{1.61}(.61)}{1+(1.61)^{3/2}} = 0.254$

$x_1 = 35.03$

$x_2 = 12(.254)(18.54)$

$x_2 = 56.5$

$x_3 = 1.22[(1800)(.429)]^{1/2}$

$x_3 = 33.9$

$$t_{dx} = \frac{2.6(300)(18.54 - \frac{339}{12})(.9)}{25{,}900}$$

$t_{dx} = 0.426 \Rightarrow \boxed{t_{d3} = 0.426}$

Calculate t_{min} for 4th Course

Calculate prelim. value

Matl = SA-283-C

$$t_u = \frac{2.6(300)(9.40-1)(.9)}{25{,}900}$$

$t_u = 0.228$

Calc. x

$x_1 = 0.61[(1800)(.333)]^{1/2} + 3.84(.333)(9.4)$

$K = \frac{.426}{.228} = 1.868$

$C = \frac{\sqrt{1.868}(.868)}{1+(1.868)^{3/2}} = 0.333$

$x_1 = 26.95$

$x_2 = 12(.333)(9.4)$

$x_2 = 37.56$

$x_3 = 1.22[(1800)(.333)]^{1/2}$

$x_3 = 29.87$

Michael J Thompson PE

A 3.6.4.7 $t_{dx} = \dfrac{2.6(300)(9.4 - \frac{26.95}{12})(.9)}{25{,}900}$

$t_{dx} = 0.194$

Repeat $t_u = 0.194$

$K = \dfrac{0.426}{0.194} = 2.20$

$C = \dfrac{(2.20)^{1/2}(1.20)}{1 + (2.20)^{3/2}} = 0.417$

$X_1 = 0.61[(1800)(.194)]^{1/2} + 3.84(0.417)(9.4)$

$X_1 = 26.45$

$X_2 = 12(0.417)(9.4)$

$X_2 = 47$

$X_3 = 1.22[(1800)(.194)]^{1/2}$

$X_3 = 22.80$

$t_{dx} = \dfrac{2.6(300)(9.4 - \frac{22.80}{12})(.9)}{25{,}900}$

$t_{dx} = 0.203$

Repeat $X_1 = 0.61[(1800)(.203)]^{1/2} + 3.84(.392)(9.4)$

$K = \dfrac{0.426}{.203} = 2.09$

$C = \dfrac{(2.09)^{1/2}(1.09)}{1 + (2.09)^{3/2}} = 0.392$

$X_1 = 25.81$

$X_2 = 12(.392)(9.4)$

$X_2 = 44.2$

$X_3 = 1.22[(1800)(.203)]^{1/2}$

$X_3 = 23.32$

Michael L Thompson PE

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

$$t_{dx} = \frac{2.6(300)(9.4 - \frac{23.32}{12})(.9)}{25900}$$

$$t_{dx} = 0.202'' \Rightarrow \boxed{t_{d4} = 0.202}$$

FOR THE NEW DESIGN LIQUID LEVEL OF 36'10", MINIMUM THICKNESSES ARE:

COURSE	1	0.965"
COURSE	2	0.692"
COURSE	3	0.426"
COURSE	4	0.202"

TANK IS ADEQUATE FOR NEW DESIGN LIQ. LEVEL.

Michael L Thompson PE

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

Calculate min t given increased max fill height

Use API-650 and API-653

Calculate Design thickness only

¶ 3.6.4.3 (API-650)

Calculate t_{pd}

$$t_{pd} = \frac{2.6\,D(H-1)G}{S_d}$$

D = 212'
H = 36.83'
G = 0.9

Course 1 & 2 Matl: A-131-B
Y = 34000 T = 58,000
S = 0.8Y or 0.426T

$$t_{pd} = \frac{2.6(212)(36.83-1)(0.9)}{24{,}700}$$

S = 24708 = 24,700 psi

$$t_{pd} = 0.720$$

Course 3 & 4 Matl: A-283-C
Y = 30,000 T = 55,000

S = 25,960 = 25,900 psi

¶ 3.6.4.4 $$t_{td} = \left(1.06 - \frac{0.463\,D}{H}\sqrt{\frac{H\,G}{S_d}}\right)\left(\frac{2.6\,H\,D\,G}{S_d}\right)$$

