

Final Report

Appendix A : NETL Pre-FEED Cost Estimates



100102.01-DG-RPT-0001 | Rev 0 | May 2015

NETL Summary Sheet for Facility Mods for BOP Testing								
Estimate for Building test fixture in HP test room Estimate for Mod to UDS Cel								
Time to Start 2 weeks from NPT 2 weeks from NPT								
Time to complete mods and test Approx 10 months Approx. 14 Mo								
Total Cost* \$551,250 - \$1,181,250 \$778,838 - \$1,668,938								
Materials Cost \$168,000 - \$360,000 \$126,000 - \$270,000								
Labor/Msc. Cost \$383,250 - \$821,250 \$652,838 - \$1,398,938								
Planned test presure capabililty 10,000 psi Up to 20,000 psi								
* Cost Includes Hydraulic System for BOP operation - cost of BOP not included								
** Note: Advantage to modifying UDS cell is t	hat test pressures can go beyond 10 K	SI, easily to 20 KSI						

Form	No.	RIS-1	001.1

AECOM

RIS ESTIMATING WORKSHEET

Reference RES-EG-00-001 for Estimating Worksheet Guidelines

	DATE: 2/9/2015
WORK ORDER : NA	NETL DCN: NA
PROJECT: BOP Testing	PREPARED BY: S.FIKE/T.THEWLIS
LOCATION: B-12	REVIEWED BY:
LABOR ACCOUNT CODE: NA	APPROVED BY:

WORK DESCRIPTION: Modify UDS to accept/test BOP

ECOM Project Manager E to analyze current UDS legs and B-12 concrete floor for Iditional 4000 lbs of weight added by BOP. Provide report. E to specify and purchase new hydraulic system to operate BOP m, modify drawings, perform construction support and operational leckout	1	2080 400	\$100	2,080	\$208,000	One full-time AECOM project manager over the period of 1 vear
E to analyze current UDS legs and B-12 concrete floor for ditional 4000 lbs of weight added by BOP. Provide report. E to specify and purchase new hydraulic system to operate BOP m, modify drawings, perform construction support and operational leckout	1	400				, 501
E to specify and purchase new hydraulic system to operate BOP m, modify drawings, perform construction support and operational leckout			\$125	400	\$50,000	This assumes no major redesign of the legs or modifications to the floor is needed
	1	350	\$125	350	\$43,750	Ram Hydraulic System and controls
E redesign of UDS Upper Plug and hydraulic removal mechanism accept BOP. This is to include mounting requirements of BOP and pact of BOP actuation	1	700	\$125	700	\$87,500	
E Design modification of building wall to accept BOP, incorporate aw sliding door.	1	65	\$125	65	\$8,125	
esign team participate in Haz Op/SARS process	1	80	\$125	80	\$10,000	This is NOT performing SARS, just participating
esign team participating in modification to Standard Operating rocedures	1	60	\$125	60	\$7,500	
E Modification of control I/O and electrical drawings for additional quipment	1	120	\$125	120	\$15,000	
			om Continuation heet: (if needed)	5,170	\$502,750	
			Total:	9,025	\$932,625	
Estimate Type (Place an X in the block below to select the type of estimat	e)			1	NOTES	
X Order of Magnitude (-30% to Preliminary (-15% to +30 Definitive (-5% to +15°	0 +50%) 0%) %)	-				
stimate Summary						
Total Estimated Hours: 6318 - 13538		Total	Material Cos	<u>t:</u>	\$126,000	- \$270,000
Total Estimated Cost: \$778,838 - \$1,668,938						
Estimated Start Date: Dependent on approval of estimate		Estimate Dependent	d Completion on approval of es	Date timate	Approx	14 months
timate Qualification Statement						

basis upon which the initial estimate was prepared. Estimate accuracy ranges are projections of the most likely potential range of variance and are in accordance with typical industry accepted practice. The accuracy range is based on the level of scope definition, level of project execution development and the cost estimating methods and practices utilized in preparing the estimate. The range is not a guarantee of actual project costs.

The estimated start and completion dates stated above are dependent on receiving estimate approval before the noted estimated start date. In the event the estimate approval is received after the estimated start date, the Work Control Lead shall provide a realistic start and completion date based on the current schedule.

AECOM WORK ORDER : NA

RIS ESTIMATING WORKSHEET (Labor Continuation Sheet)

PROJECT: BOP Testing

DATE: 2/9/2015 NETL DCN: NA

Task Description	Quantity (User)	Estimated Hours / Task	Average Cost / hr	Total Hours	Extended Cost	Remarks (User)
Subcontract for modifying wall					\$35,000	South concrete wall of existing door
Subcontract for installing larger door					\$35,000	
Subcontract for Conrol system modification					\$20,000	modify HMI accordinly for new testing
Subcontract for installing BOP					\$25,000	Hoisting/rigging BOP into position
AECOM modification/fabrication of new Upper Plug	1	350	\$75	350	\$26,250	major UP mods and/or new
AECOM fabrication & installation of new reaction column/spacer and bracket	1	120	\$75	120	\$9,000	
AECOM install of hydraulic system for BOP ram	1	500	\$75	500	\$37,500	
AECOM inspect current system, re-connect utilities, make necessary repairs	2	40	\$75	80	\$6,000	
AECOM Shakedown/start-up activtiies	1	120	\$75	120	\$9,000	
Operator training	2	2000	\$75	4000	\$300,000	
		Continuat	ion Totals:	5170	\$502,750	

DATE: 2/9/2015

NETL DCN: NA

RIS MATERIAL ESTIMATE WORKSHEET

WORK ORDER : NA

PROJECT: BOP Testing

MATERIAL ACCOUNT CODE:

