

**STRATEGIC PETROLEUM RESERVE
ENGINEERING CHANGE PROPOSAL**

SUMMARY SHEET

CLASS I CHANGE

ECP NUMBER SJ-M/0-4629 TITLE Tank 6 Secondary Seal Replacement

BUDGET SOURCE <input type="checkbox"/> SPR BLI _____ <input type="checkbox"/> CONTRACTOR BASELINE <input type="checkbox"/> AUD <input type="checkbox"/> OTHER: Lease Contractor	AUTHORITY <input checked="" type="checkbox"/> PCCB <input type="checkbox"/> ECC
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SCHEDULE <input type="checkbox"/> YES MILESTONE NUMBER _____ CMCR NUMBER _____ <input checked="" type="checkbox"/> NO	TOTAL ESTIMATED COST OF CHANGE <table border="1"> <tr> <td></td> <td align="center">FY 02</td> <td align="center">FY 03</td> </tr> <tr> <td>DESIGN</td> <td></td> <td></td> </tr> <tr> <td>CONSTRUCTION</td> <td></td> <td></td> </tr> <tr> <td>TOTAL</td> <td align="center" colspan="2">*44,345</td> </tr> </table>		FY 02	FY 03	DESIGN			CONSTRUCTION			TOTAL	*44,345	
	FY 02	FY 03											
DESIGN													
CONSTRUCTION													
TOTAL	*44,345												

PCCB/ECC SIGNATURES	DISPOSITION			COMMENTS CONDITIONS/LIMITATIONS
	C O N C U R	N O N C U R	D A T E	
<i>APM Management and Maint. DOE DESIGN SITE OFFICIAL Michael M. Wick</i>	✓		2/17/04	Put vendor data into Centra Nothing needs to be done to the baseline logs
<i>E. H. Kelly</i> APM TECHNICAL ASSURANCE	✓		3/14/04	
<i>Warren D. ...</i> APM SYSTEMS AND PROJECTS	✓		16 MAR 2004	
<i>...</i> APM MAINTENANCE AND OPERATIONS	✓			
DEPUTY PROJECT MANAGER				
DOE CMO				
PROJECT MANAGER				
DEPUTY ASSISTANT SECRETARY - SPR				

PCCB/ECC ACTION

FULL APPROVAL
 CONDITIONAL/LIMITED APPROVAL
 DISAPPROVAL

completed 1998

STRATEGIC PETROLEUM RESERVE
ENGINEERING CHANGE PROPOSAL

ECP NUMBER SJ-M/O-4629		ECP TITLE Tank 6 Secondary Seal Replacement		PAGE 1 OF 4	
CONTRACTOR CHANGE NO. / REV.		INITIATED BY Doug Cloud	DATE 1/22/03	SUBMITTED BY Jill Derise	DATE 1/22/03
PRIORITY <input type="checkbox"/> EMERGENCY <input type="checkbox"/> URGENT <input checked="" type="checkbox"/> ROUTINE		ORG / CONTRACTOR Shell Pipeline Company LP	PHONE NO. (504) 728-7131	ORG/CONTRACTOR Shell Pipeline Company LP	PHONE NO. (504) 728-7366
VALUE ENGINEERING <input type="checkbox"/> VEP (MANDATORY) <input type="checkbox"/> VECP (VOLUNTARY)		DRAWDOWN CRITICAL <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		ROM ESTIMATE \$ <u>44,345.</u>	

DESCRIPTION:
PROBLEM / EXISTING CONFIGURATION

This ECP is being submitted as documentation of work that was done at Sugarland in 1998. In April 1998, during routine inspection the existing seal was found to have large seal gaps that were out of compliance for EPA air emission requirements.

PROPOSED SOLUTION / ENHANCEMENT

Tank was isolated; roof was vapor-freed; existing Graver secondary wiper seals were removed and disposed; new Matrix stainless steel conventional wiper seals with Buna tips and bolting hardware were installed. See attached vendor documentation for FAS-1 Flex-A-Seal compression plate secondary seal system, which was known as a Matrix conventional compression secondary seal in 1998.

[Reference Shell AFE 362692]

REASON/JUSTIFICATION

New seal was required to comply with EPA air emission requirements. The work was not considered to be a capital improvement (therefore not "unfunded liability") because the project entailed replacing one secondary seal brand with another brand.

