

**STRATEGIC PETROLEUM RESERVE**

**ENGINEERING CHANGE PROPOSAL**

**SUMMARY SHEET**

**CLASS I CHANGE**

ECP NUMBER SJ-M/O-4640 TITLE Install CP Reference Tubes under Sugarland Tanks 2 & 3

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 01</td> <td align="center">FY 02</td> </tr> <tr> <td>DESIGN</td> <td align="center">\$</td> <td></td> </tr> <tr> <td>CONSTRUCTION</td> <td align="center">\$16,845</td> <td></td> </tr> <tr> <td>TOTAL</td> <td align="center">\$16,845</td> <td></td> </tr> </table>		FY 01	FY 02	DESIGN	\$		CONSTRUCTION	\$16,845		TOTAL	\$16,845	
	FY 01	FY 02											
DESIGN	\$												
CONSTRUCTION	\$16,845												
TOTAL	\$16,845												

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 Admin.</i> DOE SENIOR SITE OFFICIAL <i>Michael M...</i>	✓		3/12/04	
<i>at Kelly</i> APM TECHNICAL ASSURANCE	✓		3/14/04	
<i>W...</i> APM SYSTEMS AND PROJECTS	✓		16 MAY 2004	<i>need Drugs Marked up need vendor Data</i>
<i>...</i> APM MAINTENANCE AND OPERATIONS	✓		3/15/04	
DEPUTY PROJECT MANAGER				
DOE CMO				
PROJECT MANAGER				
DEPUTY ASSISTANT SECRETARY - SPR				

PCCB/ECC ACTION

FULL APPROVAL     
  CONDITIONAL/LIMITED APPROVAL     
  DISAPPROVAL

completed 2001

### STRATEGIC PETROLEUM RESERVE ENGINEERING CHANGE PROPOSAL

ECP NUMBER <b>SJ-40-4040</b>		ECP TITLE <b>Install CP Reference Tubes under Sugarland Tanks 2 &amp; 3</b>		PAGE 1 OF 4	
CONTRACTOR CHANGE NO. / REV.		INITIATED BY <b>Eric Wells</b>	DATE <b>01/22/03</b>	SUBMITTED BY <b>Jill Derise</b>	DATE <b>1/22/03</b>
PRIORITY  <input type="checkbox"/> EMERGENCY  <input type="checkbox"/> URGENT  <input checked="" type="checkbox"/> ROUTINE		ORG / CONTRACTOR <b>Shell Pipeline Company LP</b>	PHONE NO. <b>(225) 675-6876</b>	ORG/CONTRACTOR <b>Shell Pipeline Company LP</b>	PHONE NO. <b>(504) 728-7366</b>
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>16,845.</u>	

**DESCRIPTION:**  
PROBLEM / EXISTING CONFIGURATION

**This ECP is being submitted as documentation of work that was done at Sugarland in 2001. Cathodic protection levels throughout the underside of Tanks 2 and 3 were not measurable, therefore it was not possible to assure the steel tank floors were being adequately protected.**

PROPOSED SOLUTION / ENHANCEMENT

**CP reference tubes were installed under Tanks 2 and 3. The installed tubes are 3" diameter #10 slotted PVC which are drilled under the tank ring wall at a constant depth of approximately 4 feet. Concrete slabs were poured to support each end of the PVC tube as it comes above ground. Steel guard posts were installed in the same concrete slab for protection. The attached typical drawing by Coastal Corrosion Control more accurately depicts the installation.**

**[Reference Shell Pipeline Capital AFE P.01179]**

REASON/JUSTIFICATION

**The reference tubes were necessary to assure adequate cathodic protection exists for the steel tank floors. The tubes were installed in 2001 at a capital cost of \$16,845 and should be considered "unfunded liability" due to the permanent improvement to the facility.**

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-M/O-4640</i>	Page 3 of 4
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SOFTWARE CHANGE ANALYSIS	HARDWARE/SOFTWARE AFFECTED
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	(NOTE: REDLINE CI BOM)
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DISPOSITION OF PARTS

REWORK SITE COMPONENTS ONLY     
  REWORK ALL SITE COMPONENTS     
  COMPONENTS NOT AFFECTED  
 OTHER (DESCRIBE) \_\_\_\_\_

