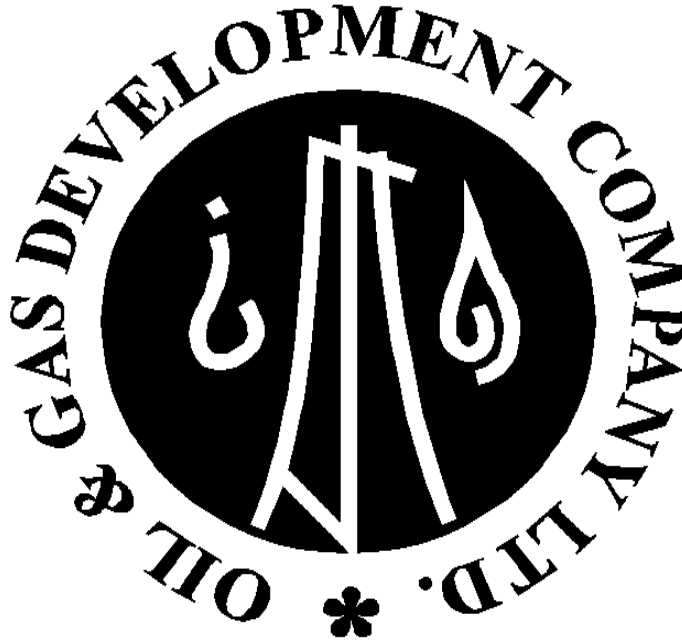


OIL & GAS DEVELOPMENT COMPANY LIMITED



TENDER ENQUIRY NO. PROC-SERVICES/CB/P&P-5076/2021

**HIRING OF SERVICES FOR EXECUTION OF ANNUAL TURN AROUND (ATA) 2021
OF UCH-I GAS PLANT**

Note:

Bid bond of **PKR 800,000/- (Pak Rupees Eight Hundred Thousand Only)** must be submitted with the technical bid. Please see tender documents for further detail.

The master set of tender documents (services) uploaded on OGDCL website (www.ogdcl.com) is the integral part of this TOR.

**HIRING OF SERVICES FOR EXECUTION OF ANNUAL TURN AROUND (ATA) 2021 OF
UCH-I GAS PLANT**

TERMS & CONDITIONS

OGDCL'S RESPONSIBILITIES:

- 1- OGDCL will provide blind/spades for isolation and pressure testing. However the blinds which are not available in stock, contractor may fabricate with available SS/MS sheets.
- 2- Only lodging (accommodation) will be provided to the Contractor manpower. The arrangement for 300 persons is available at site.
- 3- Only Emergency/First Aid medical coverage will be the responsibility of OGDCL.
- 4- All gaskets and direct material/spare parts will be provided.
- 5- OGDCL will provide paint for jobs wherever mentioned in scope of work.
- 6- OGDCL will provide pumps, tanks and hosepipes for in-place chemical cleaning of plate type heat exchangers, vessels & columns only.
- 7- Although the plant has a safe history however adequate security umbrella as provided to the Company's employees will be extended for Contractor's manpower.

CONTRACTOR'S RESPONSIBILITIES:

- 1- The technical manpower must be qualified/skilled and have at least five years experience in its trade in the field of Oil & Gas/Petrochemical Processing Plants. Contractor skilled manpower will be interviewed by OGDCL professionals in all disciplines (Mechanical, Electrical and Instrument), if deemed necessary and contractor should arrange the interview at their premises. The detailed CV's of direct manpower/supervisors is mandatory.
- 2- Contractor will ensure mobilization of all manpower and resources at least two weeks before commencement of ATA.
- 3- Skilled manpower will be deployed for seven days after completion of shutdown for testing/startup activities. Moreover, Rotary Team shall remain at site until satisfactory operation/testing of all rotary equipment. (Approximately 7-10 days after plant startup).
- 4- Locals should be given preference while hiring of skilled/unskilled manpower.
- 5- The contractor should plan ATA activities (direct/associated) using latest version of Primavera and submit their planned schedule covering all the activities for carrying out

- ATA of UCH-I Gas Plant successfully with high level quality within stipulated time period. (Soft copy of Primavera Plan is mandatory with summarized plan and a detailed plan indicating critical path activities, equipment wise resource planning and deployment)
- 6- Contractor should prepare/submit daily progress report and percentage Gantt chart (planned vs actual) at end of the day.
 - 7- Tools and consumables for the execution of each job including welding / fabrication consumables for all repair and modification jobs.
 - 8- Painting job where ever given in the scope including painting equipment/tool like brushes, rollers, spray nozzles/guns, hosepipes etc.
 - 9- Pneumatic Ejectors/Blowers for the ventilation of Columns and Vessels as per job scope requirement.
 - 10- 24V Lighting arrangement for confined space jobs, i.e. inside the columns and vessels.
 - 11- In case of any accident, OGDCL will provide only general first aid whereas any other medical treatment would be the responsibility of contractor.
 - 12- Contractor shall arrange the standardized test bench for manual valves, control valves & PSV's pressure testing and interconnecting pipes, tubes, hoses for hydro-test and PSV's bench.
 - 13- All tools, consumables and calibration equipment/tools for all instruments, control valves & PSV's should be the responsibility of contractor.
 - 14- Site administration personnel with associated resources like computer, printers, photocopiers etc.
 - 15- Contractor should arrange the blind flanges for PSV's, control valves and manual valves testing which will not be available at OGDCL store stock.
 - 16- Contractor will arrange certified E & I calibration and testing equipments, the certificates will be submitted before execution of ATA. Original 3rd party calibration certificates will be verified by OGDCL representative upon arrival of equipment.
 - 17- Nitrogen gas for PSV's and Regulators testing will be arranged by contractor.
 - 18- Certified Cranes and fork lifters suitable to carry out the activities within stipulated time frame.
 - 19- Precision Lathe machines for the repair of manual valves, control valves & PSV's as per work scope requirement.
 - 20- Gaskets for pressure testing/bench test of manual valves, control valves & PSV's.
 - 21- Water jetting machines with PSV calibration certificate and all other accessories up to 15000psig operating pressure for hydro-jetting of heat exchangers etc. as per job scope requirement.

- 22- Refractory work of Incinerators and Boilers including material is responsibility of contractor and should be carried out through any local expert firm/company in this field (Refer clause # 24 of explanatory notes).
- 23- Scaffolding material and services, as when and where required.
- 24- Electrical Supply Boards/Cables along with earth leakage circuit breaker as per HSE standard.
- 25- Pneumatic/24V tools for confined spaces i.e. grinders/power brushes (Vessel and Columns).
- 26- Contractor will arrange sufficient air compressors in view of complete scope of work (ventilation/filter cleaning/pneumatic tools etc.)
- 27- Shock absorbing safety harness and respirators for contractor employees as per job requirement.
- 28- Contractor will submit Company HSE Policy manual for implementation of safe execution of each activity with zero-injury target. In case of any accident, OGDCL will not be liable for any claim like insurance etc.
- 29- Provision of PPE'S to their manpower and each worker should display ID card (HSE concern)
- 30- Original certificates of lifting gears, cranes, crane operators, hydro-jetting machines, drivers etc. will be mandatory checked by OGDCL HSE representative. Furthermore, contractor will submit copy of these certificates to HSE representative of OGDCL (HSE Concern)
- 31- The valid certification of welders, scaffolder etc. will be mandatory. Tags should be displayed for certified scaffolding (HSE Concern).
- 32- HSEQ Manpower by Contractor:
 - a. I/C HSEQ should be B.E Mech/Chemical with Nebosh certification with at least 05 Years of relevant experience.
 - b. Supervisors should Graduate/D.A.E having Safety Courses certificates with at least 5 Years of relevant experience.
 - c. HSE assistant should be at least Intermediate having Safety Courses/ certificates with at least 5 Years of relevant experience)
 - d. Well-equipped First Aider & Rescuers (Trained/Certified at least 02 Nos.) e.g ropes/pulley, tri-pod, stretchers, medicines etc.
 - e. HSEQ crew will be interviewed by OGDCL HSEQ representative before commencement of ATA.
- 33- Contractor shall arrange Decanting pumps for ETP Sump Pit, Cooling Tower basin, Cooling Water Pump suction pit etc. wherever mentioned in SOW.

- 34- Contractor shall submit WPS & PQR for welding jobs prior to execution of job no deviation will be permissible.
- 35- Contractor shall depute qualified quality control Engineer having Level-II, Level-III CSWIP 3.1, API certification for the supervision of welding/modification jobs.
- 36- DPT of all welding jobs (Repair work/Modifications) shall be the responsibility of main execution contractor including material.
- 37- Submit Total no's of deployed manpower list (designation wise) for the execution of individual job.
- 38- Contractor shall provide adequate meals and laundry services to their employees. Local area Contractor's may be introduced to provide such services.
- 39- Contractor will arrange transport for the pick and drop for their manpower from Colony to Plant and back for the whole period and also from Jacobabad to field & back. Fitness certificate for vehicles and drivers will be mandatory. Vehicles deployed for said purpose will be inspected by OGDCL and will not be allowed to use if found unfit.
- 40- Contractor should ensure the police verification of all manpower direct and indirect and must have bio-data file of each. (Security concern)
- 41- Contractor manpower must have CNIC and Contractor identity card.
- 42- Contractor should ensure his manpower has no any kind of ammunition and narcotics. (Security concern)
- 43- Mobiles and photo camera are prohibited in the plant premises and contractor should be ensured. (Security concern).
- 44- Contractor should deploy his own fully equipped security to control the manpower's in/out movement in plant as well as at colony with the coordination of OGDCL security incharge. (Security concern).

ATA-2021 MAIN EXECUTION CONTRACTOR EXPLANATORY NOTES

- 1- The Owner, Oil & Gas Development Company Limited (OGDCL) is interested in inviting bids for the provision of services (Mechanical, Electrical & Instrumentation) at their UCH-I Gas Processing Plant for the execution of the Annual Turnaround (ATA) 2021 maintenance activities from reputable companies in this field.
- 2- The tentative schedule of annual shutdown of UCH-I Gas Plant is from 18-10-2021 to 29-10-2021 (12 days) after handing over of site to the contractor, only 09 days should be available for maintenance activities and remaining 01 day will be required for the shutting down and 02 days for startup activities.
- 3- The contractor shall develop and submit a detailed work schedule including mobilization and preparatory works prior to shutdown.
- 4- The Contractor shall quote separate rate in PKR for each activity against the quantities mentioned in the scope of work.

- 5- The items mentioned in the scope of work consist of furnishing all plant, labor, equipment, machinery, scaffolding and materials for completing the work. The work shall be done, complete in all respects in accordance with the requirements and owner's instructions at site.
- 6- The Quantities contained in the scope of work for each activity are estimated and liable to change (increase, decrease or omitted) when the work is actually executed. The Owner does not expressly or by implication guarantee that actual quantities of work to be performed will correspond to the scope of work submitted with this tender document. The payment to be made to the Contractor shall be based on the actual quantity of work performed.
- 7- The Contractor shall be responsible for carrying out all work, complete in all respects, according to the scope of work. Any item of work required for completion but not expressly indicated in the scope shall be deemed to have been included in the unit rates quoted by the Contractor.
- 8- The successful contractor will be required to submit detailed procedures for undertaking shutdown jobs especially repair works and modification jobs for Owner's approval.
- 9- The Contractor shall be responsible for ventilation and getting the vessels fit for entry and working environment. All other works required for equipment / piping repair works, e.g. removal / installation of internals, temporary supports, lighting, ventilation, insulation etc., shall be the Contractor's responsibility.
- 10- Contractor shall undertake welding procedures qualification & welder qualification and all welding shall be performed by qualified Welders. The brand of electrode used for Qualification shall not be changed for Production Welding. (Contractor shall use electrodes/filler wires of reputable brands of European Origin e.g. ESAB, LINCON, etc.)
- 11- The works are to be carried out on a fast track basis and it is, therefore, essential that the Contractor shall be prepared to execute the work on a round the clock basis (day & night shift) including on holidays.
- 12- Unit rates quoted by bidder shall be firm. No extra payments on account of escalation in prices due to any reason shall be admissible.
- 13- Contractor must quote unit rate per dia. inch of pipe welding (separate rate for CS & SS material) & per Kg of structure welding that will also be applicable for any additional job during ATA.
- 14- The Contractor shall be paid only for the work duly approved by Owner's representative. Any rework due to poor quality, demonstrated by NDT results & inspection by OGDCL shall be on Contractor's account.
- 15- In case the contractor fails to arrange resources (tools, tackles, consumables, skilled manpower etc.) for execution of any job mentioned in scope of work, OGDCL will arrange/provide its resources to execute the job then the cost double the amount quoted by contractor against that specific job/equipment/area/group will be deducted from final invoice of the contractor.

- 16- The work is being executed within the plant during shutdown and the Contractor shall, therefore, abide by all safety rules and regulations required to be followed by the Owner.
- 17- The Contractor shall ensure deployment of skilled painters for painting jobs and proper surface preparation and application of primer and top coat, as per applicable industrial standards.
- 18- Removal/Re-installation of insulation where required/applicable shall be the responsibility of Contractor.
- 19- The contractor will arrange cranes and all other lifting/rigging gears for all activities to be carried out during ATA.
- 20- The Owner for any job will not provide any tools to contractor. Otherwise owner's representative will be liable to deduct the charges accordingly.
- 21- The contractor manpower should be well experienced/skilled in their respective crafts.
- 22- HSEQ Rules & Regulations will be strictly observed.
- 23- All the participating companies/contractors should have at least 5 years of similar experience especially in turnaround of Oil & Gas, Petrochemical & Fertilizers Plant.

24- **REFRACTORY WORK:**

The contractor will arrange the material required for the refractory repair work of Incinerators (UCH-I & UCH-II), Boilers (UCH-I) & Hot Oil Heaters (UCH-II). The rough estimated material required for repair work is given as below:

(i)- Cow/Ceramic Wool (2'x 16' x 1" thk. Roll)	Qty: 04 Rolls
(ii)- Fire Cement (25 Kg Bag)	Qty: 20 Nos.
(iii)-Castable (25 kg Bag)	Qty: 60 NOs.
(iv)-Anchors with lock (SS)	Qty: 25 Doz.

The actual quantities of material should be confirmed after initial inspection of equipments and it is the responsibility of contractor to arrange the material accordingly.