$$t_{td} = \left(1.06 - \frac{0.463(212)}{36.83}\sqrt{\frac{36.83(.9)}{24{,}700}}\right)\left(\frac{2.6(36.83)(212)(.9)}{24{,}700}\right)$$

$$\boxed{t_{td} = 0.712}$$

¶ 3.6.4.5 Calculate Ratio

$$\frac{h_1}{(rt_1)^{1/2}} = \frac{109.75}{[(1272)(.712)]^{1/2}} = 3.647$$

Since this is greater than 2.625, $t_2 = t_{2a}$

Michael L. Thompson PE

¶ 3.6.4.6 Calculate t_{2a}

Calc. Prelim. Value for t_2 using ¶ 3.6.3.2

$$t_u = \frac{2.6\,(212)(27.7-1)(.9)}{24{,}700}$$

$$t_u = 0.536$$

Determine distance x - lesser of the following

$$x_1 = 0.61\,(r t_u)^{1/2} + 3.84\,CH$$

$$K = t_2/t_u = \frac{0.712}{0.536} = 1.328$$

$$x_1 = 0.61\left[(1272)(0.536)\right]^{1/2} + 3.84(.149)(27.7)$$

$$C = \left[K^{1/2}(K-1)\right]/(1+K^{1.5})$$

$$\underline{x_1 = 31.78''}$$

$$C = \frac{(1.328)^{1/2}(1.328-1)}{1+(1.328)^{3/2}}$$

$$X_2 = 12\,CH$$

$$C = 0.149$$

$$X_2 = 12\,(0.149)(27.7)$$

$$\underline{X_2 = 49.53''}$$

$$X_3 = 1.22\,(r t_u)^{1/2}$$

$$X_3 = 1.22\,((1272)(.536))^{1/2}$$

$$\underline{X_3 = 31.85''}$$

¶ 3.6.4.7 $$t_{dx} = \frac{2.6\,D(H - x/12)G}{S_d}$$

$$t_{dx} = \frac{2.6(212)(27.7 - \frac{31.78}{12})(0.9)}{24{,}700}$$

$$t_{dx} = 0.503$$

Michael L Thompson PE

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

Repeat: Calculate Distance x

$x_1 = 0.61\left[(1272)(.503)\right]^{1/2} + 3.84(.184)(27.7)$

$\underline{x_1 = 35.0}$

$x_2 = 12(27.7)(.184)$

$\underline{x_2 = 61.6}$

$x_3 = 1.22\left[(1272)(.503)\right]^{1/2}$

$\underline{x_3 = 30.86}$

$t_{dx} = \dfrac{2.6(212)(27.7 - \frac{30.86}{12})(.9)}{24{,}700}$

$t_{dx} = 0.504 \Rightarrow \boxed{t_{d2} = 0.504}$

$K = t_d/t_u = \dfrac{0.712}{0.503} = 1.416$

$C = \dfrac{\left[(1.416)^{1/2}(.416)\right]}{1 + (1.416)^{3/2}}$

$C = 0.184$

Course 3

Calc. prelim. value for t_3

$t_u = \dfrac{2.6(212)(18.54-1)(.9)}{25{,}900}$

$t_u = 0.336$

Determine Distance X

$x_1 = 0.61\left[(1272)(.336)\right]^{1/2} + 3.84(.216)(18.54)$

$\underline{x_1 = 27.99}$

$x_2 = 12(18.54)(.216)$

$\underline{x_2 = 48.05}$

$x_3 = 1.22\left[(1272)(.336)\right]^{1/2}$

$\underline{x_3 = 25.22}$

$K = \dfrac{0.504}{0.336} = 1.50$

$C = \dfrac{(1.5)^{1/2}(.5)}{1 + (1.5)^{3/2}} = 0.216$

Michael L. Thompson PE

Calculate

$$t_{dx} = \frac{2.6(212)(18.54 - \frac{25.22}{12})(.9)}{25{,}900}$$

$$t_{dx} = 0.314$$

Repeat

$$X_1 = 0.61[(1272)(.314)]^{1/2} + 3.84(.254)(18.54)$$

$$X_1 = 30.3$$