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	MATERIALS								
Product Description	Quantity	Unit	Unit Price	Extended Cost	Remarks (User)				
Hydraulic pump for BOP ram	1		\$40,000	\$40,000.00					
Circulating pump & associated equipment for internal pipe flow	1		\$40,000	\$40,000.00					
New large door for cell	1		\$50,000	\$50,000.00					
Upper plug material	1		\$10,000	\$10,000.00					
Reaction column materials	1		\$5,000	\$5,000.00					
Hydraulic tubing, hoses, valves, supports, etc	1		\$20,000	\$20,000.00					
Electrical & Control System components for modiciation	1		\$15,000	\$15,000.00					
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		Materia	Totals:	\$180,000.00					

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	VORKSHEET
Reference RES-EG-00-001 for Est	imating Worksheet Guidelines
	DATE: 2/9/2015
WORK ORDER : NA	NETL DCN: NA
PROJECT: BOP Testing	PREPARED BY: S.FIKE/T.THEWLIS
LOCATION: B-12 - East Test Cell	REVIEWED BY:
LABOR ACCOUNT CODE: NA	APPROVED BY:

WORK DESCRIPTION: Design, Fabrication, and Installation of new system for BOP testing in East Test Cell.

Task Description	Quantity (User)	Estimated Hours / Task	Average Cost / hr	Total Hours	Extended Cost	Remarks (User)
AECOM Project Manager	1	1720	\$100	1,720	\$172,000	One full-time AECOM project manager over the period of 10 months
ME to specify and purchase new hydraulic system to operate BOP ram, create drawings, perform construction support and operational checkout	1	350	\$125	350	\$43,750	Ram Hydraulic System and controls
ME to design custom rig to mount BOP and hydraulic removal mechanism. This is to include mounting requirements of BOP and impact of BOP actuation	1	600	\$125	600	\$75,000	Spool piece design, support structure design, calculations, analysis, PFD and P&ID creation
EE creation of control I/O and electrical drawings for additional equipment	1	300	\$125	300	\$37,500	
Design team participate in Haz Op/SARS process	1	80	\$125	80	\$10,000	This is NOT performing SARS, just participating
Design team participating in modification to Standard Operating Procedures	1	60	\$125	60	\$7,500	
		Totals Fr S	om Continuation heet: (if needed)	2,690	\$201,750	
			Total:	5,800	\$547,500	
Estimate Type (Place an X in the block below to select the type of estimate	e)			h	NOTES	
X Order of Magnitude (-30% to Preliminary (-15% to +30 Definition (-5% to +15%	+50%)					
Estimate Summary	»)					
Total Estimated Hours: 4060 - 8700		<u>Total</u>	Material Cos	<u>.t:</u>	\$168,000	- \$360,000
Total Estimated Cost: \$551,250 - \$1,181,250						
Estimated Start Date: Dependent on approval of estimate Two (2) weeks after NTP	_	Estimated Dependent	<u>d Completion</u> on approval of eଽ	<u>Date</u> stimate	Approx	10 months
Estimate Qualification Statement						· · · · · · · · · · ·

Please note that the estimates provided herein are dependent upon the basis of quantities, execution approach, pricing techniques and the underlying assumptions, inclusions and exclusions. Actual project costs will differ and can be significantly affected by changes in the scope, sequence and external environment, the manner in which the project is implemented and other factors which impact the basis upon which the initial estimate was prepared. Estimate accuracy ranges are projections of the most likely potential range of variance and are in accordance with typical industry accepted practice. The accuracy range is based on the level of scope definition, level of project execution development and the cost estimating methods and practices utilized in preparing the estimate. The range is not a guarantee of actual project costs.

The estimated start and completion dates stated above are dependent on receiving estimate approval before the noted estimated start date. In the event the estimate approval is received after the estimated start date, the Work Control Lead shall provide a realistic start and completion date based on the current schedule.



RIS ESTIMATING WORKSHEET (Labor Continuation Sheet)

PROJECT: BOP Testing

DATE: 2/9/2015 NETL DCN: NA

Task Description	Quantity (User)	Estimated Hours / Task	Average Cost / hr	Total Hours	Extended Cost	Remarks (User)
AECOM fabrication of components for new testing rig	1	350	\$75	350	\$26,250	spool piece fabrication
AECOM fabrication & installation of support system for testing rig	1	120	\$75	120	\$9,000	assemle spool pieces, install support structure and BOP mounting
AECOM install of hydraulic system for BOP ram	1	500	\$75	500	\$37,500	
Installation of Electrical components	1	300	\$75	300	\$22,500	
AECOM Shakedown/start-up activtiies	1	120	\$75	120	\$9,000	
Controls System Configuration	1	300	\$75	300	\$22,500	
Operator Training	1	1000	\$75	1000	\$75,000	
		Continuat	on Totals:	2690	\$201,750	

Form No. RIS-1001.1

RIS MATERIAL ESTIMATE WORKSHEET

WORK ORDER : NA

PROJECT: BOP Testing

MATERIAL ACCOUNT CODE:

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MATERIALS								
Product Description	Quantity	Unit	Unit Price	Extended Cost	Remarks (User)			
Hydraulic pump for BOP ram	1		\$60,000	\$60,000.00				
Circulating pump & associated equipment for internal pipe flow	1		\$55,000	\$55,000.00				
Control System software	1		\$10,000	\$10,000.00				
Hydraulic tubing, hoses, valves, supports, etc	1		\$50,000	\$50,000.00				
Electrical & Control System components for new system	1		\$20,000	\$20,000.00				
Material for spool sections	1		\$30,000	\$30,000.00				
Material for support structure	1		\$15,000	\$15,000.00				
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		Materia	al Totals:	\$240,000.00				

DATE: 2/9/2015

NETL DCN: NA