25- **Stress Relieving for modification jobs piping and strippers**

- All repair welds shall be stress relieved.
- Stress Relieving of existing welds shall be undertaken where weld quality is acceptable as per NDT results.
- Local Heat Treatment may be carried out using electric heaters (Bands) covered by insulation. Temperature shall be noted by thermocouples and recorded by automatic recorders. Detailed procedures shall be prepared and submitted by the Contractor for Owner's approval.
- Following procedure may be adopted for stress relieving of welds:
 - Heat up to 600 – 620 °C @ 100 °C per hour
 - Hold at 600 – 610 °C for 1-hour minimum.

- Slow cool @ 100 °C per hour from 600 to 300 °C.
 - Still air cool by removing insulation, from 300 °C to atm. temp.
- Take hardness profile of each weld to check if it is < 22 HRC.
 - The above procedures have only been provided as guidelines. Contractor shall develop and submit detailed procedures for Owner's approval for mod job and stripper repair work.
- 26- **INSPECTION/REPAIR/TESTING OF VALVES:**
- The Contractor shall quote separate rates for each/individual valve.
 - Individual tags (include Asset Tag & Sr. # as per SOW) shall be installed on each valve for identification of location before dismantling of valve from site.
 - Contractor shall submit the method statement for testing of valves with respect to the standards specified in the references below.
 - For repair and build up of seats of valves contractor shall use electrodes/filler wires of reputable brands of European Origin e.g. ESAB, LINCON, etc.
 - All gate valves will be tested from both sides i.e. front and back.
 - Pressure testing of valves will be carried out as per applicable ASME Code.
 - Lapping of valve seats shall be carried out on high-level precision machine.
- 27- Work methodologies of Jobs (modification jobs, valve testing/repairing, Cleaning of vessels, Columns, heat exchangers and repair work of leakages in piping and pressure vessels and PWHT) will be developed by keeping in view of under-mentioned references and requirements. Furthermore contractor shall submit the welding procedure specifications with supporting PQR, method statement of repair jobs of Amine Stripper, hydro testing of mechanical valves, hydro testing of piping involved in modification jobs at least two weeks before the commencement of ATA for Owner's approval.

Note:

- Bid bond of **PKR 800,000/- (Pak Rupees Eight Hundred Thousand Only)** must be submitted with the technical bid. Please see tender documents for further detail.
- Following documents must be submitted with the technical bid (bid bond, bidding form, Integrity & ethics undertaking, Affidavit (duly signed & stamped by Notary Public), Data Summary Sheet, Unpriced draft contract, Unpriced financial rate format and certificate of incorporation.

Contractor Qualification Criteria (MARKS)

Sr. No.	Evaluation Item	Description of Criteria	Max. Marks / Calculations	Maximum Marks	Minimum Qualifying Marks	Remarks
1.	Contractor strength to execute Mechanical, Electrical, Instrument & Telemetry works	Contractor to fully comply the execution of complete SOW provided, Explanatory Notes and OGDCL T&C's	Full Compliance (mandatory)	15	15	Contractor should submit the signed/ stamped copy of SOW, Explanatory Notes and T&C's to prove the execution of all Mechanical, Electrical, Instrument& Telemetry activities during ATA in full spirit.
2.	Specific experience of Annual Turn Around (ATA)	Contractor's experience of ATAs	Contractor shall earn 06 marks against each ATA up to maximum of 30 marks	30	18	In order to get 06 Marks for each ATA, the value/ worth of each previous ATA performed by contractor should be at least 10 Million (PKR) each.
3.	Certifications.	Contractor should provide following valid certificates; 1. ISO 9000 certification: 2. ASME U/R/S-Stamp 3. PEC Registration	1. 04 Marks 2. 03/02/02 Marks 3. 04 Marks	15	9	Contractor should submit the valid copy of certificates. If the certificate status is in progress no marks will be given.
4.	Offices, Workshop, Tools, Equipment, Machinery, Infrastructure.	Contractor should have following facilities within Pakistan. 1. Workshop & office, 2. Tools to execute the ATA activities (Mechanical, Instrument, Electrical). 3. Equipment / Machinery (Valve test bench, hydro jetting machines, welding machines/ Generators). 4. Cranes, fork lifters. 5. Relevant professional CVs & site deployment Organogram for Mechanical, Instrument & Electrical works.	1. 03Marks(02+01) 2. 08 Marks(04+02+02) 3. 03 Marks 4. 06 Marks (04 + 02) 5. 10 Marks.	30	25	01 Mark for each main equipment / Machinery. Crane (Min 25 tons), fork lifters (Min 3 Tons) Organogram: 02 Mark. Mechanical CVs: 04 Mark Electrical CVs: 02Mark Instrument CVs: 02Mark

Sr. No.	Evaluation Item	Description of Criteria	Max. Marks / Calculations	Maximum Marks	Minimum Qualifying Marks	Remarks
5.	Safety & HSE Policy	1. Contractor's documentary evidence of HSE policy with commitment to provide PPE, Helmet, Ear plugs and safety shoes to the skilled labour at work. 2. Well defined HSE policy with commitment and to provide 1 Million Safe Man hours' record. 3. Deployment of first aid boxes & medical team for the labour at site.	1. 04 Marks for full compliance, partial compliance zero Marks. 2. 04 Marks 3. 02 Marks for full compliance, partial compliance zero Marks.	10	08	The Contractor who will provide 1 Million safe man hours record will be awarded 04 marks while the Contractor who will provide 0.5 Million safe man hours record will be awarded 02 Marks.

Minimum Qualifying Marks = 75

Total Marks= 100

FINANCIAL BID FORMAT/EVALUATION CRITERIA

UCH-I Plant ATA-2021

Sr.	Description	Price in PKR
01.	Cost of Services for ATA jobs, activity wise breakdown should be provided as per enclosed document / scope of work (the cost must be inclusive of all types of equipments, tools, manpower, machinery, consumables and PPE) for I. Mechanical works II. Electrical works III. Instrument works IV. T&I works	
02.	Mob. / De-mob. Cost	
03.	Total cost	
Note: a) Total Price should be inclusive of all taxes (except Provincial Sales Tax/ ICT Tax on services in Pakistan), duties, levies, charges etc. b) Bidders are requested to quote the above mentioned rates separately for each activity of the jobs at Sr. No. 01. & provide the activity wise break down. c) OGDCL reserves the right to delete / cancel any activity mentioned in the scope of work at any stage of the ATA. Payment will be made as per actual job done against verified invoices in PKR. d) Contract will be awarded to technically responsive and financially lowest evaluated bidder on complete package basis.		

OIL & GAS DEVELOPMENT COMPANY LIMITED									
UCH-1 GAS PROCESSING PLANT - ATA 2021 (ELECTRICAL SCOPE OF WORK)									
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	Quantity	Unit Rate	Total Cost	
SWITCHGEAR ROOM:					Location				
1	10-P-200A	LV(380V) Modules Inspection, Servicing, Cleaning, Testing of Contactors, Thermal Relays, Aux. Contactors, Power Points & tightening of all connections.	Amine Booster P.M. Modules, 380v, 138A, 100hp		LV & EGTs MCC Modules	1			
2	10-P-200B					1			
3	20-P-200A					1			
4	20-P-200B			Amine Booster P. M. Modules, 380v, 138A, 100hp			1		
5	10-P-202A			Amine S. Reflux P.M. Modules, 380v, 15.5A, 10hp			1		
6	10-P-202B						1		
7	20-P-202A			Amine S. Reflux P. Motor, 380v, 15.5A, 10hp			1		
8	20-P-202B						1		
9	90-X-903A						1		
10	90-X-903B			Cooling Tower Fan Motor , 380v, 210A, 150hp			1		
11	90-X-903C						1		
12	90-X-903D						1		
13	90-P-911A			Raw Water P. Motor 380v, 138A, 100hp			1		
14	90-P-911B						1		
15	90-P-911C						1		
16	90-P-902A			L.P Boiler Feed Water P. Motor 380v, 66.4A, 50hp			1		
17	90-P-902B						1		
18	Siemens Pond 1			Siemens Pond water motor modules, 380 V, 40 HP			1		
19	Siemens Pond 2						1		
20	Siemens Pond 3						1		
21	HP Bolier Switchgear			H.P Boiler Switch gear			1		
22	HP Boiler Feed Water Switchgear			HP Boiler Feed Water Switchgear			1		
23	90-X-904A			Incinerator F.D Fan Motor , 380v, 22A, 15kw			1		
24	90-X-904B						1		
25	10-P-200A			Glycol Circulation P. Motor 25kw, 380v, 52amps			1		
26	10-P-200B						1		
27	20-P-200A			Glycol Circulation P. Motor 25kw, 380v, 52amps			1		
28	20-P-200B						1		
29	UCH2-BL-ST			UCH-2 Black Start Panel			1		
30	1A						1		
31	2A			ABLOC Fan Motor 380v, 25.8A, 9.5 Kw			1		
32	3A						1		
33	4A						1		
34	1A						1		
35	2A			Enclosure Vent Fan Motor 380v, 55A, 30kw			1		
36	3A						1		
37	4A						1		

38	1A					1		
39	1B					1		
40	2A					1		
41	2B					1		
42	3A					1		
43	3B					1		
44	4A					1		
45	4B					1		
46	1A					1		
47	2A					1		
48	3A					1		
49	4A					1		
50	1A					1		
51	2A					1		
52	3A					1		
53	4A					1		
54	Incomer Tafo 1 & 2					2		
55	LV Bus ACBs					2		
56	Essential Bus ACBs					2		
57	LV Bus	LV(380V) Bus Bar Inspection, Cleaning, Tightening, Maggar of Bus Bars				2		
58	10-P-201A					1		
59	10-P-201B					1		
60	20-P-201A					1		
61	20-P-201B					1		
62	90-P-900A					1		
63	90-P-900B					1		
64	90-P-900C					1		
65	90-X-902A					1		
66	90-X-902B					1		
67	52-A					1		
68	52-B					1		
69	52-T					1		
70	Transformer MV Modules					2		
71	EGT VCBs					5		
		MV(6.6KV) Modules Inspection, Servicing, Cleaning, Testing of Contactors, Thermal Relays, Aux. Contactors, Power Points, & Tightening of all connections. Measurement of VCB closing time and opening time for EGTs VCBs (04 Nos, 630 Amps, make: ABB) with help of proper, calibrated tools and equipments						
			Gen: CACA Fan Motor 380v. 8.7A, 4kw					
			VGV Motor 380v, 3.6A, 1.5kw					
			Starter Motor, 380v, 75kw					
			LV incomer of trafo 1 & 2, ACB, 3200 Amp,TERASAKI		LV incomer of Trafo 1 & 2			
			ACBs installed on LV Bus 2000 Amp, TERASAKI		LV Bus 181 & 176 ACBs			
			ACBs installed on Essentia bus 1200 Amp & 800 Amp, Merlin Gerin		Essential Bus ACBs			
			LV Bus Bar 176,181		LV Bus Bar			
			Amine Circulation P. Motor, 6.6kv, 117A, 1500hp					
			Amine Circulation P. Motor 20-P-201, 6.6 Kv, 117A, 1500hp					
			Cooling Water Circulation P. Motor,6.6kv, 67A, 700hp					
			L. P. Boiler F. D. Fan Motor, 6.6kv, 20A, 250hp					
			Main Incoming Vacuum Circuit Breaker 52 A/B/Tie, 6.6kv, 1200A					
			Vacuum Circuit Breaker of Transformer 1 & 2, 2500 KVA, 6.6KV					
			Vacuum Circuit Breaker of EGTs and Unit Transformer, 6.6KV					

72	Transformers	Inspection, cleaning of transformers, BTD and tightening of power & control connections.	Transformer 1 and 2, Unit Transformer, UCH-2 Black Start Transformer		Transformers	4			
73	MV Bus	MV(6.6KV) Bus Bar Inspection, Cleaning, and Tightening of Bus Bars	MV Bus Bar		MV Bus Bar	1			
74	1	Battery Charger and Battery Bank Inspection, Cleaning, Checking And Tightening of connections, Chargers & Battery Cabinets. Batteries Inspection, load testing, tightening, greasing of connections & Servicing. Replacement of bank if required after inspection.	Battery Chargers and Battery Banks Of EGTs		Battery Room	1			
75	2			1					
76	3			1					
77	4			1					
78	1	Inspection,Tightening of connections,Preventive maintenance on by pass mode and general cleaning. Batteries Inspection, load testing, tightening, greasing of connections & Servicing. Replacement of bank if required after inspection.	30 KVA UPS		UPS	1			
79	1		30 KVA UPS (Stand by)			1			
80	X-200A	LV(380V) Modules Inspection, Servicing, Cleaning, Testing of Contactors, Thermal Relays, Aux. Contactors, Power Points, Tightening of all connections.	Inst. Air Comp. Main Motor (Caps) , 380v, 67A, 50hp		Instrument Air Compressors	1			
81	X-200B		Quincy Inst. Air Comp. Motor, 380v, 67A, 50hp			1			
82	X-200C					1			
83	X-200D					1			
84	X-201A(181)			Inert Gas Comp. Motor, 380v, 44A, 30hp			1		
85	X-201B(176)						1		
86	1	EGT Generators Checking of Generators' connections, Exciters, PMGs,Diode Assembly. Inspection and removal of dust and webs. Cleaning & Washing of Generator's outer body.	Main Generator, PMG & Exciter Units.		EGTs	1			
87	2			1					
88	3			1					
89	4			1					
90	LP3-MCC	LV(380V) Modules Inspection, Servicing, Cleaning, Testing of Contactors, Thermal Relays, Aux. Contactors, Power Points, Tightening of all	MCC Panel of LP Boiler 3		LP boiler 3	5			
91		Allied Services for Electric Supply At Different Locations of Plant.	Allied Services		Whole Plant				
92		Cleaning, testing and resistivity measurement of Earth pits at UCH-1 and Colony	Earth Resistance Measurement			35			
93		Maintenance , cleaning, refurbishment, replacement (if required) of skid(2x36W) and	Job on Skid and Pole lights		Amine, Dehydration , EGTs, Utility Systems,	200			

		ploelights (250W, 400W) at UCH-1 and Colony			Colony			
94	1 job	Inspection, Cleaning Of Switch Gear, Transformer , DBs, tightening of control and power cables.	LT Switch Gear & Transformer Installed in Residential Colony		LV Switch Gear, Transformer	1		
95	1 job		LT Switch Gear having MCCs & Transformer installed at Pat Feeder Water Pumping Station		LV Switch Gear, Transformer and MCCs	1		
96		Inspection, servicing cleaning, tightness of DBs Installed in plant area, workshops, offices and admin building of UCH-1	Maintenance of DBs		LT DBs	20		
97		Inspection, servicing cleaning, tightness of DBs Installed in different Areas of UCH Colony and colony water supply motor modules	Maintenance of DBs		LT DBs	15		
98	1 job	Preventive maintenance job on heater and superheater installed with fuel gas skid of EGTs. Job will include inspection and replacement if required for bundle of heater and super heater	Inspection of heater and superheater		EGTs fuel Gas Skid	1		
99	1 job	Inspection, Servicing, Cleaning, Testing of Contactors, Thermal Relays, Aux. Contactors, Power Points, Tightening of all	Maintenance of LCB Switchgear		LCB Switch Gear	1		
100		Excavation/Concrtuction of earth pits, boring job, copper rod insertion and earthing cable laying/termination to connect it with main earthing system of plant. Job complete in all respects.	Construction of earth pits and connection with main earthing system		Plant Area	16		
H2S REMOVAL PLANT AREA MOTORS					Location			
1	10-P-201A	MV (6.6KV) MOTORS Cleaning of motor and heat exchanger, Meggering Of Windings, Inspection, Tightening Of Connections In JB's, And Earth Testing. Bearings clearance check. Replacement Of Bearings (If Required after Inspection)	Amine Circulation P. Motor, 6.6kv, 117A, 1500hp		Train – 10	1		
2	10-P-201B					1		
3	20-P-201A		Amine Circulation P. Motor, 6.6kv, 117A, 1500hp		Train – 20	1		
4	20-P-201B					1		
5	10-P-200A	LV (380V) MOTORS Cleaning, Greasing & Replacement Of Bearings and Paint Job (If Required), Meggering Of Windings, Inspection, Tightening Of Connections In JB's and	Amine Booster P. Motor, 380v, 138A, 100hp		Train – 10	1		
6	10-P-200B					1		
7	20-P-200A		Amine Booster P. Motor, 380v, 138A, 100hp		Train – 20	1		
8	20-P-200B					1		
9	10-P-202A		Amine S. Reflux P.		Train – 10	1		