COMPONENT COMPATIBILITY (LIST COMPONENTS SEPARATELY IF COMPATIBILITIES ARE DIFFERENT)

INTERCHANGABLE     
  DRAWDOWN COMPATIBLE     
  NONCOMPATIBLE

OPCS SUPPORT ENGINEER	DATE	FUNCTIONAL MANAGER	DATE
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IMPLEMENTATION/TEST COMMENTS

WITNESSED BY	DATE
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TEST APPROVED BY	DATE	CHANGE RELEASE AUTHORITY	DATE
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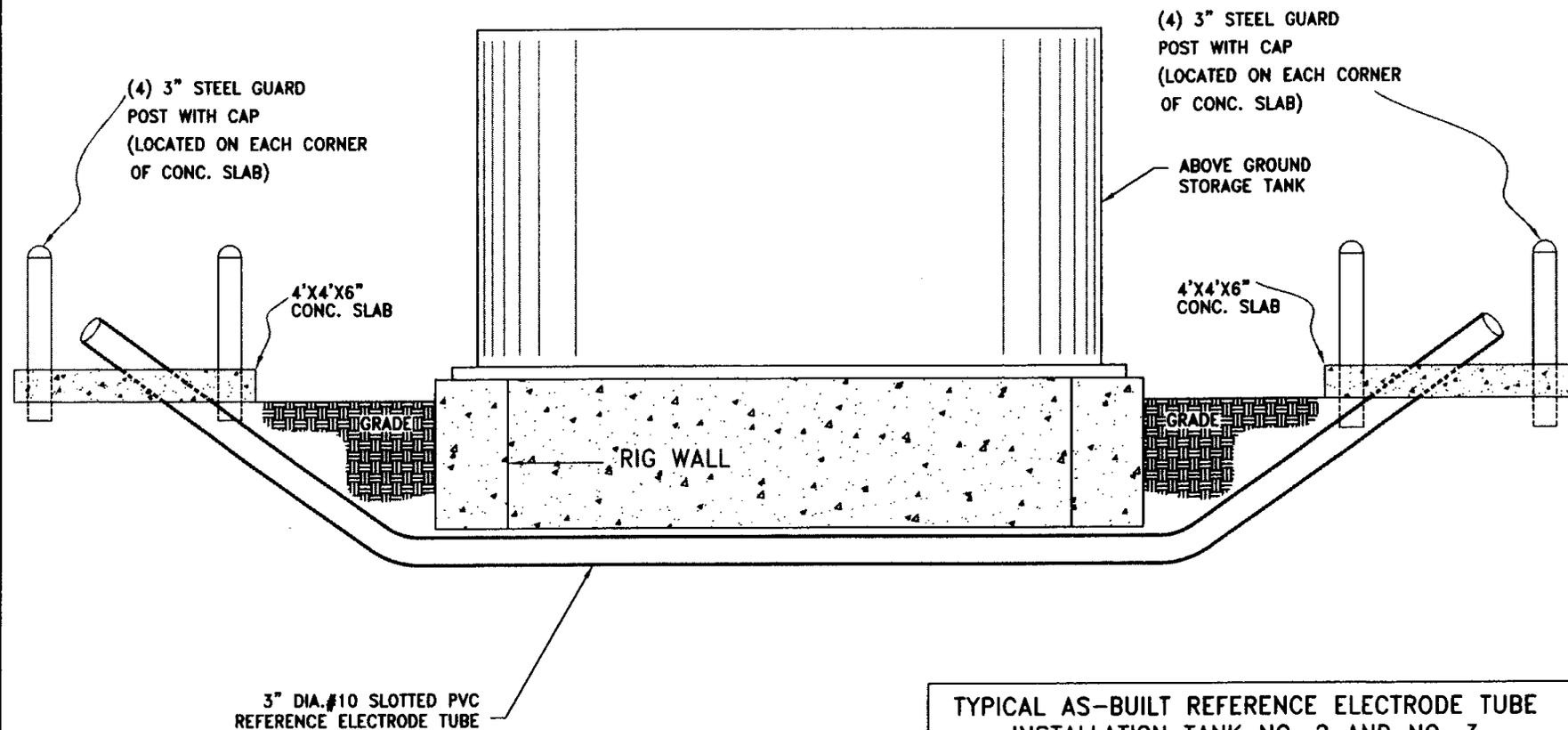
**STRATEGIC PETROLEUM RESERVE  
ENGINEERING CHANGE PROPOSAL  
CONFIGURATION CHANGE AFFECTED REPORT**

