STRATEGIC PETROLEUM RESERVE

WR #

ENGINEERING CHANGE PROPOSAL
SUMMARY SHEET
CLASS I CHANGE

ECP NUMBER	TITLE
SJ-M/O-4646	**Tie in to Sugarland to Capline 30" Line**

BUDGET SOURCE

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

AUTHORITY

☐ PCCB ☐ ECC

SCHEDULE

☐ YES
MILESTONE NUMBER
CMCR NUMBER

☐ NO

TOTAL ESTIMATED COST OF CHANGE

	FY 04	FY	FY
DESIGN	$10,000		
CONSTRUCTION/M&O	$40,000		
TOTAL	$50,000		

PCCB / ECC SIGNATURES	DISPOSITION: CONCUR	DISPOSITION: NON CONCUR	DISPOSITION: DATE	COMMENTS CONDITIONS / LIMITATIONS
DOE SENIOR SITE OFFICIAL	✓		8/13/04	SEE E-mail attached
APM TECHNICAL ASSURANCE (for D. KELLEY)	✓		8/19/04	
APM SYSTEMS AND PROJECTS	✓		19 Aug 2004	
APM MAINTENANCE AND OPERATIONS	✓		8/18/04	
DEPUTY PROJECT MANAGER	✓		8/19/04	
DOE CMO				
PROJECT MANAGER				
DEPUTY ASSISTANT SECRETARY -SPR				

PCCB / ECC ACTION

☑ FULL APPROVAL ☐ CONDITIONAL / LIMITED APPROVAL ☐ DISAPPROVAL

NUMBER: **SJ-M/O-4646**

TITLE**:** **Tie in to Sugarland to Capline 30" Line**

EXECUTIVE SUMMARY:

Shell Pipeline has developed a business opportunity which requires that barrels from the DOE St. James Terminal (Sugarland) be capable of being delivered into ExxonMobil's North Line. ExxonMobil's North line originates at St. James and terminates in Longview, Texas and also into other connecting carriers to the Mid-Continent. A new connection will be made on the 30" line from Sugarland to Capline and DOE will own the TDW welded fitting, piping riser and first flange.

IMPLEMENTATION PLAN:

This project would provide a new 16" connection on the 30" line from Sugarland to Capline. Approximately 500 feet of 16" pipe from this new connection into the ExxonMobil North Line facility will be installed, to be owned and operated by SPLC. The new connection will be designed to allow for future installation of a blind flange for total disconnection and isolation from DOE facilities or, alternatively, a block valve, depending on market needs into the future. (See Exhibit A)

IMPLEMENTATION COST:

$50,000

DESIGN: $ 10,000
CONSTRUCTION: $40,000

TOTAL: $50,000

LIFE CYCLE COST:

IMPACT SUMMARY:

LEVEL I, II, III CRITERIA:

CONTRACT COMPLETION DATES:

CODES, REGULATIONS, PERMITS, ETC.:

GFE:

SAFETY, ENVIRONMENTAL, FIRE PROTECTION SYSTEMS, SECURITY:

SCHEDULES:

STRATEGIC PETROLEUM RESERVE

WR #

ENGINEERING CHANGE PROPOSAL

ECP NUMBER	ECP TITLE	
SJ-M/O-4646	**Tie in to Sugarland to Capline 30" Line**	PAGE 1 OF **4**

CONTRACTOR CHANGE NO./REV.	INITIATED BY	DATE	SUBMITTED BY	DATE
	John Hayward	**6/17/04**	**Jeff Barab**	**7/23/04**
PRIORITY	ORG./CONTRACTOR	PHONE NO.	ORG./CONTRACTOR	PHONE NO.
☐ EMERGENCY	**Shell Pipeline**	**618-432-5757**	**Shell Pipeline**	
☐ URGENT	VALUE ENGINEERING	DRAWDOWN CRITICAL	ROM ESTIMATE	
☒ ROUTINE	☐ VEP (MANDATORY)	☐ YES	**$ 50,000**	
	☐ VECP (VOLUNTARY)	☐ NO		

DESCRIPTION:

PROBLEM / EXISTING CONFIGURATION

Shell Pipeline has developed a business opportunity which requires that barrels from the DOE St. James Terminal (Sugarland) be capable of being delivered into ExxonMobil's North Line. ExxonMobil's North line originates at St. James and terminates in Longview, Texas and also into other connecting carriers to the Mid-Continent.