10	10-P-202B	Earth Testing	Motor, 380v, 15.5A, 10hp			1			
11	20-P-202A		Amine S. Reflux P. Motor,		Train – 20	1			
12	20-P-202B		380v, 15.5A, 10hp			1			
UTILITY AREA MOTORS					Location				
13	90-P-900A	MV (6.6KV) MOTORS Cleaning, Greasing ,Meggering Of Windings, Inspection, Tightening Of Connections In JB's, Earth Testing and Paint Job. Replacement of Bearings (If Required after Inspection)	Cooling Water Circulation P. Motor, 6.6kv, 67A, 700hp		Cooling Tower	1			
14	90-P-900B			1					
15	90-P-900C			1					
16	90-X-903A	LV (380V) MOTORS Cleaning, Greasing & Replacement Of Bearings and Paint Job (If Required), Meggering Of Windings, Inspection, Tightening Of Connections In JB's, And Earth Testing.	Cooling Tower Fan Motor, 380v, 210A, 150hp		Top Of Cooling Tower	1			
17	90-X-903B			1					
18	90-X-903C			1					
19	90-X-903D			1					
UTILITY AREA MOTORS					Location				
20	90-P-901A	LV (380V) MOTORS Cleaning, Greasing & Replacement Of Bearings and Paint Job (If Required), Meggering Of Windings, Inspection, Tightening Of Connections In JB's, And Earth Testing.	Treated Water P. Motor, 380v, 14.5A, 10hp		Blow The De- Rater Tank.	1			
21	90-P-901B			1					
22	90-P-901C			1					
23	90-P-902A		L.P.B. Feed Water P. Motor, 380v, 66.4A, 50hp			Below The De-Rater Tank.	1		
24	90-P-902B			1					
25	90-P-902C			1					
26	90-P-902D			1					
27	90-P-903B	LV (380V) MOTORS Cleaning, Greasing & Replacement Of Bearings and Paint Job (If Required), Meggering Of Windings, Inspection, Tightening Of Connections In JB's, And Earth Testing.	H.P.B. Feed Water P. Motor, 380V, 40HP, 53A		Below The De-Rater Tank.	1			
28	90-P-903C			1					
29	90-P-903D			1					
30	90-X-902A	MV (6.6KV) MOTORS Cleaning, Greasing, & Replacement Of Bearings, Paint Job (If Required) Meggering Of Windings, Inspection, Tightening Of Connections In Jbs, And Earth Testing.	F. D. Fan Motor 6.6kv, 20A, 250hp		L.P. Boiler "A" & "B"	1			
31	90-X-902B			1					
32	HP-1	LV (380V) MOTORS Cleaning, Greasing & Replacement Of Bearings, Paint Job (If Required), Meggering Of Windings, Inspection, Tightening Of Connections In Jbs, And Earth Testing.	H.P. Boiler Air Blower Motor 380v, 4.5A, 2.2kw		H.P Boiler	1			
33	HP-1		H.P. Boiler FD Fan Motor 380v, 22A, 15kw			1			
34	HP-2		H.P. Boiler Air Blower Motor 380v, 22A, 11kw			1			
35	90-X-902C	LV (380V) MOTORS Cleaning, Greasing & Replacement Of Bearings, Paint Job (If Required), Meggering Of Windings, Inspection, Tightening Of Connections In Jbs, And Earth Testing.	Boiler Air Blower Motor 400V,271A,160KW,		L.P.3 Boiler	1			

36	L.P.3-A	LT (380V) MOTORS Cleaning, Greasing & Replacement Of Bearings and Paint Job (If Required),				1					
37	L.P.3-B	Meggering Of Windings, Inspection, Tightening Of Connections In Jbs, And Earth Testing.	L.P.3 B. Feed Water P. Motor 400V, 92.9A, 55KW		L.P.3 Boiler	1					
POWER GENERATION (TURBINE) AREA MOTORS					Location						
38	1A	LV (380V) MOTORS Cleaning, Greasing & Replacement Of Bearings,Paint Job (If Required), Meggering Of Windings, Inspection, Tightening Of Connections In Jbs, And Earth Testing.	ABLOC Fan Motor 380v, 25.8A, 9.5 Kw		European Gas Turbines	1					
39	2A					1					
40	3A					1					
41	4A		Enclosure Vent Fan Motor 380v, 55A, 30kw			1					
42	1A					1					
43	2A					1					
44	3A		LV (380V) MOTORS Cleaning, Greasing & Replacement Of Bearings, Paint Job (If Required), Meggering Of Windings, Inspection, Tightening Of Connections In Jbs, And Earth Testing.			Gen: CACA Fan Motor 380v. 8.7A, 4kw		European Gas Turbines	1		
45	4A								1		
46	1A								1		
47	1B	1									
48	2A	1									
49	2B	1									
50	3A	VGV Motor 380v, 3.6A, 1.5kw		European Gas Turbines	1						
51	3B				1						
52	4A				1						
53	4B			European Gas Turbines	1						
54	1A				1						
55	2A				1						
56	3A				1						
57	4A				1						
INCINERATOR AREA MOTORS					Location						
58	90-X-904A	LV (380V) MOTORS Cleaning, Greasing & Replacement Of Bearings and Paint job (If Required), Meggering Of Windings, Inspection, Tightening Of Connections In Jbs, And Earth Testing.	Incinerator F.D Fan Motor, 380v, 22A, 15kw		Incinerator	1					
59	90-X-904B					1					
AMINE STORAGE TANK AREA MOTORS					Location						
60	90-P-905A	LV (380V) MOTORS Cleaning, Greasing & Replacement Of Bearings,Paint Job (If Required), Meggering Of Windings, Inspection, Tightening Of Connections In Jbs, And Earth Testing.	Amine Sump Motor 380v, 6A, 4kw		Amine Storage Tank Area	1					
RAW WATER PUMP AREA MOTORS					Location						
61	90-P-911A	LV (380V) MOTORS Cleaning, Greasing & Replacement Of Bearings and Paint Job (If Required), Meggering Of Windings, Inspection, Tightening Of Connections In Jbs, And Earth Testing.	Raw Water P. Motor 380v, 138A, 100hp		Pond Water Area	1					
62	90-P-911B					1					
63	90-P-911C					1					
COMPRESSOR AREA MOTORS					Location						
64	X-200A	LV (380V) MOTORS Cleaning, Greasing & Replacement Of Bearings,Paint Job (If	Inst. Air Comp. Main Motor (Caps), 380v, 67A, 50HP		Compressor Area	1					
65	X-200B					1					

66	X-200A	Required), Meggering Of Windings, Inspection, Tightening Of Connections In Jbs, And Earth Testing.	Inst. Air Comp. Condenser Fan Motor (Caps), 380v, 22A, 15HP			1		
67	X-200B		Quincy Inst. Air Comp. Motor, 380v, 67A, 50hp			1		
68	X-200C		Inert Gas Comp. Motor, 380v, 44A, 30hp			1		
69	X-200D					1		
70	X-201A(181)					1		
71	X-201B(176)					1		
FIRE WATER STORAGE TANK AREA MOTORS					Location			
72	160-P-101A	LV (380V) MOTORS Cleaning, Greasing & Replacement Of Bearings (If Required), Meggering Of Windings, Inspection, Tightening Of Connections In JB's, And Earth Testing	Fire Water P. Motor (Jockey) , 380v, 21.2A, 15hp		Fire Water Storage Tank	1		
73	160-P-101B					1		
74	10-P-200A	LV (380V) MOTORS Cleaning, Greasing & Replacement Of Bearings and Paint Job (If Required), Meggering Of Windings, Inspection, Tightening Of Connections In JB's, And Earth Testing Replacement of Bearings if Required	Glycol Circulation P. Motor 25kw, 380v, 52amps		Train-10	1		
75	10-P-200B		1					
76	20-P-200A		Glycol Circulation P. Motor, 25KW, 380V, 52Amps		Train-20	1		
77	20-P-200B		1					
78	GSP A		Glycol Sump P. Motor 380v, 6A, 4kw			Dehydration Area	1	
			1					
79	170-P-101A	LV (380V) MOTORS Cleaning, Greasing & Replacement Of Bearings and Paint Job (If Required), Meggering Of Windings, Inspection, Tightening Of Connections In JB's, And Earth Testing	ETP Sump P. Motor 380v, 15kw		ETP Area	1		
80	170-P-101B					1		
Total Cost (Electrical SOW)								

OIL & GAS DEVELOPMENT COMPANY LIMITED								
UCH-I GAS PROCESSING PLANT - ATA 2021 (INSTRUMENT SCOPE OF WORK)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	Qty	Unit Rate	Total cost
H2S Removal Plant Train – 10					Location			
1	10-PCV-1280	To record as found calibration data. Site calibration and integrity checks of actuator, positioner, I/P converter. Loop calibration through DCS.	Size: 10" CL 150 Fisher Control Valve	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, HART Communicator, consumables	REFLUX DRUM	1		
2	10-TCV-1112		Size: 4" CL 150 Fisher Control Valve		STEAM TO INLET GAS	1		
3	10-PCV-1106		Size: 6" CL 600 Fisher Control Valve		CONTACTOR OUTLET	1		
4	10-TCV-1254		Size: 8" CL 150 Fisher Control Valve		BYPASS OF STRIP EX.	1		
5	10-PCV-1103	Dismantling, shifting to W/S, body & trim inspection, lapping of plug/seat (if reqd.), hydro testing, replacement of kits, actuator integrity testing and calibration, service of pneumatic regulator, I/P converter & positioner. Inspection/testing of SOVs (if required). Loop testing with DCS. Replacement of Positioner if required	Size: 12" CL 600 AES(ROBOTARM)	Valve Lifting and shifting equipment, Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, HART Communicator, consumables	MAIN INLET	1		
6	10-LCV-1140		Size: 1" CL 600 Fisher Control Valve		CONTACTOR OUTLET	1		
7	10-LCV-1203		Size: 8" CL 150 Fisher Control Valve		FLASH DRUM O/L TO STRP.	1		
8	10-PCV-1200		Size: 4" CL 150 Fisher Control Valve		FLASH DRUM	1		
9	10-FCV-1133		Size: 6" CL 600 Fisher Control Valve		CIR PUMP TO CONTACTOR	1		
10	10-LCV-1136		Size: 6" CL 600 Fisher Control Valve		FLASH DRUM O-LET TO STR	1		
11	10-LCV-1276		Size: 2" CL 150 Control Valve Fisher		REFLUX DRUM LEVEL	1		
12	10-LCV-102		Size: 1" CL 600 Fisher Control Valve		P/W INLET GAS SEPARATOR	1		
13	10-LCV-104		Size: 1" CL 600 Fisher Control Valve		HC INLET GAS SEPARATOR	1		
14	10-LCV-9314		Size: 3" CL 150 Fisher Control Valve		STEAM CONDAN SATE POT	1		
15	10-FCV-9315		Size: 1- 1/2" CL 150 Fisher Control Valve		STEAM TO STRIPPER	1		
16	10-PCV-1217		Size: 2" Regulator, Make: Fisher		Surge Drum	1		
17	10-PCV-1218		Size: 2" Regulator, Make: Fisher		BLANKETING	1		