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

ECP NO. <b>SJ-M/o-4640</b>		CONTRACTOR CHANGE NO.	REV.	CHANGE CLASSIFICATION <input checked="" type="checkbox"/> CLASS I <input type="checkbox"/> CLASS II		PAGE 4 OF 4
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	Y		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					915 - ELECTRICAL SAFETY	
Y	N	ITEMS			920 - I/O DOCUMENT	
		PIPING			930 - OPERATION AND MAINTENANCE MANUALS	
		101 - PROCESS FLOW DIAGRAMS			950 - STANDARD SPECIFICATIONS	
		102 - MECHANICAL FLOW DIAGRAMS			970 - TASK SPECIFICATIONS	
		103 - PIPING AND INSTRUMENTATION DIAGRAMS (P&ID'S)			990 - CONFIGURATION MANAGEMENT REPORTS 1.B.0.M	
		104 - UTILITY FLOW DIAGRAMS			999 - RESERVED	
		105 - GENERAL PIPING PLANS	COMMENTS: .xn			
		106 - AREA PLANS (MECHANICAL EQUIPMENT LOCATION)				
		122 - WELLHEAD DRAWINGS				
		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	

**ENGINEERING CHANGE PROPOSAL  
LIFE CYCLE COST FORM**

<b>ECP NUMBER:</b> <p align="center">SJ-M/0-4640</p>	<b>ECP TITLE:</b> <p align="center">Install CP Reference Tubes under Sugarland Tanks 2 &amp; 3</p>						
<b>EXECUTIVE SUMMARY:</b> <p>This ECP is being submitted as documentation of work that was done at Sugarland in 2001. Cathodic protection levels throughout the underside of Tanks 2 and 3 were not measurable, therefore it was not possible to assure the steel tank floors were being adequately protected.</p>							
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<b>IMPLEMENTATION COST:</b> <table border="0" style="width: 100%; margin-left: 300px;"> <tr> <td><b>DESIGN:</b></td> <td></td> </tr> <tr> <td><b>CONSTRUCTION:</b></td> <td>\$16,845</td> </tr> <tr> <td><b>TOTAL:</b></td> <td>\$16,845</td> </tr> </table>		<b>DESIGN:</b>		<b>CONSTRUCTION:</b>	\$16,845	<b>TOTAL:</b>	\$16,845
<b>DESIGN:</b>							
<b>CONSTRUCTION:</b>	\$16,845						
<b>TOTAL:</b>	\$16,845						
<b>LIFE CYCLE COST:</b> <p>Not applicable. No foreseeable maintenance costs or upgrades to the reference tube system.</p>							
<b>IMPACT SUMMARY:</b>							
<b>LEVEL I, II, and III CRITERIA:</b>	<b>CONTRACT COMPLETION DATES:</b>						
<b>CODES, REGULATIONS, PERMITS, ETC.:</b>	<b>GOVERNMENT-FURNISHED EQUIPMENT:</b>						
<b>SAFETY, ENVIRONMENTAL, FIRE PROTECTION SYSTEMS, SECURITY:</b>	<b>SCHEDULE:</b> Installed in 2001						



3" DIA. #10 SLOTTED PVC  
REFERENCE ELECTRODE TUBE

TYPICAL AS-BUILT REFERENCE ELECTRODE TUBE  
INSTALLATION TANK NO. 2 AND NO. 3  
SUGARLAND TERMINAL, ST. JAMES, LOUISIANA



COASTAL  
CORROSION  
CONTROL, INC.

11386 S. CHOCTAW, BATON ROUGE, LA. 70815

EQUILON PIPELINE LLC  
SORRENTO, LOUISIANA

DATE: 12-01

SCALE: N.T.S.

DWG#: 3710C-01-01