PROPOSED SOLUTION / ENHANCEMENT

The original DOE 30" pipeline used for delivering barrels from DOE St. James Terminal into Capline is currently under-utilized as a result of the new Shell Pipeline funded 36-inch pipeline connection, which was completed in 2002 and which is now used for making such transfers to Capline at higher flowrates required by Capline.

This project would provide a new 16" connection on the 30" line. Shell Oil Products US will then construct and own approximately 500 feet of 16" pipe from this new connection into the ExxonMobil North Line facility. ExxonMobil will provide a double block and bleed valve and custody transfer measurement for these movements. The new connection will be designed to allow for future installation of a blind flange for total disconnection and isolation from DOE facilities or, alternatively, a block valve, depending on market needs into the future. (See Exhibit A)

REASON / JUSTIFICATION

The connection to the ExxonMobil North Line will allow for increased throughputs at Sugarland and additional flexibility to move barrels into a new market, not previously accessible from this facility. This project will enhance the commercial viability of the Sugarland facility.

CI'S AFFECTED

TECHNCIAL ANALYSIS/RECOMMENDATION	IMPLEMENTATION METHOD
	☐ SUBCONTRACT ☐ M&O LABOR (LOE) ☐ COMBINATION

ENGINEERING	DATE	DOE SSR	DATE	
John Hayward	**6/24/04**		**7/04**	☐ CONCUR ☐ NONCONCUR

D-655

STRATEGIC PETROLEUM RESERVE WR
ENGINEERING CHANGE PROPOSAL
CONFIGURATION CHANGE AFFECTED REPORT

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

ECP NO.	CONRACTOR CHANGE NO.	REV.	CHANGE CLASSIFICATION
SJ-M/O-4646			☐ CLASS I ☐ CLASS II PAGE 2 OF

FUNCTIONS AFFECTED

YES/NO	ITEM
	LEVEL I ☒ LEVEL II ☐ CRITERIA
NO	PERFORMANCE CRITERIA
NO	RAM
NO	INTERFACE CHARCTERISTICS
NO	I/O POINTS
NO	DOE LEVEL I, II, III SCHEDULES
NO	GUARANTEES/DELIVERABLES
NO	SAFETY/ENV/FP (CIRCLE ONE)
NO	SECURITY REQUIREMENTS
YES	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/ROVISIONING REQUIREMENTS
NO	GOVERNMENT FURNISHED EQUIPMENT
NO	ENERGY USAGE
NO	OPERATIONS MODESL
YES	OTHER

DOCUMENTS AFFECTED

YES/NO	ITEMS
	PIPING
YES	101 - PROCESS FLOW DIAGRAMS
YES	102 - MECHANICAL FLOW DIAGRAMS
YES	103 - PIPING AND INSTRUMENTATION DIAGRAMS (P&ID'S)
NO	104 - UTILITY FLOW DIAGRAMS
YES	105 - GENERAL PIPING PLANS
NO	106 - AREA PLANS (MECHANICAL EQUIPMENT LOCATION)
NO	122 - WELL HEAD DRAWINGS
NO	130 - VALVE LIST
YES	135 - LINE LIST
NO	140 - PSV LIST
NO	150 - STANDARDS
	CIVIL/STRUCTURAL
YES	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
YES	301 - AREA CLASSIFICATION
NO	302 - ONE LINE DIAGRAMS
NO	303 - SCHEMATIC DIAGRAMS
NO	304 - POWER PLAND AND DETAILS
NO	305 - LIGHTING PLAND 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/SWITHC 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
	ARCHITECTUAL
NO	720 - ELEVATIONS AND FLOOR PLANS
NO	750 - STANDARDS
	DOCUMENTATION
NO	900 - RESERVED
NO	901 - TECHNICAL/PERFORMANCE/DESIGN CRITERIA
NO	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
YES	930 - OPERATIONS MANUALS
NO	930 - MAINTENANCE MANUALS
NO	950 - STANDARD SPECIFICATIONS
NO	970 - TASK SPECIFICATIONS
NO	990 - CONFIGURATION MANAGEMENT REPORTS/I.B.M.

COMENTS:

Software change: PLC Programming will be modified to include line balance calculations from the Exxon North Line meters.