					REGULATOR			
18	10-SDV-101	Greasing, testing of loop & on/off position, verification of position switches, service of all local pneumatic regulators, loop testing, testing/overhauling of SOVs	Size: 1" CL 600 EL-O-MATIC	Grease Gun, all necessary tools for the job	INLET GAS SEPT	1		
19	10-SDV-102		Size: 1" CL 600 EL-O-MATIC		INLET GAS SEPT	1		
20	10-XSV-1101	Greasing, testing of loop & on/off position, verification of position switches, service of all local pneumatic regulators, loop testing, testing/overhauling of SOVs.	SIZE:12" CL 600 Rotork	Grease Gun, all necessary tools for the job	TREATED GAS OUTLET	1		
21	10-XSV-1102		SIZE:12" CL 600 Rotork		FEED GAS INLET	1		
22	10-XSV-1144		SIZE:10" CL 600 Rotork		AMINE CONTACTOR O/L	1		
23	10-PT-1103	Onsite pressure calibration, leak test of connectors, checking of isolating valves, loop verification.	Pressure Transmitter Rosemount		MAIN INLET	1		
24	10-PT-1106				FLARE INLET	1		
25	10-FT-1133	Dismantling, shifting to W/S, Record as found calibration data, Sensor and cleaning, Calibration, re-installation, leak test of connectors, checking of isolating valves, loop verification.	Flow Transmitter Rosemount	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, Resistance box, Pressure Calibrators Low Pressure and High Pressure Ranges.HART Communicator, consumables.	CIR PUMP TO CONT	1		
26	10-FT-1269				REF PMP TO STRPP	1		
27	10-FT-1107	Onsite calibration, leak test of connectors, checking of isolating valves, loop verification.	Flow Transmitter Rosemount		MAIN GAS INLET	1		
28	10-FT-9311	Dismantling, shifting to W/S, Record as found calibration data, Sensor and cleaning, Calibration, re-installation, leak test of connectors, checking of isolating valves, loop verification.	Flow Transmitter Rosemount		STEAM TO REBOILER	1		
29	10-FT-9315				STEAM TO STRIPPER	1		
30	10-DPT-1151	Onsite calibration, leak test of connectors, checking of isolating valves, loop verification.	DP Transmitter Rosemount		ACROSS CONTACTOR	1		
31	10-DPT-1292	Dismantling and overhauling if required			ACROSS STRIPPER	1		
32	10-LT-102	Level troll internal cleaning, Sensor inspection and setting, field signal electric connection checking, onsite calibration, verification and loop testing.	Level Transmitter Masoneilan	Spanners Set (In/mm) Screw Drivers Set Hex Key set. Multi-meter Pipe Wrench 18", 12"². Transparent nylon tube of 1" dia, 10 meter length.	INLET SEPERATOR P/W	1		
33	10-LT-104				INLET SEPERATOR H/C	1		
34	10-LT-1140				OVERHEAD SCRUBBER	1		
35	10-LT-1203				FLASH DRUM	1		
36	10-LT-1219				SURG DRUM	1		

37	10-LT-1276				REFLUX DRUM	1		
38	10-LT-9314				STEAM CONDENSATE POT	1		
39	10-LT-1136	Dismantling, shifting to W/S, Record as found calibration data, Sensor and cleaning, Calibration, re-installation, leak test of connectors, checking of isolating valves, loop verification.	Level Transmitter Rosemount	General Tool Kit. Pressure Calibrators. HART Communicator, consumables.	CONTACTOR	1		
40	10-LT-1250				STRIPPER	1		
41	10-TT-1139	Integrity testing of sensor, onsite calibration of transmitters, checking of electric signals and verification of complete loop.	RTDs	Spanners Set(In/mm) Screw Drivers Set Multimeter Temperature Bath (500DegF)	CONT.FL ASH DRUM	1		
42	10-TT-1253				STRIPPER TO XHE	1		
43	10-TT-1254				XHE TO STRIPPER	1		
44	10-TT-1264				STRIPPER TOP	1		
45	DPI-10	Dismantling, shifting to W/S, Record as found calibration data, Sensor and cleaning, Calibration, re-installation, leak test of connectors, checking of isolating valves, loop verification.	Transmitter Rosemount	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, Resistance box, Pressure Calibrators Low Pressure and High Pressure Ranges.HART Communicator, consumables.	H2S Train 10 (Coalescer Filters Train 10/)	1		
H2S Removal Plant Train – 20					Location			
46	20-PCV-2280	To record as found calibration data. Site calibration and integrity checks of actuator, positioner, I/P converter. Loop calibration through DCS. Provide soft and hard copies of assignments.	Size: 10" CL 150 Fisher Control Valve	Screw Driver Set,	REFLUX DRUM	1		
47	20-TCV-2112		Size: 4" CL 150 Fisher Control Valve	Terminal Screw Drivers, Spanner Set mm/Inch,	STEAM TO INLET GAS	1		
48	20-TCV-2254		Size: 6" CL 600 Fisher Control Valve	Multimeter, mA Current Source, HART Communicator	BYPASS OF STRIP EX.	1		
49	20-PCV-2106		Size: 8" CL 150 Fisher Control Valve	, consumables	CONTACTOR OUTLET	1		
50	20-PCV-2103	Dismantling, shifting to W/S, body & trim inspection, lapping of plug/seat (if reqd.), hydro testing, replacement of kits, actuator integrity testing and calibration, service of pneumatic regulator, I/P converter &	Size: 12" CL 600 AES(ROBOTARM)	Valve Lifting and shifting equipment,	MAIN INLET	1		
51	20-LCV-2140		Size: 1" CL 600 Fisher Control Valve	Screw Driver Set, Terminal	CONTACTOR OUTLET	1		
52	20-LCV-2203		Size: 8" CL 150 Fisher Control Valve	Screw Drivers, Spanner Set mm/Inch, Multimeter,	FLASH DRUM O/L TO STRP.	1		

53	20-PCV-2200	positioner. Inspection/testing of SOVs (if required). Loop testing	Size: 4" CL 150 Fisher Control Valve	mA Current Source, HART	FLASH DRUM	1		
54	20-FCV-2133	with DCS, Replacement of Positioner if required	Size: 6" CL 600 Fisher Control Valve	Communicator , consumables	CIR PUMP TO CONTAC TOR	1		
55	20-LCV-2136		Size: 6" CL 600 Fisher Control Valve		FLASH DRUM O-LET TO STR	1		
56	20-LCV-2276		Size: 2" CL 150 Control Valve Fisher		REFLUX DRUM LEVEL	1		
57	20-LCV-102		Size: 1" CL 600 Fisher Control Valve		P/W INLET GAS SEPARAT OR	1		
58	20-LCV-104		Size: 1" CL 600 Fisher Control Valve		HC INLET GAS SEPARAT OR	1		
59	20-LCV-9514		Size: 3" CL 150 Fisher Control Valve		STEAM CONDAN SATE POT			
60	20-FCV-9515	Dismantling, shifting to W/S, body & trim inspection, lapping of plug/seat (if reqd.),	Size: 1- 1/2" CL 150 Fisher Control Valve	Valve Lifting and shifting equipment,	STEAM TO STRIPPER			
61	20-PCV-2217	hydro testing, replacement of kits,	Size: 2" Regulator, Make: Fisher	Screw Driver Set, Terminal Screw Drivers,				
62	20-PCV-2218	actuator integrity testing and calibration, service of pneumatic regulator, I/P converter & positioner. Inspection/testing of SOVs (if required). Loop testing with DCS, Replacement of Positioner if required	Size: 2" Regulator, Make: Fisher	Spanner Set mm/Inch, Multimeter, mA Current Source, HART Communicator , consumables	BLANKET ING REGULAT OR	1		
63	20-SDV-101	Greasing, testing of loop & on/off position, verification of position switches, service of all	Size: 1" CL 600 EL- O-MATIC	Grease Gun, all necessarytools for the job	INLET GAS SEPT	1		
64	20-SDV-102	local pneumatic regulators, loop testing, testing/overhauling of SOVs.	Size: 1" CL 600 EL- O-MATIC		INLET GAS SEPT	1		
65	20-XSV-2101	Greasing, testing of loop & on/off position, verification of position switches, service of all	SIZE:12" CL 600 Rotork	Grease Gun, all necessarytools for the job	TREATED GAS OUTLET	1		
66	20-XSV-2102	local pneumatic regulators, loop testing, testing/overhauling of	SIZE:12" CL 600 Rotork		FEED GAS INLET	1		
67	20-XSV-2144	SOVs.	SIZE:10" CL 600 Rotork		AMINE CONTAC TOR O/L	1		
68	20-PT-2103	Onsite pressure calibration, leak test of connectors, checking of	Pressure Transmitter Rosemount	Screw Driver Set, Terminal Screw Drivers, Spanner Set	MAIN INLET	1		
69	20-PT-2106	isolating valves, loop verification.			FLARE INLET	1		

		Dismantling and overhauling if required.		mm/Inch, Multimeter,				
70	20-FT-2133	Dismantling, shifting to W/S, Record as found calibration data, Sensor and cleaning,	Flow Transmitter Rosemount	mA Current Source, Resistance box, Pressure Calibrators Low Pressure and High Pressure Ranges. HART Communicator, consumables.	CIR PUMP TO CONT	1		
71	20-FT-2269	Calibration, re-installation, leak test of connectors, checking of isolating valves, loop verification.			REF PMP TO STRPP	1		
72	20-FT-2107	Onsite calibration, leak test of connectors, checking of isolating valves, loop verification. Dismantling, Sensor cleaning or replacement if required.			Flow Transmitter Rosemount	MAIN GAS INLET	1	
73	20-FT-9511	Dismantling, shifting to W/S, Record as found calibration data, Sensor and cleaning, Calibration, re-installation, leak test of connectors, checking of isolating valves, loop verification.	Flow Transmitter Rosemount		STEAM TO REBOILER	1		
74	20-FT-9515	re-installation, leak test of connectors, checking of isolating valves, loop verification.			STEAM TO STRIPPER	1		
75	20-DPT-2151	Onsite calibration, leak test of connectors, checking of isolating valves, loop verification.			Diff Pressure Transmitters Rosemount	ACROSS CONTACTOR	1	
76	20-DPT-2292	checking of isolating valves, loop verification.	ACROSS STRIPPER	1				
77	20-LT-102	Level troll internal cleaning, Sensor inspection and setting, field signal electric connection checking, onsite calibration, loop testing.	Level Transmitter Masoneilan	Spanners Set (In/mm) Screw Drivers Set Hex Key set. Multi-meter Pipe Wrench 18", 12". Transparent nylon tube of 1" dia, 10 meter length.	INLET SEPERATOR P/W	1		
78	20-LT-104				INLET SEPERATOR H/C	1		
79	20-LT-2140				OVERHEAD SCRUBBER	1		
80	20-LT-2203				FLASH DRUM	1		
81	20-LT-2219				SURG DRUM	1		
82	20-LT-2276				REFLUX DRUM	1		
83	20-LT-9514				STEAM CONDENSATE POT	1		
84	20-LT-2136				Dismantling, shifting to W/S, Record as found calibration data, Sensor and cleaning,	Level Transmitter Rosemount	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source,	CONTACTOR
85	20-LT-2250	Calibration, re-installation, leak test of connectors, checking of isolating valves, loop verification.	STRIPPER	1				

86	20-LT-9501	Onsite calibration, leak test of connectors, checking of isolating valves, loop verification. Dimantling, Sensor cleaning or replacement if required.		Resistance box, Pressure Calibrators Low Pressure and High Pressure Ranges.HART Communicator , consumables.		1		
87	20-TT-2139	Integrity testing of sensor, onsite calibration of transmitters, checking of electric signals and verification of complete loop.	RTDs	Spanners Set(In/mm) Screw Drivers Set Multi-meter, Temperature Bath (500DegF)	CONT.FL ASH DRUM	1		
88	20-TT-2253				STRIPPER TO XHE	1		
89	20-TT-2254				XHE TO STRIPPER	1		
90	20-TT-2264				STRIPPER TOP	1		
91	DPI-20	Dismantling, shifting to W/S, Record as fond calibration data, Sensor and cleaning, Calibration, re-installation, leak test of connectors, checking of isolating valves, loop verification.	Transmitter Rosemount	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, Resistance box, Pressure Calibrators Low Pressure and High Pressure Ranges.HART Communicator , consumables.	H2S Train Train 20 (Coaleser Filters Train 20)	1		
Dehydration Train - 10					Location			
92	10-PCV-100	To record as found calibration data. Site calibration and integrity checks of actuator, positioner, I/P converter. Loop calibration through DCS. Provide soft and hard copies of assignments. Replacement of Poritioner if required	Size: 12" CL 600 Fisher Control Valve	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, HART Communicator , consumables	DEHY O/L TO SALE GAS	1		
93	10-PCV-111		Size: 6" CL 600 Fisher Control Valve		SCRUBBER OUT TO FLARE	1		
94	10-PCV-215		Size: 1" CL 150 Fisher Control Valve		FLASH DRUM TO FLARE	1		
95	10-LCV-108		Size: 1" CL 600 Fisher Control Valve		INTEGRAL SCRUBBER	1		
96	10-LCV-112		Size: 1- 1/2" CL 600 Fisher Control Valve		GLYCOL CONTACTOR	1		
97	10-LCV-208		Size: 1- 1/2" CL 150 Fisher Control Valve		FLASH DRUM	1		
98	10-TCV-200		Size: 4" CL 300 Fisher Control Valve		STEAM LINE TO REBOILE	1		

		Portioner if required			R			
99	10-LCV-108		Size: 1" CL 600 Fisher Control Valve		INTEGRA L SCRUBBE R	1		
100	10-FT-100	Onsite calibration, leak test of connectors, checking of isolating valves, loop verification. Dismantelling, Sensor cleaning, replacement if required	Transmitter Rosemount	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, Resistance box, Pressure Calibrators Low Pressure and High Pressure Ranges.HART Communicator , consumables.	DEHY INLET	1		
101	10-FT-101A				DEHY OUTLET	1		
102	10-FT-101B				DEHY OUTLET	1		
103	10-FT-200				DEHY REBOILE R	1		
104	10-FT-201				GLYCOL PUM OUTLET	1		
105	10-LT-206				SURGE DRUM	1		
106	10-DPT-107				CONTAC TOR	1		
107	10-DPT-213	Dismantling, shifting to W/S, Record as fond calibration data, Sensor and cleaning, Calibration, re-installation, leak test of connectors, checking of isolating valves, loop verification.			CARTRID GE FILTER	1		
108	10-DPT-214				CHARCO L FILTER	1		
109	10-PT-201	Onsite calibration, leak test of connectors, checking of isolating valves, loop verification.			REBOILE R PRESSUR E	1		
110	10-PT-203	Dismantelling, Sensor cleaning, replacement if required			REBOILE R.INLET	1		
111	10-PT-215				FLASH DRUM	1		
112	10-PT-100	Onsite calibration, leak test of connectors, checking of isolating valves, loop verification. Dismantelling, Sensor cleaning, replacement if required	Transmitter Rosemount	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, Resistance box, Pressure Calibrators Low Pressure and High Pressure Ranges.HART Communicator , consumables.	SYSTEM PRESSUR E	1		
113	10-PT-109				SALE GAS	1		
114	10-PT-212				GLYCOL PUMP OUTLET	1		
115	10-LT-108	On Site Level troll internal Cleaning, Sensor cleaning and setting, Field signal electric connection	Level Troll Masoneilan	Spanners Set (In/mm),Screw Drivers Set, Hex Key set, Multi- meter, Pipe Wrench 18", 12",	INTEGRA L SCRUBBE R	1		
116	10-LT-112	checking, Calibration verifications, loop testing.			GLYCOL CONTAC TOR	1		