CI'S AFFECTED

TECHNICAL ANALYSIS/RECOMMENDATION	IMPLEMENTATION METHOD <input type="checkbox"/> SUBCONTRACT <input type="checkbox"/> M&O LABOR (LOE) <input type="checkbox"/> COMBINATION
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ENGINEERING	DATE	DOE SSR	DATE	<input type="checkbox"/> CONCUR <input type="checkbox"/> NONCONCUR
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STRATEGIC PETROLEUM RESERVE
ENGINEERING CHANGE PROPOSAL
SOFTWARE, HARDWARE, FIRMWARE CHANGE

CONTRACTOR CHANGE NUMBER	REVISION NUMBER	ECP NUMBER <i>SJ-11/0-4629</i>	Page 3 of 4
SOFTWARE CHANGE ANALYSIS		HARDWARE/SOFTWARE AFFECTED	
		(NOTE: REDLINE CI BOM)	
DISPOSITION OF PARTS			
<input type="checkbox"/> REWORK SITE COMPONENTS ONLY <input type="checkbox"/> REWORK ALL SITE COMPONENTS <input type="checkbox"/> COMPONENTS NOT AFFECTED <input type="checkbox"/> OTHER (DESCRIBE) _____			
COMPONENT COMPATIBILITY (LIST COMPONENTS SEPARATELY IF COMPATIBILITIES ARE DIFFERENT)			
<input type="checkbox"/> INTERCHANGABLE <input type="checkbox"/> DRAWDOWN COMPATIBLE <input type="checkbox"/> NONCOMPATIBLE			
OPCS SUPPORT ENGINEER	DATE	FUNCTIONAL MANAGER	DATE
IMPLEMENTATION/TEST COMMENTS			
WITNESSED BY			DATE
TEST APPROVED BY	DATE	CHANGE RELEASE AUTHORITY	DATE

**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. SJ-11/0-4629	CONTRACTOR CHANGE NO.	REV.	CHANGE CLASSIFICATION <input checked="" type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II PAGE 4 OF 4
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FUNCTIONS AFFECTED			DOCUMENTS AFFECTED		
Y	N	ITEM	Y	N	ITEM
		LEVEL 1 <input type="checkbox"/> II <input checked="" type="checkbox"/> III <input type="checkbox"/> CRITERIA			ELECTRICAL
		PERFORMANCE CRITERIA			315 - CATHODIC PROTECTION
		RAM			350 - STANDARDS
		INTERFACE CHARACTERISTICS			INSTRUMENTATION
		I/O POINTS			401 - BLOCK DIAGRAM
		DOE LEVEL I, II, III SCHEDULES			402 - LOOP DIAGRAMS
		GUARANTEES/DELIVERABLES			403 - INSTRUMENT PLANS AND DETAILS
		SAFETY/ENV/FP (CIRCLE ONE)			404 - INSTRUMENT WIRING DIAGRAM
		SECURITY REQUIREMENTS			409 - INSTRUMENT INDEX
		OPCS SOFTWARE			450 - STANDARDS
		OPCS HARDWARE			MAPPING
		OPCS FIRMWARE			501 - ALIGNMENT SHEETS
		RANGES/ I/O POINTS			509 - PIPELINE DWGS (MAINLINE VALVES, DRIPS, SCRAPER, TRAPS
		DIP SWITCH SETTINGS/JUMPERS			550 - STANDARDS
		MASTER CI LIST			ARCHITECTURAL
		WELLHEAD CONFIGURATION			720 - ELEVATIONS AND FLOOR PLANS
		SPARES/PROVISIONING REQUIREMENTS			750 - STANDARDS
		OPERATIONS MANUALS			DOCUMENTATION
		MAINTENANCE MANUALS			900 - RESERVED
		GOVERNMENT FURNISHED EQUIPMENT			901 - TECHNICAL/PERFORMANCE/DESIGN CRITERIA
		ENERGY USAGE			910 - DESIGN DESCRIPTION/BASIS
		VALUE ENG. (COST SAVINGS)			911 - PROCESS SET POINT DOCUMENTS
		OPERATIONS MODELS			912 - EQUIPMENT LIST
		OTHER			913 - MOV LIST