$$X_2 = 12(18.54)(.254)$$

$$X_2 = 56.5$$

$$X_3 = 1.22[(1272)(.314)]^{1/2}$$

$$X_3 = 24.4$$

$$K = \frac{0.504}{0.314} = 1.61$$

$$C = \frac{(1.61)^{1/2}(.61)}{1 + (1.61)^{3/2}} = 0.254$$

$$t_{dx} = \frac{2.6(212)(18.54 - \frac{24.4}{12})(.9)}{25{,}900}$$

$$t_{dx} = .316 \Rightarrow \boxed{t_3 = 0.316''}$$

Course 4

Calc. Prelim. Value for t_4

$$t_u = \frac{2.6(212)(9.4 - 1)(.9)}{25{,}900}$$

$$t_u = 0.161$$

Determine Distance X

$$X_1 = 0.61[(1272)(.161)]^{1/2} + 3.84(.354)(9.4)$$

$$\underline{X_1 = 21.7}$$

$$X_2 = 12(0.359)(9.4)$$

$$\underline{X_2 = 40.5}$$

$$K = \frac{.316}{.161} = 1.96$$

$$C = \frac{\sqrt{1.96}(.96)}{1 + (1.96)^{3/2}}$$

$$C = 0.359$$

Michael L Thompson PE

$x_3 = 1.22\left[(1272)(.161)\right]^{1/2}$

$x_3 = 17.46$

$$t_{dx} = \frac{2.6(212)\left(9.4 - \frac{17.46}{12}\right)(.9)}{25{,}900}$$

$t_{dx} = 0.152$

Repeat

$x_1 = 0.61\left[(1272)(.152)\right]^{1/2} + 3.84(.389)(9.4)$

$x_1 = 22.5$

$x_2 = 12(.389)(9.4)$

$x_2 = 43.9$

$x_3 = 1.22\left[(1272)(.152)\right]^{1/2}$

$x_3 = 16.96$

$$t_{dx} = \frac{2.6(212)\left(9.4 - \frac{16.96}{12}\right)(.9)}{25{,}900}$$

$t_{dx} = 0.153 \Rightarrow \boxed{t_4 = 0.153}$

$K = \frac{.316}{.152} = 2.08$

$C = \frac{(2.08)^{1/2}(1.08)}{1 + (2.08)^{3/2}} = 0.389$

FOR THE NEW DESIGN LIQUID LEVEL OF 36'10", MIN. THICKNESSES ARE:

COURSE 1	0.712"
COURSE 2	0.504"
COURSE 3	0.316"
COURSE 4	0.153"

Michael L Thompson PE

THE TANK IS ADEQUATE FOR THE NEW DESIGN LIQUID LEVEL.

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

STRATEGIC PETROLEUM RESERVE
ENGINEERING CHANGE PROPOSAL
CONFIGURATION CHANGE AFFECTED REPORT

TO BE COMPLETED BY TECHNICAL REVIEW PROCESS, ENGINEERING AND CONFIGURATION MANAGEMENT ORGANIZATION DEFINED PROCESS

ECP NO.	CONTRACTOR CHANGE NO.	REV.	CHANGE CLASSIFICATION ☐ CLASS I ☐ CLASS II	PAGE 2 OF
	74-006			

FUNCTIONS AFFECTED

YES/NO	ITEM
NO	LEVEL I ☐ LEVEL II ☐ CRITERIA
NO	PERFORMANCE CRITERIA
NO	RAM
NO	INTERFACE CHARACTERISTICS
NO	I/O POINTS
NO	DOE LEVEL I, II, III SCHEDULES
NO	GUARANTEES/DELIVERABLES
NO	SAFETY/ENV/FP (CIRCLE ONE)
NO	SECURITY REQUIREMENTS
NO	OPCS SOFTWARE
NO	OPCS HARDWARE
NO	OPCS FIRMWARE
NO	SETPOINTS/RANGES
NO	DIP SWITCH SETTINGS/JUMPERS
NO	MASTER CI LIST
NO	WELLHEAD CONFIGURATION
NO	SPARES/PROVISIONING REQUIREMENTS
NO	GOVERNMENT FURNISHED EQUIPMENT
NO	ENERGY USAGE
NO	OPERATIONS MODELS
NO	OTHER