117	10-LT-116			Transparent nylon tube of 1" dia, 10 meter length.	O/ HEAD SCRUBBER	1		
118	10-LT-208				FLASH DRUM	1		
119	10- SDV-103	Greasing, Testing of loop & On/ Off position, Verification of Position Switches, Testing/Overhauling Of SOVs, service of all local Pneumatic regulators.	Size: 10" CL 600 LEDEEN ITALIA	Crane, Spanner Set mm/Inch, Screw Driver Set, General Tools.	MAIN INLET	1		
120	10- SDV-104		Size: 2" CL 600 EL-O-MATIC		CONTAC TOR.OUTLET	1		
121	10- SDV-105		Size: 10" CL 600 LEDEEN ITALIA		SALE GAS LINE	1		
Dehydration Train - 20					Location			
122	20-PCV-100	To record as found calibration data. Site calibration and integrity checks of actuator, positioner, I/P converter. Loop calibration through DCS. Provide soft and hard copies of assignments. Replacement of Poritioner if required	Size: 12" CL 600 Fisher Control Valve	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, HART Communicator, consumables	DEHY O/L TO SALE GAS	1		
123	20-PCV-111		Size: 6" CL 600 Fisher Control Valve		SCRUBBER OUT TO FLARE	1		
124	20-PCV-215		Size: 1" CL 150 Fisher Control Valve		FLASH DRUM TO FLARE	1		
125	20-LCV-108	Dismantling, shifting to W/S, body & trim inspection, lapping of plug/seat (if reqd.), hydro testing, replacement of kits, actuator integrity testing and calibration, service of pneumatic regulator, I/P converter & positioner. Inspection/testing of SOVs (if required). Loop testing with DCS.Replacement of Poritioner if required	Size: 1" CL 600 Fisher Control Valve	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, HART Communicator, consumables	INTEGRAL SCRUBBER	1		
126	20-LCV-112		Size: 1- 1/2" CL 600 Fisher Control Valve		GLYCOL CONTACTOR	1		
127	20-LCV-208		Size: 1- 1/2" CL 150 Fisher Control Valve		FLASH DRUM	1		
128	20-TCV-200		Size: 4" CL 300 Fisher Control Valve		STEAM LINE TO REBOILER	1		
129	20-LCV-108		Size: 1" CL 600 Fisher Control Valve		INTEGRAL SCRUBBER	1		
130	20-FT-100	Onsite calibration, leak test of connectors, checking of isolating valves, loop verification. Dismantling, Sensor cleaning, replacement if required	Transmitter Rosemount	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, Resistance box, Pressure Calibrators Low Pressure and High Pressure Ranges.HART Communicator, consumables.	DEHY INLET	1		
131	20-FT-101A				DEHY OUTLET	1		
132	20-FT-101B				DEHY OUTLET	1		
133	20-FT-200				DEHY REBOILER	1		
134	20-FT-201				GLYCOL PUM OUTLET	1		
135	20-LT-206				SURGE DRUM	1		
136	20-DPT-107				CONTACTOR	1		
137	20-DPT-213				Dismantling, shifting to W/S, Record as found calibration data, Sensor			CARTRIDGE FILTER

138	20-DPT-214	and cleaning, Calibration, re-installation, leak test of connectors, checking of isolating valves, loop verification.			CHARCO L FILTER	1		
139	20-PT-201	Onsite calibration, leak test of connectors, checking of isolating valves, loop verification.			REBOILER PRESSURE	1		
140	20-PT-203	Dismantling, Sensor cleaning, replacement if required			REBOILER INLET	1		
141	20-PT-215				FLASH DRUM	1		
142	20-PT-100	Onsite calibration, leak test of connectors, checking of isolating valves, loop verification.	Transmitter Rosemount	Same As Job No. 3	SYSTEM PRESSURE	1		
143	20-PT-109	Dismantling, Sensor cleaning, replacement if required			SALE GAS	1		
144	20-PT-212				GLYCOL PUMP OUTLET	1		
145	20-LT-108	On Site Level troll internal Cleaning, Sensor cleaning and setting, Field signal electric connection checking, Calibration verifications, loop testing.	Level Troll Masoneilan	Spanners Set (In/mm) Screw Drivers Set Hex Key set. Multi-meter Pipe Wrench 18", 12"². Transparent nylon tube of 1" dia, 10 meter length.	INTEGRAL SCRUBBER	1		
146	20-LT-112				GLYCOL CONTACTOR	1		
147	20-LT-116				O/ HEAD SCRUBBER	1		
148	20-LT-208				FLASH DRUM	1		
149	20- SDV-103	Greasing, Testing of loop & On/ Off position, Verification of Position	Size: 10" CL 600 LEDEEN ITALIA	Crane, Spanner Set mm/Inch, Screw Driver Set, General Tools.	MAIN INLET	1		
150	20- SDV-104	Switches, Testing/Overhauling Of SOVs, service of all local Pneumatic regulators.	Size: 2" CL 600 EL-O-MATIC		CONTACTOR. OUTLET	1		
151	20- SDV-105		Size: 10" CL 600 LEDEEN ITALIA		SALE GAS LINE	1		
Dehydration Train - 30					Location			
152	30-PCV-100	To record as found calibration data. Site calibration and integrity checks of actuator, positioner, I/P converter. Loop calibration through DCS. Provide soft and hard copies of assignments. Replacement of Poritioner if required	Size: 12" CL 600 Fisher Control Valve	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, HART Communicator, consumables	DEHY O/L TO SALE GAS	1		
153	30-PCV-111		Size: 6" CL 600 Fisher Control Valve		SCRUBBER OUT TO FLARE	1		
154	30-PCV-215		Size: 1" CL 150 Fisher Control Valve		FLASH DRUM TO FLARE	1		
155	30-LCV-108		Size: 1" CL 600 Fisher Control Valve		INTEGRAL SCRUBBER	1		
156	30-LCV-112		Size: 1- 1/2" CL 600 Fisher Control Valve		GLYCOL CONTACTOR	1		
157	30-LCV-208		Size: 1- 1/2" CL 150 Fisher Control Valve		FLASH DRUM	1		

158	30-TCV-200		Size: 4" CL 300 Fisher Control Valve		STEAM LINE TO REBOILER	1		
159	30-LCV-108		Size: 1" CL 600 Fisher Control Valve		INTEGRAL SCRUBBER	1		
160	30-FT-100	Onsite calibration, leak test of connectors, checking of isolating valves, loop verification. Dismantling, Sensor cleaning and replacement if required.	Transmitter Rosemount	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, Resistance box, Pressure Calibrators Low Pressure and High Pressure Ranges.HART Communicator, consumables.	DEHY INLET	1		
161	30-FT-101A				DEHY OUTLET	1		
162	30-FT-101B				DEHY OUTLET	1		
163	30-FT-200				DEHY REBOILER	1		
164	30-FT-201				GLYCOL PUM OUTLET	1		
165	30-LT-206				SURGE DRUM	1		
166	30-DPT-107				CONTACTOR	1		
167	30-DPT-213				CARTRIDGE FILTER	1		
168	30-DPT-214				CHARCOAL FILTER	1		
169	30-SDV-103	Greasing, Testing of loop & On/ Off position,	Size: 10" CL 600 LEDEEN ITALIA	Crane, Spanner Set mm/Inch, Screw Driver Set, General Tools.	MAIN INLET	1		
170	30-SDV-104	Verification of Position Switches, Testing/Overhauling Of	Size: 2" CL 600 EL-O-MATIC		CONTACTOR.OUTLET	1		
171	30-SDV-105	SOVs, service of all local Pneumatic regulators.	Size: 10" CL 600 LEDEEN ITALIA		SALE GAS LINE	1		
Uch-I DCS								
172	DCS	On Site Technical/Engineering Services of ABB Lahore for 07 Day. Scope of Work: General Checks for Health Status. Addition of Digital and Analogue Loops.(Only Software Part). Added loops Hard Wiring: Out of Scope. Minor Changes on HMI. Software Backups of Servers and Controller.	Back End: Infi-90 DCS Front End: 800xA	ABB Software tools	DCS			
LP Boilers 1 & 2					Location			
173	FCV-8062 (Both boilers)	To record as found calibration data. Site calibration and integrity checks of actuator, positioner, I/P converter. Loop calibration through DCS. Provide soft and hard copies of assignments. Replacement of Positioner if required	Size: 6" CL 150 Fisher Control Valve	Valve Lifting and shifting equipment, Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, HART Communicator, consumables	FUEL GAS BURNER	2		

174	LCV-8048 (Both boilers)	To record as found calibration data. Site calibration and integrity checks of actuator, positioner, I/P converter. Loop calibration through DCS. Provide soft and hard copies of assignments. Replacement of Positioner if required	Size: 3" CL 300 Fisher Control Valve	All necessary tools	FEED WATER IN LET	2		
175	PCV-8063 (Both boilers)	Dismantling, shifting to W/S, Inspection of Trim and cleaning, reassembling and testing.	Size: 6" Fisher Regulator	Screw Driver Set, Spanner Set mm/Inch, Hex Key Set, Consumables	GAS FUEL TRAIN	2		
176	LGP	Inspection & Calibration of Switch, Verification of Electrical Connections, inspection of loop,	Pressure Switches	Spanners Set (In/mm) Screw Drivers Set, Hex Key Set Multi-meter Pressure Calibrator/Dead Weight Tester (300 Psi).	SWITCH, LOW GAS PRESSURE	2		
177	HGP				SWITCH HIGH GAS PRESS.	2		
178	HFP				SWITCH HIGH FURNACE PRESS	2		
179	AS				SWITCH LOW COMB. Air Press.	2		
180	IAP				SWITCH LOW INST. AIR PRESS.	2		
181	HSP	Inspection & Calibration of Switch, Verification of Electrical Connections, inspection of loop	Pressure Switches	Spanners Set (In/mm) Screw Drivers Set, Hex Key Set Multi-meter Pressure Calibrator/Dead Weight Tester (300 Psi).	SWITCH, HIGH STEM PRESS	2		
182	EHSP				SWITCH, EXCESS high steam press	2		
183	(Both boilers)					2		
184	WLS (Both boilers)	Dismantling, shifting to W/S, cleaning of float and internal body, re-	Float type level switch	Screw Driver Set, Spanner Set, Hex Key Set, Consumables	SWITCH, WATER LEVEL	2		
185	Low Cutout, Low Alarm, High alarm (Both boilers)	installation, Testing of operation, leak test of connectors, checking of isolating valves, loop verification.	Conductive Probe type Level Detector	Screw Driver Set, Spanner Set, Hex Key Set, Consumables	DRUM LEVEL	2		
186	PCV-9802	The loop test and Calibration, at location is required only. With I/P converter & Positioner	Size: 16" CL 150 Fisher Control Valve	General Calibration Tools	LP STEAM HEADER	1		
187	LT	Dismantling, shifting to W/S, Record as found calibration data,	Level Transmitter	General Calibration	DRUM LEVEL	2		

		Sensor and cleaning, Calibration, re-installation, leak test of connectors, checking of isolating valves, loop verification.		Tools				
188	FT		Flow Transmitter	General Calibration Tools	FUEL GAS LINE	2		
189	PT-9802	On Site setting, Calibration, Field signal electric connection, Leak test of connectors. Checking of isolating valves, Loop verification	Press Transmitter	General Calibration Tools	LP STEAM HEADER	1		
LP Boilers 3					Location			
190	LCV-101	Record of as found calibration data, site calibration, Actuator, Positioner, I/P Converter testing and replacement if required. Loop Test with HMI at Local and Boiler operator room.	Size: 4" CL 300 ARCA REGLER	General Calibration Tools	LEVEL CONTROL VALVE	1		
191	FCV-301		Size: 8" CL 150 PARCOL		GAS FLOW CONTROL VALVE	1		
192	PCV-301		Size: 6" CL 150 PARCOL		GAS PRESSURE CONTROL VALVE	1		
193	PSH-101				BOILER DRUM VERY HIGH PRESSURE (PRESSURE SWITCH)	1		
194	LSSL-101	Inspection & Calibration of Switch, Verification of Electrical Connections, inspection of loop,	Switches	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Pressure Calibrators Low Pressure and High Pressure Ranges.HART Communicator, consumables.	BOILER DRUM VERY LOW LEVEL (LEVEL SWITCH)	1		
195	LSL-101				BOILER DRUM LOW LEVEL (LEVEL SWITCH)	1		
196	LSH-101				BOILER DRUM HIGH LEVEL (LEVEL SWITCH)	1		
197	PSL-202				Inspection & Calibration of Switch, Verification of Electrical Connections, inspection of loop,	Switches	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Pressure Calibrators Low Pressure and High Pressure Ranges.HART Communicator, consumables.	INSTRUMENT AIR VERY LOW PRESSURE (PRESSURE SWITCH)
198	PSLL-301	GAS VERY LOW PRESSURE (PRESSURE SWITCH)	1					

					URE SWITCH)			
199	PSHH-301				GAS VERY HIGH PRESSURE(PRESSURE SWITCH)	1		
200	PSL-101				PRESSURE SWITCH	1		
201	LT-101	Dismantling, shifting to W/S, Record as fond calibration data, Sensor and cleaning, Calibration, re-installation, leak test of connectors, checking of isolating valves, loop verification.	Level Transmitter	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Pressure Calibrators Low Pressure and High Pressure Ranges.HART Communicator, consumables.	UPPER STEAM DRUM LEVEL TRANSMITTER	1		
202	FT-101		Flow Transmitter		FLOW TRANSMITTER	1		
203	FT-102		Flow Transmitter		STEAM FLOW TRANSMITTER	1		
204	PT-101	On Site setting, Calibration, Field signal electric connection, Leak test of connectors. Checking of isolating valves, Loop verification	Transmitters	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, Resistance box, Pressure Calibrators Low Pressure and High Pressure Ranges.HART Communicator, consumables.	UPPER STEAM DRUM PRESSURE TRANSMITTER	1		
205	PT-201				PRESSURE TRANSMITTER	1		
206	FT-201				COMBUSTION AIR FLOW TRANSMITTER	1		
207	AT-201				OXYGEN TRANSMITTER	1		
208	PT-301				GAS PRESSURE TRANSMITTER	1		
209	PT-302				GAS PRESSURE TRANSMITTER	1		
210	FT-301				GAS FLOW TRANSMITTER	1		
211	TT-301				GAS TEMPERATURE TRANSMITTER	1		