DOCUMENTS AFFECTED			ITEMS		
Y	N	ITEMS	Y	N	ITEMS
		PIPING			915 - ELECTRICAL SAFETY
		101 - PROCESS FLOW DIAGRAMS			920 - I/O DOCUMENT
		102 - MECHANICAL FLOW DIAGRAMS			930 - OPERATION AND MAINTENANCE MANUALS
		103 - PIPING AND INSTRUMENTATION DIAGRAMS (P&ID'S)			950 - STANDARD SPECIFICATIONS
		104 - UTILITY FLOW DIAGRAMS			970 - TASK SPECIFICATIONS
		105 - GENERAL PIPING PLANS			990 - CONFIGURATION MANAGEMENT REPORTS 1.B.0.M
		106 - AREA PLANS (MECHANICAL EQUIPMENT LOCATION)			999 - RESERVED
		122 - WELLHEAD DRAWINGS			COMMENTS: .xn
		130 - VALVE LIST			
		135 - LINE LIST			
		140 - PSV LIST			
		150 - STANDARDS			
		CIVIL/STRUCTURAL			
		201 - PLOT PLANS			
		202 - SITE WORK, GRADING (ROUGH & FINISH DRAINAGE FENCING			
		210 - FOUNDATIONS: LOCATION PLANS			
		216 - MINES (WEEKS ISLAND ONLY)			
		250 - STANDARDS			
		ELECTRICAL			
		301 - AREA CLASSIFICATION			
		302 - ONE LINE DIAGRAMS			
		303 - SCHEMATIC DIAGRAMS			
		304 - POWER PLANS AND DETAILS			
		305 - LIGHTING PLANS AND DETAILS			
		307 - SUBSTATION PLANS AND DETAILS			
		308 - WIRING DIAGRAMS			
		310 - GROUNDING			
		311 - CONDUIT & CABLE SCHEDULES (INCLUDING INSTRUMENTS)			
		313 - MCC/SWITCH GEAR EVALUATION & SCHEDULE			

Engineering	DATE	CONFIGURATION MANAGEMENT	DATE
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**ENGINEERING CHANGE PROPOSAL
LIFE CYCLE COST FORM**

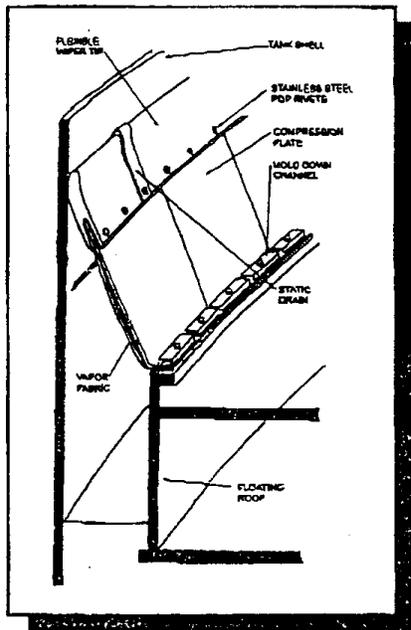
ECP NUMBER: <i>SJ-M/O-4629</i>	ECP TITLE: Tank 6 Secondary Seal Replacement									
EXECUTIVE SUMMARY: This ECP is being submitted as documentation of work that was done at Sugarland in 1998. New seal was required to comply with EPA air emission requirements.										
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IMPLEMENTATION COST: <table style="width:100%; margin-top: 10px;"> <tr> <td style="width:40%;"></td> <td style="width:30%;">DESIGN:</td> <td style="width:30%;"></td> </tr> <tr> <td></td> <td>CONSTRUCTION:</td> <td align="right">\$44,345</td> </tr> <tr> <td></td> <td>TOTAL:</td> <td align="right">\$44,345</td> </tr> </table>			DESIGN:			CONSTRUCTION:	\$44,345		TOTAL:	\$44,345
	DESIGN:									
	CONSTRUCTION:	\$44,345								
	TOTAL:	\$44,345								
LIFE CYCLE COST: Not applicable. The work was not considered to be a capital improvement (therefore not "unfunded liability") because the project entailed replacing one secondary seal brand with another brand.										
<u>IMPACT SUMMARY:</u>										
LEVEL I, II, and III CRITERIA:	CONTRACT COMPLETION DATES:									
CODES, REGULATIONS, PERMITS, ETC.:	GOVERNMENT-FURNISHED EQUIPMENT:									
SAFETY, ENVIRONMENTAL, FIRE PROTECTION SYSTEMS, SECURITY:	SCHEDULE:									