ENGINEERING	DATE	CONFIGURATION MANAGEMENT	DATE

STRATEGIC PETROLEUM RESERVE

WR #

ENGINEERING CHANGE PROPOSAL

SOFTWARE, HARDWARE, FIRMWARE CHANGE

CONTRACTOR CHANGE NUMBER	REVISION NUMBER	ECP NUMBER	PAGE
		SJ-M/O-4646	3 OF

SOFTWARE CHANGE ANALYSIS	HARDWARE/SOFTWARE AFFECTED
	(NOTE: REDLINE CI BOM)

DISPOSITION OF PARTS

☐ REWORK SITE COMPONENTS ONLY ☐ REWORK ALL SITE COMPONENTS ☐ COMPONENTS NOT AFFECTED

☐ OTHER (DESCRIBE)

COMPONENT COMPATIBILITY (LIST COMPONENTS SEPERATELY IF COMPATIBILITIES ARE DIFFERENT)

☐ INTERCHANGEABLE ☐ DRAWDOWN COMPATIBLE ☐ NONCOMPATIBLE

OPCS SUPPORT ENGINEER DATE FUNCTIONAL MANAGER DATE

IMPLEMENTATION / TEST COMMENTS

WITNESSED BY	DATE

TEST APPROVED BY DATE CHANGE RELEASE AUTHORITY DATE

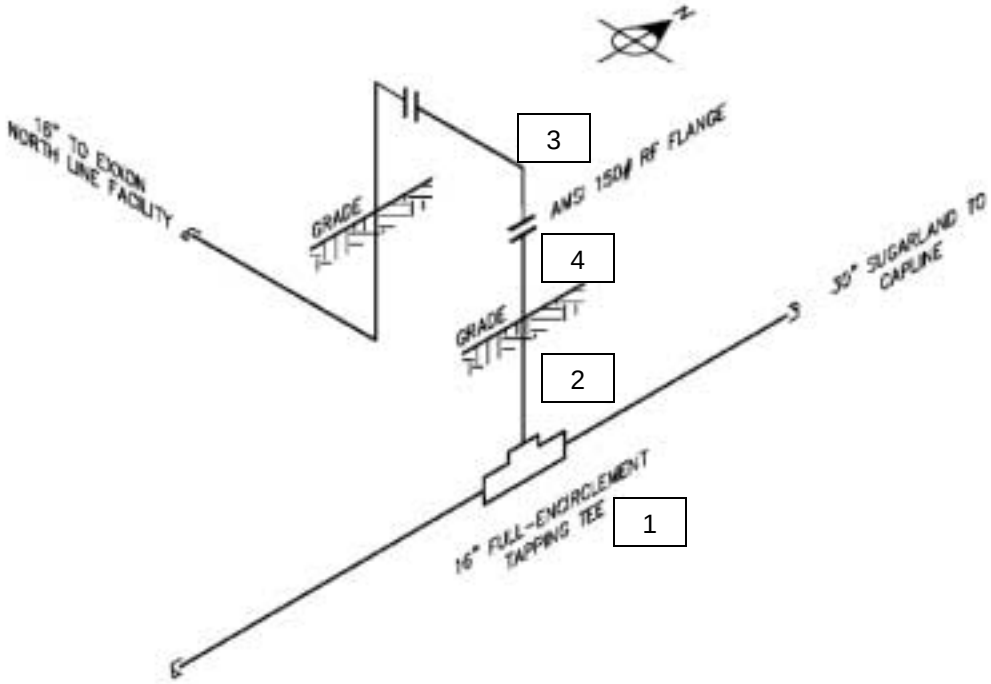
Exhibit A

MAOP, Corrosion Allowance and List Of Materials
16" Connection to 30" DOE line
Sugarland to St. James Capline

MAOP: 285 psig, based on flange rating, ANSI 150#

Piping allowable pressure = 2tS/D*0.72
= 2 (0.375)(35,000)/16*.72
= 1181 psig > flange rating

Corrosion allowance = 0.375 – PD/(2S*0.72)
= 0.375 – (285)(16)/(1.42)(35,000)
= 0.283" > 0.125" minimum required



Materials of Construction on DOE connection

1. Tapping fitting
   T.D.Williamson TEE, 30"x16" - RBST W/ 150# L-O-R Flange, BUNA-N O-Rings as per B31.4.

2. Piping
   16” schedule 40 (standard) 0.375” wall API 5L Grade B SMLS

3. Elbow
   16” standard weight ASTM A234 Gr. WPB

4. Flanges
   16” ANSI 150# ASTM A105 WN RF, standard bore