212	SDV-301		Size: 8" CL 150 VALBIA		MAIN GAS SHUT- OFF VALVE (SDV)	1		
213	SDV-302		Size: 2" CL 150 ADLER		MAIN GAS VENT VALVE (SDV)	1		
214	SDV-303	Inspection, Functional Testing & Calibration of Switch, Service/overhauling/parts replacement if required. Verification of Electrical Connections, inspection of loop,	Size: 8" CL 150 VALBIA	Screw Driver Set, Multimeter, Consumables	BURNER GAS SHUT- OFF- VALVE (SDV)	1		
215	XV-304		SOV		PILOT GAS VENT VALVE (SOV)	1		
216	XV-305		SOV		PILOT GAS VENT VALVE (SOV)	1		
217	XV-306		SOV		PILOT GAS SHUT- OFF VALVE (SOV)	1		
Deaerator					Location			
218	LV-9110	To record as found calibration data. Site calibration and integrity checks of actuator, positioner, I/P converter. Loop calibration through DCS. Provide soft and hard copies of assignments. Replacement of Positioner if required	Size: 1-1/2" CL 150 SPIRAX SARCO	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, HART Communicator , consumables	SOFT WATER TO DEAERAT OR	1		
219	PV-9101		Size: 1-1/2" CL 150 SPIRAX SARCO		SATURAT ED STEAM I/ LET	1		
220	LT-9110	On Site Level troll internal Cleaning, Sensor cleaning and setting, Field signal electric connection checking, Calibration verifications, loop testing.	Level Troll Magnitroll	General Tools for LT Calibrations.	DEAERAT OR LEVEL	1		
221	PT-9101	On Site setting, Calibration, Field signal electric connection, Leak test of connectors. Checking of isolating valves, Loop verification	Press Transmitter Rosemount	General Tools for PT Calibrations.	DEAERAT OR PRESSUR E	1		
222	TT-9101	Inspection of sensor, Hydro test of thermo well. Calibration of Transmitters,. Checking of electric signals and verification of complete loop.	Temp Transmitter Rosemount	General Tools for TT Calibration, Temp Bath 500 Deg F	DEAERAT OR	1		
Fuel Gas Skid					Location			
223	PCV-9601	To record as found calibration data. Site calibration and	Size: 3" CL 600 Fisher	Screw Driver Set, Terminal	RAW GAS TO	1		

		integrity checks of actuator, positioner, I/P converter. Loop calibration through DCS.	Control Valve	Screw Drivers, Spanner Set mm/Inch,	HP SCRUBBER			
224	PCV-9603	Provide soft and hard copies of assignments. Replacement of Positioner if required	Size: 4" CL 600 Fisher Control Valve	Multimeter, mA Current Source, HART Communicator, consumables	HP. SCRUBBER INLET	1		
225	PCV-9615		Size: 4" CL 300 Fisher Control Valve		LP. SCRUBBER INLET	1		
226	PT-9601			Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch,	RAW GAS TO HP SCRUBBER	1		
227	PT-9603			Multimeter, mA Current Source,	HP. SCRUBBER INLET	1		
228	PT-9615	Sensor cleaning and setting, Calibration, Field signal electric connection checking, leak test of connectors. Checking of isolating valves, Loop verification	Press. Transmitter Rosemount	Resistance box, Pressure Calibrators Low Pressure and High Pressure Ranges. HART Communicator, consumables.	LP. SCRUBBER INLET	1		
229	TE-9613	Inspection of sensor, Calibration of	Temp. Transmitter Rosemount	Temp Bath, General Tools	TO HP BOILER	1		
230	TE-9616	Transmitters, Checking of electric signals and verification of complete loop.			TO LP FUEL	1		
231	FT-9612		Flow Transmitter Rosemount	Pressure Calibrator, General Tools	HP. OUTLET TO HP BOILER	1		
232	FT-9617	On Site setting, Calibration, Field signal electric connection, Leak test of connectors. Checking of isolating valves, Loop verification			LP. OUTLET TO UTILITIES	1		
233	XSV-9602	Greasing, Testing of loop & On/Off position, Verification of Position Switches, Testing/Overhauling of SOVs,	SIZE:8" CL 600 Rotork	General Tools	MAIN INLET TO FUEL GAS SKID	1		
234	90-LCV-9609	To record as found calibration data. Site calibration and integrity checks of	Size: 1" CL 300 Fisher Dump Valve	General Tools	HP Scrubber	1		
235	90-LCV-9622	actuator, positioner, I/P converter. Loop calibration through DCS. Provide soft and hard copies of assignments. Replacement of Positioner if required	Size: 1" CL 150 Fisher Dump Valve	General Tools	LP Scrubber	1		
HP Boiler					Location			
236	PSL- N/A				FUEL GAS LINE	1		
237	PSH- N/A	Inspection of sensor, tubing/ electric connections. Calibration of switch, Inspection of loop	Pressure Switch	Pressure Calibrator, General Tools	FUEL GAS LINE	1		
238	PSL-1045				COOLING AIR	1		
239	PSHH- N/A				STEAM PRESS	1		

240	PCV Control Valve Valtek	On site calibration of positioner / Convertor and valve Calibration, Loop Calibration/ Test	Size: 3" CL 150 Valtek Valve	General Tools	FUEL GAS LINE (VALTEK)	1		
241	FT-911	Sensor cleaning, inspection of electric signal and connections. Verification of operating parameters and calibration, loop test. Replacement of damaged and choked tubes. Leak test of joints and connectors.	Transmitters	General calibration Equipment/Tools	STEAM FLOW	1		
242	LT-910				DRUM LEVEL	1		
243	PT-910	On Site Calibration, Checking of isolating valves, Loop verification	Transmitters	General calibration Equipment/Tools	STEAM PRESSURE	1		
244	LSLL	Inspection & Cleaning of Float, Verification of Security.	Level Switch	General Tools	DRUM LEVEL	1		
245	LCV (Feed Water)	Onsite Calibration	Size: 1-1/2" CL 300 Melso Control Valve					
Incinerator					Location			
246	PDSLL-9951	INSPECTION, CALIBRATION & MAINTENAINCE JOB (If Reqd)	PDSLL-9951	General calibration Equipment/Tools	AIR DAMPERS	1		
247	PDSLL- 9950		PDSLL- 9950			1		
248	TCV- 9917	INSPECTION, CALIBRATION & MAINTENAINCE JOB (If Reqd) Body Hydro test in Workshop	SIZE: 4" CL 150 WORCESTER	General calibration Equipment/Tools	GAS FUEL LINE	1		
249	TT- 9917	INSPECTION, CALIBRATION & MAINTENAINCE (If Reqd)		General Tools	CONTROL CABINET	1		
250	XSV- 9933	Dismantling, Shifting To W/S, Body & Trim inspection, Lapping of Plug/Seat (If Reqd.) Replacement of kits, Actuator integrity, Hydro test, Calibration, Shifting to location, Re- Installation, loop test, service of all local Pneumatic regulators, I/P Converters & Positioner. Painting Body as actual color arranged by Contractor.	SIZE: 1-1/2" CL 150 MAXON	Grease Gun, General Tools.	FLASHGASTO INCINERATOR	1		
251	XSV- 9935		SIZE: 1-1/2" CL 150 MAXON		FLASHGASTO INCINERATOR	1		
252	Actuators & Positioner	Inspection / Testing / Position Verification Any Maintenance Job If Required	Actuators & Positioner	General Tools	DAMPERS	1		
253	PSLL-9912	Inspection & Calibration Of Switch, Verification of Electrical Connections, inspection of loop,	PSLL-9912	General calibration Equipment/Tools	FUEL GAS TO INCINERATOR	1		
254	PSHH-9918		PSHH-9918		FUEL GAS TO INCINERATOR	1		
Cooling Tower					Location			

255	FCV- 9803	To record as found calibration data. Site calibration and integrity checks of actuator, positioner, I/P converter. Loop calibration through DCS. Provide soft and hard copies of assignments. Replacement of Positioner if required	Size: 4" CL 150 Fisher Control Valve	Scrwe Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, HART Communicator , consumables	COOLING TOWER BLOW DOWN	1		
256	LT-9801	Onsite calibration, leak test of connectors, checking of isolating valves, loop verification.	Level Transmitter Masoneilan	Spanners Set (In/mm) Screw Drivers Set Hex Key set. Multi-meter Pipe Wrench 18", 12"². Transparent nylon tube of 1" dia, 10 meter length.	COOLING WATER MAKE-UP (BASIN)	1		
257	LCV-9801	To record as found calibration data. Site calibration and integrity checks of actuator, positioner, I/P converter. Loop calibration through DCS. Provide soft and hard copies of assignments. Replacement of Positioner if required	Size: 6" CL 150 Fisher Control Valve	Scrwe Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Multimeter, mA Current Source, HART Communicator , consumables	COOLING WATER MAKE-UP	1		
258	FT- 9803	Sensor cleaning and setting, Field signal electric connection checking, Calibration verifications, loop testing. Checking of isolating valves	Flow Transmitter Rosemount	General calibrbtion Equipment/Tools	COOLING TOWER BLOW DOWN	1		
259	FT-9805				COOLING WATER MAKE-UP	1		
260	FT-9809				COOLING TOWER SUPPLY	1		
261	PT-9813	On Site Level troll internal Cleaning, Sensor cleaning and setting, Field signal electric connection checking, Calibration verifications, loop testing. Checking of isolating valves	Press. Transmitter Rosemount	General calibrbtion Equipment/Tools	COOLING TOWER SUPPLY	1		
Water Treatment Plant					Location			
262	KV-9001-A	Dismantling, Shifting to W/S Inspection and cleaning of respective SOVs, Body, Disc and Seal Inspection, Checking the integrity of actuator, Cleaning/overhauling of Manual Override, Shifting to location, Re-Installation, On/Off Testing	Size: 6" Butterfly Valves	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Hex Key Set	PRESS.FI LTERS A	1		
263	KV-9002-A				PRESS.FI LTERS A	1		
264	KV-9003-A				PRESS.FI LTERS A	1		
265	KV-9004-A				PRESS.FI LTERS A	1		
266	KV-9005-A				PRESS.FI LTERS A	1		
267	KV-9006-A				PRESS.FI LTERS A	1		

268	KV-9009-A				PRESS.FI LTERS A	1		
269	KV-9027-A				PRESS.FI LTERS A	1		
270	KV-9001-B	Dismantling, Shifting to W/S Inspection and cleaning of respective SOVs, Body, Disc and Seal Inspection, Checking the integrity of actuator, Cleaning/overhauling of Manual Override, Shifting to location, Re- Installation, On/Off Testing	Size: 6" Butterfly Valves	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Hex Key Set	PRESS.FI LTERS B	1		
271	KV-9002-B				PRESS.FI LTERS B	1		
272	KV-9003-B				PRESS.FI LTERS B	1		
273	KV-9004-B				PRESS.FI LTERS B	1		
274	KV-9005-B				PRESS.FI LTERS B	1		
275	KV-9028-A				SIDE STREAM FILTERS A	1		
276	KV-9029-A	Dismantling, Shifting to W/S Inspection and cleaning of respective SOVs, Body, Disc and Seal Inspection, Checking the integrity of actuator, Cleaning/overhauling of Manual Override, Shifting to location, Re- Installation, On/Off Testing	Size: 6" Butterfly Valves	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Hex Key Set	SIDE STREAM FILTERS A	1		
277	KV-9030-A				SIDE STREAM FILTERS A	1		
278	KV-9033-A				SIDE STREAM FILTERS A	1		
279	KV-9034-A				SIDE STREAM FILTERS A	1		
280	KV-9028-B				SIDE STREAM FILTERS B	1		
281	KV-9029-B	Dismantling, Shifting to W/S Inspection and cleaning of respective SOVs, Body, Disc and Seal Inspection, Checking the integrity of actuator, Cleaning/overhauling of Manual Override, Shifting to location, Re- Installation, On/Off Testing	Size: 6" Butterfly Valves	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Hex Key Set	SIDE STREAM FILTERS B	1		
282	KV-9030-B				SIDE STREAM FILTERS B	1		
283	KV-9031-B				SIDE STREAM FILTERS B	1		
284	KV-9028-C				SIDE STREAM FILTERS C.	1		
285	KV-9029-C				SIDE STREAM FILTERS C.	1		
286	KV-9030-C	Dismantling, Shifting to W/S Inspection and cleaning of respective SOVs, Body, Disc and Seal Inspection, Checking the integrity of actuator, Cleaning/overhauling of Manual Override, Shifting to location, Re- Installation, On/Off Testing	Size: 6" Butterfly Valves	Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Hex Key Set	SIDE STREAM FILTERS C.	1		
287	KV-9031-C				SIDE STREAM FILTERS C.	1		
EGTs 1,2,3 & 4 -- Fuel GAS Skid/Turbine Skid/TCM					Location			
288	PCV-1	Calibration, loop test, service of all local Pneumatic regulators. The calibrations Tools of the	Size: 1-1/2" CL 600 Valtek Valve	Pressure Calibrator, General Tools	EGT's Fuel gas skid	1		

289	PCV-1A	vender must be certified by some recognized institution.	Size: 1-1/2" CL 600 Valtek Valve			1		
290	PSV-1	Removing from location, testing in workshop/bench and record "as found set" value (Psig/Bar), disassembling for Lapping trim and overhauling completely(if required), assembling, setting (provided by OGDCL) cold set points and reinstallation	Size 4"x6"	Crane, Screw Driver Set, Terminal	EGT's Fuel gas skid	1		
291	PSV-2		Size 1"x1"	Screw Drivers, Spanner Set mm/Inch, Hex	EGT's Fuel gas skid	1		
292	PSV-3		Size 1"x1"	Key Set, Pressure Source 2000PSI, Other calibration equipment. PSV Test Bench. Consumables	EGT's Fuel gas skid	1		
293	NYA	Dismantling, Shifting To W/S, Body & Trim inspection, Lapping of Plug/Seat (If Reqd.) Replacement of kits, Actuator integrity, Hydro test, Calibration, Shifting to location, Re- Installation, loop test, service of all local Pneumatic regulators.	Dump Valve 1" 600CL	General Tools	Horizontal K/O Vessel at EGT's Area.	4		
294	03 Turbines	Inspection/ cleaning of all SOV's and Diaphragm Valves.	Pneumatic purging Cleaning by pulse controller	General Tools	Enclosure and Ventilation Purging and ventilation system.	48		
295	04 Turbines	Dismantling of valves from location, shifting to workshop, inspection and maintenance , changing of repair kit, reinstallation and verification of operation, on-off position		General Tools	BLOW OFF VALVE (01 No. Each Unit)	4		
296	04 Turbines	Pressure Switches On Site Calibration Check	Hand Pump Pneumatic Pressure Calibrator, General Tools	General Tools	Pressure Switches (05 Nos. Each Unit)	12		
297	04 turbines	Pressure Tx On Site Calibration Check	Hand Pump Pneumatic Pressure Calibration General Tools.	General Tools	Transmitters (06 Nos. Each Unit)	12		
PRESSURE SAFETY VALVES: -								
Boiler/Utilities Area					Location			
298	LP1-PSV-8001	Removing from location, testing in workshop/bench and record "as found set" value (Psig/Bar), disassembling for Lapping trim and overhauling completely(if required), assembling, setting (provided by OGDCL) cold set points and reinstallation.	Size: 4" x 6"	Crane, Screw Driver Set, Terminal	LP1 BOILER	1		
299	LP1-PSV-8002		Size: 6" x 6"	Screw Drivers, Spanner Set mm/Inch, Hex	LP1-BOILER	1		
300	LP2-PSV-8001		Size: 4" x 6"	Key Set, Pressure Source	LP2-BOILER	1		
301	LP2-PSV-8002		Size: 6" x 6"	2000PSI, Other	LP2-BOILER	1		
302	HP1-PSV-915		Size: 1" x 1"		HP1-	1		