DOCUMENTS AFFECTED

YES/NO	ITEMS
	PIPING
NO	101 - PROCESS FLOW DIAGRAMS
NO	102 - MECHANICAL FLOW DIAGRAMS
NO	103 - PIPING AND INSTRUMENTATION DIAGRAMS (P&ID'S)
NO	104 - UTILITY FLOW DIAGRAMS
NO	105 - GENERAL PIPING PLANS
NO	106 - AREA PLANS (MECHANICAL EQUIPMENT LOCATION)
NO	122 - WELL HEAD DRAWINGS
NO	130 - VALVE LIST
NO	135 - LINE LIST
NO	140 - PSV LIST
NO	150 - STANDARDS
	CIVIL/STRUCTURAL
NO	201 - PLOT PLANS
NO	202 - SITE WORK: GRADING (ROUGH & FINISH) DRAIN FENCING
NO	210 - FOUNDATIONS: LOCATION PLANS
NO	216 - MINES (WEEKS ISLAND ONLY)
NO	250 - STANDARDS
	ELECTRICAL
NO	301 - AREA CLASSIFICATION
NO	302 - ONE LINE DIAGRAMS
NO	303 - SCHEMATIC DIAGRAMS
NO	304 - POWER PLANT AND DETAILS
NO	305 - LIGHTING PLANT AND DETAILS
NO	307 - SUBSTATION PLANS AND DETAILS
NO	308 - WIRING DIAGRAMS
NO	310 - GROUNDING
NO	311 - CONDUIT & CABLE SCHEDULES (INCLUDING INST.)
NO	313 - MCC/SWITCH GEAR EVALUATION & SCHEDULE

DOCUMENTS AFFECTED

YES/NO	ITEM
	ELECTRICAL (cont'd)
NO	315 - CATHODIC PROTECTION
NO	350 - STANDARDS
	INSTRUMENTATION
NO	401 - BLOCK DIAGRAM
NO	402 - LOOP DIAGRAMS
NO	403 - INSTRUMENT PLANS
NO	404 - INSTRUMENT WIRING DIAGRAM
NO	409 - INSTRUMENT INDEX
NO	450 - STANDARDS
	MAPPING
NO	501 - ALIGNMENT SHEETS
NO	509 - PIPELINE DRWGS (MAINLINE VALVES, DRIPS, SCRAPER, TRAPS, ETC.)
NO	550 - STANDARDS
	ARCHITECTURAL
NO	720 - ELEVATIONS AND FLOOR PLANS
NO	750 - STANDARDS
	DOCUMENTATION
NO	900 - RESERVED
NO	901 - TECHNICAL/PERFORMANCE/DESIGN CRITERIA
~~NO~~ Yes	910 - DESIGN DESCRIPTION/BASIS
NO	911 - PROCESS SET POINT DOCUMENTS
NO	912 - EQUIPMENT LIST
NO	913 - MOV LIST
NO	915 - ELECTRICAL SAFETY
NO	920 - I/O DOCUMENT
NO	930 - OPERATIONS MANUALS
NO	930 - MAINTENANCE MANUALS
NO	950 - STANDARD SPECIFICATIONS
NO	970 - TASK SPECIFICATIONS
NO	990 - CONFIGURATION MANAGEMENT REPORTS/I.B.M.

COMMENTS:

ENGINEERING	DATE	CONFIGURATION MANAGEMENT	DATE
		[signature]	12-8-97

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EH 12/9/97