FLEX-A-SEAL™

Flex-A-Seal™ Compression Plate Secondary Seal System (FAS-1)

The Flex-A-Seal™ is the only secondary seal on the market that can offer both a continuous vapor barrier fabric and "zero gap" compliance tip for welded tanks.



Specifically designed to fit all types of support mountings the Flex-A-Seal™ requires no "hot work" or special fitments to the tank roof for installation.

Unlike other seal manufacturers who offer a "one size fits all", the Flex-A-Seal™ is custom designed for each tank, ensuring proper fit and compliance of all air quality regulations. The Flex-A-Seal™ maintains a force of 20 lbs. minimum per foot against the tank shell. This force remains constant around the circumference of the floating roof and at all shell contact levels, even as the roof travels during normal operation. Each seal is designed to accommodate a plus or minus of four (4) inches from the nominal rim space measurement.

Flex-A-Seal's™ patented tip design reduces product contamination due to weather conditions such as rain, snow, blowing sand and dust with up to 98% shedding control capacity. This dramatically reduces water draw-off, as well as the loss of many additives in the stored product that are often lost with water.

The 16 gauge galvanized or stainless steel compression plates are not bolted together allowing each individual area to conform to the contours of the tank shell. The reinforced fabric placed under the compression plates provides a continuous vapor barrier and protects the underside of the plates from corrosion caused by product aromatics.

The PVC Nitrile flexible wiper tip blade is mounted vertically on the end of the compression plate to even further increase the sealing efficiency and virtually eliminates the release of hydrocarbons within the tank.



PETROTANK - "Total Response-Ability"
800-678-0871





FAS-1 SPECIFICATIONS

Flex-A-Seal™ Compression Plate Secondary Seal System (FAS-1)

CONFIGURATION(S)

Petrotank's Flex-A-Seal™ Seal System is engineered and fabricated individually for each tank. Depending on service environments and installation requirements, the FAS-1 is designed for either In-Service or Out-of-Service installations. Several variations and options are available. Please contact your sales representative for recommendations and quotations for your specific needs.

COMPRESSION PLATES

Description: Designed for 1-1/2" min. overlap to each adjoining plate, will maintain 20 lbs. per foot min. against tank shell. Compression plates are not bolted or riveted together to allow for lateral flexure.

Galvanized: 16 Gauge minimum with no less than G90 Galvanized Coating

Stainless Steel: 16 Gauge minimum 304 stainless steel with 2B surface finish



FLEX-A-TIP (See "Flex-A-Tip")

Description: No-gap installation with stainless steel rivet or bolt. A protector clip is installed on the shell side of the compression plate at each rivet or bolt to protect the tip from damage should the seal be taken above the tank wall.

Material(s): PVC Nitrile/Buna Compound
Viton Available

PROTECTOR CLIP

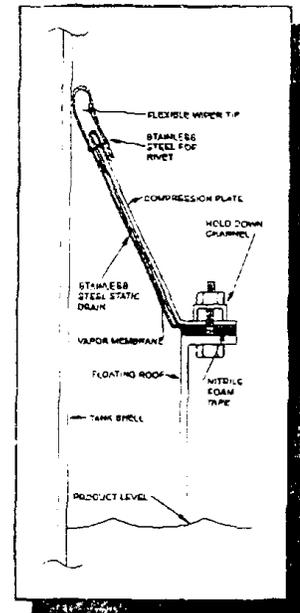
Description: See Above
Material(s): Stainless Steel

VAPOR FABRIC (See "Fabrics")

Description: Product compatible membrane forming a continuous circumferential seal with no gaps, holes, tears, or openings. Necessary splices accomplished with compatible adhesive and mechanical joining.

Standard Configurations:

RPI2020 - 20 mil Urethane
Coated Teflon - 10 mil min.



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