			Make: ESER	calibration equipment.	BOILER			
303	HP1-PSV-916		Size: 1" x 1", Make: ESER	PSV Test Bench.	HP1-BOILER	1		
304	HP1-PSV-917		Size: 1" x 1", Make: ESER	Consumables.	HP1-BOILER	1		
305	HP2-PSV-A		Size: 2" x 3", Make: FARRIS		HP2-A	1		
306	HP2-PSV-B	Removing from location, testing in workshop/bench and record "as found set" value (Psig/Bar), disassembling for Lapping trim and overhauling completely(if required), assembling, setting (provided by OGDCL) cold set points and reinstallation.	Size: 2" x 3", Make: FARRIS	Crane, Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Hex Key Set, Pressure Source 2000PSI, Other calibration equipment. PSV Test Bench. Consumables.	HP2-B	1		
307	HP2-PSV-C		Size: 2" x 3", Make: FARRIS		HP2-C	1		
308	DE-AREATOR		Size: 3" x 4", Make: TELEDYNE		DE-AREATOR	1		
309	LP3-PSV-A		Size: 6" x 8", Make: CROSBY		LP3 Boiler	1		
310	LP3-PSV-B		Size: 6" x 8", Make: CROSBY		LP3 Boiler	1		
311	LP3-PSV-C		Size: 6" x 8", Make: CROSBY		LP3 Boiler	1		
312	PSV-9606		Size: 6" x 8", Make: TELEDYNE		Fuel Gas Skid	1		
313	PSV-9619		Size: 6" x 8", Make: TELEDYNE		Fuel Gas Skid	1		
H2S Removal Plant Train-10					Location			
314	10-PSV-1201-A	Removing from location, testing in workshop/bench and record "as found set" value (Psig/Bar), disassembling for Lapping trim and overhauling completely(if required), assembling, setting (provided by OGDCL) cold set points and reinstallation.	Size: 8" x 10", Make: TELEDYNE	Crane, Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Hex Key Set, Pressure Source 2000PSI, Other calibration equipment. PSV Test Bench. Consumables.	Amine Flash Drum Train-10	1		
315	10-PSV-1201-B		Size: 8" x 10", Make: TELEDYNE		Amine Flash Drum Train-10	1		
316	10-PSV-1215		Size: 3" x 4", Make: TELEDYNE		Amine Surge Drum Train-10	1		
317	10-PSV-1255		Size: 6" x 8", Make: TELEDYNE		Amine Stripper Top Train-10	1		
318	10-PSV-1130		Size: 6" x 8", Make: TELEDYNE		Over Head Scrubber	1		
319	10-PSV-1211		Size: 3" x 4", Make: TELEDYNE		Amine Cooler	1		
320	10-PSV-1212		Size: 1" x 2", Make: TELEDYNE		Amine Cartridge Filter	1		
321	10-PSV-1213		Size: 1" x 2", Make: TELEDYNE		Amine Cartridge Filter	1		

322	10-PSV-1214		Size: 1" x 2", Make: TELEDYNE		Amine Charcoal Filter	1		
323	10-PSV-1215		Size: 3" x 4", Make: TELEDYNE		Amine Surge Drum	1		
324	10-PSV-1216	Removing from location, testing in workshop/bench and record "as found set" value (Psig/Bar), disassembling for Lapping trim and overhauling completely(if required), assembling, setting (provided by OGDCL) cold set points and reinstallation.	Size: 1" x 2", Make: TELEDYNE	Crane, Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Hex Key Set, Pressure Source 2000PSI, Other calibration equipment. PSV Test Bench. Consumables.	ACP Out Let	1		
325	10-PSV-9316		Size: 3/4" x 1", Make: TELEDYNE		Condens ate Pot	1		
326	10-PSV-9401		Size: 3" x 4", Make: TELEDYNE		Gas Inlet Cooler /Heater	1		
327	10-PSV-9410		Size: 3" x 4", Make: TELEDYNE		Amine Solution Cooler	1		
328	10-PSV-9413		Size: 3/4", Make: TELEDYNE		Cartridge Filter	1		
329	10-PSV-9421		Size: 3/4" x 1", Make: TELEDYNE		Reflux Condens er	1		
H2S Removal Plant Train-20					Location			
330	20-PSV-1201-A	Removing from location, testing in workshop/bench and record "as found set" value (Psig/Bar), disassembling for Lapping trim and overhauling completely(if required), assembling, setting (provided by OGDCL) cold set points and reinstallation.	Size: 8" x 10", Make: TELEDYNE	Crane, Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Hex Key Set, Pressure Source 2000PSI, Other calibration equipment. PSV Test Bench. Consumables.	Amine Flash Drum Train-10	1		
331	20-PSV-1201-B		Size: 8" x 10", Make: TELEDYNE		Amine Flash Drum Train-10	1		
332	20-PSV-1215		Size: 3" x 4", Make: TELEDYNE		Amine Surge Drum Train-10	1		
333	20-PSV-1255		Size: 6" x 8", Make: TELEDYNE		Amine Stripper Top Train-10	1		
334	20-PSV-1130		Size: 6" x 8", Make: TELEDYNE		Over Head Scrubber	1		
335	20-PSV-1211		Size: 3" x 4", Make: TELEDYNE		Amine Cooler	1		
336	20-PSV-1212		Size: 1" x 2", Make: TELEDYNE		Amine Cartridge Filter	1		
337	20-PSV-1213		Size: 1" x 2", Make: TELEDYNE		Amine Cartridge Filter	1		
338	20-PSV-1214		Size: 1" x 2", Make: TELEDYNE		Amine Charcoal Filter	1		
339	20-PSV-1215		Size: 3" x 4", Make: TELEDYNE		Amine Surge Drum	1		
340	20-PSV-1216	Removing from location, testing in workshop/bench and record "as found set" value (Psig/Bar),	Size: 1" x 2", Make: TELEDYNE	Crane, Screw Driver Set, Terminal	ACP Out Let	1		

341	20-PSV-9316	disassembling for Lapping trim and overhauling completely(if required), assembling, setting (provided by OGDCL) cold set points and reinstallation.	Size: 3/4" x 1", Make: TELEDYNE	Screw Drivers, Spanner Set mm/Inch, Hex	Condensate Pot	1		
342	20-PSV-9401		Size: 3" x 4", Make: TELEDYNE	Key Set, Pressure Source	Gas Inlet Cooler /Heater	1		
343	20-PSV-9410		Size: 3" x 4", Make: TELEDYNE	2000PSI, Other calibration equipment.	Amine Solution Cooler	1		
344	20-PSV-9413		Size: 3/4", Make: TELEDYNE	PSV Test Bench. Consumables.	Cartridge Filter	1		
345	20-PSV-9421		Size: 3/4" x 1", Make: TELEDYNE		Reflux Condenser	1		
Dehydration Train-10					Location			
346	10-PSV-201	Removing from location, testing in workshop/bench and record "as found set" value (Psig/Bar), disassembling for Lapping trim and overhauling completely(if required), assembling, setting (provided by OGDCL) cold set points and reinstallation	Size: 2"x 3/4", Make: HYDROSEAL	Crane, Screw Driver Set, Terminal Screw Drivers, Spanner Set mm/Inch, Hex Key Set, Pressure Source 2000PSI, Other calibration equipment. PSV Test Bench. Consumables	Glycol Pump Discharge Train-10			
347	10-PSV-202		Size: 2"x 3/4", Make: HYDROSEAL		Glycol Pump Discharge Train-10			
348	10-PSV-201		Size: 2"x 3/4", Make: HYDROSEAL		Glycol Pump Discharge Train-10			
349	10-PSV-202		Size: 2"x 3/4", Make: HYDROSEAL		Glycol Pump Discharge Train-10			
350	10-PSV-103		Size: 6" x 8", Make: TELEDYNE		OVER HEAD SUCRUBBER Train-10			
351	10-PSV-104		Size: 3" x 3", Make: TELEDYNE		GLYCOAL REBOILER Train-10			
352	10-PSV-200		Size: 4" x 6", Make: TELEDYNE		SURGE DRUM Train-10			
353	10-PSV-203		Size: 1/2" x 2", Make: TELEDYNE		FLASH DRUM Train-10			
Dehydration Train-20					Location			
354	20-PSV-201	Removing from location, testing in	Size: 2"x 3/4", Make: HYDROSEAL	Crane, Screw Driver Set,	Glycol Pump Discharge Train-20	1		
355	20-PSV-202	workshop/bench and record "as found set" value (Psig/Bar), disassembling for Lapping trim and overhauling completely(if required),	Size: 2"x 3/4", Make: HYDROSEAL	Terminal Screw Drivers, Spanner Set mm/Inch, Hex Key Set,	Glycol Pump Discharge Train-20	1		

356	20-PSV-103	assembling, setting (provided by OGDCL) cold set points and reinstallation.	Size: 6" x 8", Make: TELEDYNE	Pressure Source 2000PSI, Other calibration equipment.	OVER HEAD SUCRUBBER Train-20	1		
357	20-PSV-104		Size: 3" x 3", Make: TELEDYNE	PSV Test Bench. Consumables.	GLY COAL REBOILER Train-20	1		
358	20-PSV-200		Size: 4" x 6", Make: TELEDYNE		SURGE DRUM Train-20	1		
359	20-PSV-203		Size: 1/2" x 2", Make: TELEDYNE		FLASH DRUM Train-20	1		
Dehydration Train-30					Location			
360	30-PSV-201		Size: 2"x 3/4", Make: HYDROSEAL		Glycol Pump Discharge Train-30	1		
361	30-PSV-202		Size: 2"x 3/4", Make: HYDROSEAL	Crane, Screw Driver Set, Terminal Screw Drivers, Spanner Set	Glycol Pump Discharge Train-30	1		
362	30-PSV-103	Removing from location, testing in workshop/bench and record "as found set" value (Psig/Bar), disassembling for Lapping trim and overhauling completely(if required), assembling, setting (provided by OGDCL) cold set points and reinstallation.	Size: 6" x 8", Make: TELEDYNE	mm/Inch, Hex Key Set, Pressure Source 2000PSI, Other calibration equipment.	OVER HEAD SUCRUBBER Train-30	1		
363	30-PSV-104		Size: 3" x 3", Make: TELEDYNE	PSV Test Bench. Consumables.	GLY COAL REBOILER Train-30	1		
364	30-PSV-200		Size: 4" x 6", Make: TELEDYNE		SURGE DRUM Train-30	1		
365	30-PSV-203		Size: 1/2" x 2", Make: TELEDYNE		FLASH DRUM Train-30	1		
Coalescer Filters Train 10/20					Location			
266	PSV-1		Size: 2"x 4", Make: LESER	Crane, Screw Driver Set, Terminal Screw Drivers, Spanner Set		1		
367	PSV-2	Removing from location, testing in workshop/bench and record "as found set" value (Psig/Bar), disassembling for Lapping trim and overhauling completely(if required), assembling, setting (provided by OGDCL) cold set points and reinstallation	Size: 2"x 4", Make: LESER	mm/Inch, Hex Key Set, Pressure Source 2000PSI, Other calibration equipment. PSV Test Bench. Consumables	H2S Train 10 & Train 20 (Coalescer Filters Train 10/20)	1		
Total Cost (Instrument SOW)								

OIL & GAS DEVELOPMENT COMPANY LIMITED								
UCH-I GAS PROCESSING PLANT - ATA 2021 (MECHANICAL SCOPE OF WORK)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	Qty	Unit Rate	Total Cost
H2S REMOVAL PLANT (TRAIN-10 & 20) - 02 UNITS:-								
Pre-shutdown Activities								
1		Connection for N2 Pumper						
2		Depressurising and N2 purging						
3		Blinding of battery limits						
4		Installation of scaffoldings as per each equipment job access requirement						
5		Cleaning (Chemical/Mechanical) of available Amine X-Heat Exchanger Plates set (431 Nos.) and Gaskets Installation			Chemical will be provided by OGDCL			
Post-shutdown Activities								
1		Deblinding of battery limits						
2		Leak Testing and N ₂ purging						
3		Removal of all scaffoldings						
4		Overall housekeeping/Area Cleaning						
GROUP-A: COLUMNS:-								
MA1	10C200	Amine Stripper (01 No.)				1		
1		Blinding	Height of Stripper = 90 ft	Strik.Sp: 65 mm				
2		Opening of manways	I.D. of Stripper = 132 in.	Comb.Sp.14 mm (Trays)				
3		Ventilation / Safety clearance	No. of trays = 18	Socket Set,				
4		Initial Inspection	I.D. of Manway = 20 in.	Scaffolding Material				
5		Inplace Cleaning of all trays		Adjustable Spanner				
6		Cleaning of Column Shell internal, vortex breaker, distributor/Seal Pan, LG's/Lt's etc.						
7		Straightening/repair of damaged trays by removing, if any						
8		Internal inspection of Column Shell for erosion/ corrosion and repair/buildup, if any required.						
9		Inspection/DPT of Bottom Shell S.S. Lining and repair/rebuild if required.						

10		Reinforcement/replacement of existing lining plates, if required.						
11		Final inspection						
12		Boxup						
13		Deblinding						
MA2	20C200	Amine Stripper (01 No.)				1		
1		Blinding	Height of Stripper = 90 ft	Strik.Sp: 65 mm				
2		Opening of manways	I.D. of Stripper = 132 in.	Comb.Sp.14 mm (Trays)				
3		Ventilation / Safety clearance	No. of trays = 18	Socket Set,				
4		Initial Inspection	I.D. of Manway = 20 in.	Scaffolding Material				
5		Inplace Cleaning of all trays	Empty Weight = 70 Tons	Adjustable Spanner				
6		Cleaning of Column Shell internal, vortex breaker, distributor/Seal Pan, LG's & LTs etc.						
7		Straightening/repair of damaged trays by removing, if any						
9		Final inspection						
10		Boxup						
11		Deblinding						
MA3	10C100	Amine Contactor (02 Nos.)				2		
1	&	Blinding	Height of Contactor = 30 ft	Strik.Spanner: 65 mm				
2	20C100	Opening of manways	I.D. of Contactor = 114 in.	Comb.Sp.14 mm (Trays)				
3		Ventilation / Safety clearance	No. of trays = 06	Socket Set,				
4		Initial Inspection	I.D. of Manway = 20 in.	Scaffolding Material				
5		Dismantling/removal of demisters cleaning & installation		Adjustable Spanner				
6		Inplace complete Cleaning of trays						
7		Mech.Cleaning of Column Shell internal, vortex breaker, distributor/Seal Pan, LG's & LTs etc.						
9		Final inspection						
10		Boxup						
11		Deblinding						

MA4	10C100	Glycol Contactor c/w Integral Scrubber V101 (02 Nos.)				2		
1	20C100	Blinding	Height of Column = 37 ft	Strik.Sp: 65,50,32 mm				
2		Opening of top & bottom manways	I.D. of Column = 72 in.	Hammers & Bars				
3		Inplace cleaning of packing, LG's & demisters	Material: S.S.(Duplex)					
4		Boxup						
5		Deblinding						
GROUP-B: VESSELS:-								
MB1	M200	Slug Catcher (01 No.)				1		
1		Blinding	Horizontal Vessel	Strik.Span:4 1,46,75 mm				
2		Opening of manways	Size: 78" ID x 204" LG	Comb.Span.: 27,32mm				
3		Ventilation/Safety clearance	I.D. of Manway = 20 in.	Adjustable Spanner				
4		Internal Inspection of vessel and demister		Scaffolding				
5		Cleaning of complete vessel, Demister & LG's.						
7		Final inspection						
8		Boxup						
9		Deblinding						
MB2	V-100	LP Separator (01 No.)				1		
1		Blinding	Horizontal Vessel	St.Sp.:24,27, 50,65 mm				
2		Opening of manways	Size: 78" ID x 204" LG	Comb.Sp.: 24,27mm				
3		Ventilation/Safety clearance	I.D. of Manway = 20 in.	Adjustable Spanner				
4		Internal Inspection of vessel						
5		Cleaning of vessel, demisters & LG's. Repair if any						
6		Final inspection						
7		Boxup						
8		Deblinding						
MB3	10V202	Amine Reflux Drum (02 Nos.)				2		
1	&	Blinding	I.D.=7 ft	Striking Spanner:32 mm				
2	20V202	Opening of manways	Length = 10 ft	General Tool Box				
3		Ventilation/Safety clearance	Manway = 20 in.	Internal Scaffolding				
4		Internal Inspection of vessel						

5		Dismantling/removal of demisters & repair if any							
6		Cleaning of vessel, demisters & LG/LT							
7		Re-installation of demisters							
8		Final inspection							
9		Boxup							
10		Deblinding							
MB4	10V200	Amine Flash Drum (02 Nos.)				2			
1	&	Blinding	I.D of Vessel = 126 in.	Str.Spanner: 36, 41 mm					
2	20V200	Opening of top dome & bottom manway	Length of Vessel = 28ft S-S	Open/Ring Sp: 27mm					
3		Ventilation/safety clearance	Top Dome= 30 in OD x 33 in LG	Crane					
4		Initial Inspection of vessel	Bottom manway = 20in I.D.						
5		Dismantling/removal of demisters & repair if any							
6		Internal cleaning of complete Vessel, LG/LT							
7		Cleaning of demisters & re-installation							
8		Final Inspection							
9		Box up							
10		Deblinding							
MB5	10V201	Amine Surge Drum (02 Nos.)				2			
1	&	Blinding	I.D of Surge Drum = 108 in	Strik.Span: 36, 41 mm					
2	20V201	Opening of manways	Length of Vessel = 30 ft S-S						
3		Ventilation/safety clearance	I.D of manway = 20 in						
4		Internal cleaning of complete Vessel & LG's.							
5		Inspection							
6		Box up							
7		Deblinding							
MB6	90X903	Incinerator K.O Vessel (01 No.)				1			
1		Blinding	Vessel size: O.D. 60" x 28' LONG						
2		Opening of manways	Manway: 20"X150 CL						

3		Ventilation/safety clearance						
4		Internal cleaning of complete vessel.						
5		Cleaning of LG's/LT's of K.O. vessel						
6		Inspection						
7		Box up						
8		Deblinding						
MB7	90V100A/B	Flare Knock Out Vessel (02 Nos.)				2		
1		Blinding	I.D of Surge Drum = 135 in					
2		Opening of manway	Length of Vessel = 288 in S-S					
3		Ventilation/Safety clearance	I.D of manway = 20 in					
4		Internal Inspection of vessel						
5		Cleaning of vessel & LG's (repair if any)						
6		Final inspection						
7		Boxup						
8		Deblinding						
MB8	90V902	Amine Sump (01 No.)				1		
1		Decanting of Sump	Vessel size: I.D. 84" x 127" T/T	Crane				
2		Opening of manway/removal of A.Sump Pump	Manway: 20"					
3		Inspection of Pump and rectification if any						
4		Internal/external cleaning of Sump						
5		Box up after inspection						
MB9	50V100	Glycol Sump (01 No.)				1		
1		Decanting of Sump	Vessel size: I.D. 40" x 120" T/T					
2		Opening of manway/Removal of Sump Pump	Manway: 20"					
3		Inspection of Pump and rectification if any						
4		Internal/external cleaning of Sump						
5		Inspection of Vessel						
6		Box up						
MB10	10V100	Inlet Separator (02 Nos.)				2		
1	&	Blinding	I.D : 3 ft 6 inch, O.D : 4 ft	Str. Spanner: 50,65 mm				
2	20V100	Opening of manways	Length : 10 ft	General Tool Box				

3		Ventilation/Safety clearance	Inlet Nozzle = 12 in.	Crow bar					
4		Internal Inspection of vessel	Outlet Nozzle =12 in.						
5		Cleaning of vessel & LG's.	Manway=20 in						
6		Inspection/cleaning of Vane Pack & Liner							
7		Final inspection							
8		Boxup							
9		Deblinding							
MB11	V-600 A/B	Instrument Air Receiver (02 Nos.)				2			
1		Blinding	I.D. = 1829 X 7110 T/T						
2		Opening of manways							
3		Ventilation/safety clearance							
4		Internal cleaning of complete Vessel & Sand Blasting							
5		Internal Protective Coating/Painting of vessel							
6		Inspection							
7		Box up							
8		Deblinding							
MB12	10S202	Filter Coalescer (02 Nos.)				2			
1	&	Blinding	ASME U-Stamp Vertical Vessel	Strik.Span: 36, 41 mm					
2	20S202	Opening of top cover	Size: 1016 (OD) x 4996 (HT) x 34.5 (THK.)						
3		Removal of Filters	Material: SA-240M 304L						
4		Internal cleaning of Vessel/Shell/LG's etc.	Rating : ANSI 900#						
5		Reinstallation/Replacement of Filter Elements	Quick Opening Top Manway.						
6		Inspection							
7		Box up							
8		Deblinding							
GROUP-C: HEAT EXCHANGERS:-									
MC1	10E100	Inlet Gas Cooler Heater (02 Nos.)				2			
1	&	Blinding/Isolation	Type: Utube, No. of tubes=27	Crane, Chain Blocks,					

			8					
2	20E100	Opening of Channel Head Cover	278 U-Tubes x 1"(OD) x 0.065"					
3		Removal of bundle	(AW)x 222" LG 1.25 square pitch					
4		Inspection of bundle						
5		Cleaning of tubes & tube bundles by Water jetting						
6		Cleaning & Painting of Shell and channel internal						
7		Insertion of Bundle / Replacement of One Bundle						
8		Pressure Testing						
9		Final Inspection						
10		Box Up						
11		Deblinding						
MC2	10E200A/B	X-Heat Exchanger (04 Nos.)				4		
1	&	Opening of Inlet/Outlet nozzles	Plate Type Heat Exchanger		Arrange ment for chem.			
2	20E200A/B	Provision of connection for chemical cleaning	No. of Plates = 431		circulation is available			
3		In place chemical cleaning of plates.			at site.			
4		Replacement of 01 No. Plate Pack 200B						
5		Cleaning of dismantled Amine X-Heat Exchanger Plate Pack and Gasket Installation						
6		Removal of connections						
7		Cleaning/Repair of Strainers						
8		Box up						
9		Area cleaning						
MC3	10E201	Amine Stripper Reboiler (02 Nos.)				2		
1	&	Opening of Channel Head Covers	Type:I- Singlepas s, No. of tubes=2162	Sling, Shackles				
2	20E201	Cleaning of tubes by Hydrojetting	Size=1 "(OD)x.065"(AW) x24'-0"(LG)	Strik.Span: 27,30 mm				
3		Inspection of Channel head / Tube sheet welding joints and repair (if req.)	Channel Head Cover : 69-1/8" OD x 2-7/8" THK	Hammers, Crow bar				
4		Hydro Pressure testing	Over					

			all Length = 33ft & 9 in.						
5		Final Inspection		Scaffolding material					
6		Box up		Crane.					
7		Area cleaning							
MC4	10E202	Amine Reflux Condenser (02 Nos.)					2		
1	&	Opening of Channel Head Covers	Type:- Double pass, No. of tubes = 753	Sling					
2	20E202	Inspection of Channel head / Tube sheet welding joints and repair (if req.)	Size=1" (O.D.) x 0.65" (A.W.) x 24' - 0" (L.G.)	Strik.Span: 27,30 mm					
3		Cleaning of tubes Mechanically & with Aquablaster	Channel head size: O.D. = 49 1/4"	Hammers,					
4		Hydro Pressure testing	B.C. = 47 5/8"	Crow bar,					
5		Final Inspection	Over all Length = 29 ft & 4 in.	Scaffolding material					
6		Box up of Channel Head Covers		Crane					
7		Area cleaning							
MC5	10E203	mine Solution Cooler (02 Nos.)					2		
1	&	Opening of Channel Head Covers	No. of tubes = 1184	Chain Block: 10 ton	Arrangement for chem.				
2	20E203	Cleaning of tubes with Aquablaster machine.	Tube O.D. = 1 in.	Strik.Span: 27,30,32mm	circulation is available				
3		Chemical Cleaning of Shell Side	Triangle pitch = 1.250	Comb. Span: 27,32mm	at site.				
4		Hydro pressure testing	M.W.T thickness = 0.075	Crow bar, Pipe Wrench					
5		Final Inspection	Length = 576 in. or 48 ft	Crane					
6		Box up of Channel Head Covers	No. of passes = One						
7		Area cleaning (house keeping)	Channel cover O.D. = 53 5/8"						
MC6	10E201	lycol Reboiler (02 Nos.)					2		
1	20E201	Opening of Channel & Manway	Shell Size: 30.5" O.D. x 26' Length	Strik.Span: 32 mm					

2		Initial Inspection	Channel Size: 12.75" O.D. x 27" LG	General Tool Box				
3		Removal of U-Tube bundle, if required (optional)	Tube Size: 3/4" OD-34 nos U-tubes	Crow bar, Crane				
4		Cleaning of tubes with Aquablaster, if required	U-Bundle Size: 12" OD x 20' LG					
5		Cleaning of Shell & LG's/LT's	No. of passes= 2					
6		Inspection & Cleaning of Strainers at X-HE's	Shell & Tube U-type H.E.					
7		Inspection of Steam Traps on steam circuit	Manway Size: 20" x 150 CL					
8		Pressure/leak testing						
9		Final Inspection						
10		Box up						
GROUP - D: ROTARY EQUIPMENTS:-								
MD1	10P201A/B	Amine Circulation Pump (04 Nos)				4		
1	&	Decoupling of Pump & Motor	6-stage Centrifugal M type pump	Striking Spanner 36,41,				
2	20P201A/B	Initial Alignment check	Capacity=1800 gpm.	50 mm.				
3		Dismantling of bearing housings	Dis. Pressure= 930 psig	General Tool Box				
4		Removal of bearings for inspection	Suc.x Disch. = 8 x 6 in					
5		Cleaning/Repair/repl. of damage parts, if any	Make: Union Pumps Co., USA					
6		Service of Mechanical Seal (Dismantling, cleaning/lapping & re-assembly)						
7		Assembling of bearing housing						
8		Painting of Pump Body/Casing & Skid						
9		Cleaning of suction & seal flush line strainers						
10		Alignment						
11		Area cleaning						
MD2	10P200A/B	Amine Booster Pump (04 Nos.)				4		
1	&	Decoupling of Pump & Motor	Single-stage	Strik.Span. 32,36,41mm				

			Centrifugal pump					
2	20P200A/B	Dismantling of pump casing	Capacity=1980 gpm.	Comb.Spanner 24mm				
3		Inspection of casing	Pressure= 52 psig	General Tool Box				
4		Service of Mechanical Seal if any having leakage problem.	Suc.xDisch. = 10 x 8 in					
5		Replacement of bearings if required.	Make: Union Pumps Co., USA					
6		Assembling of pump						
7		Painting of Pump Body/Casing & Skid						
8		Alignment						
9		Cleaning of suction & seal flush line strainers						
10		Area cleaning						
MD3	10P202A/B	Amine Reflux Pumps (04 Nos.)				4		
1	&	Dismantling of pump	Single-stage Vertical Centrifugal pump	General Tool Box				
2	20P202A/B	Inspection of casing	Capacity=100 gpm.					
3		Cleaning/Repair/repl. of damage parts/M.Seal etc.	Dis.Pressure= 66 psig					
4		Assembling of pump	Suc.xDisch. = 3 x 2 in					
5		Cleaning of suction & seal flush line strainer						
6		Painting of Pump outer body/casing						
7		Area cleaning						
MD4	10-P-200 A/B	Glycol Circulation Pump (04 Nos.)				4		
1	20-P-200 A/B	Inspection of power end, i.e. sleeve bearings, crankshaft, crosshead pin & bush for any wear & tear and replace if required	Reciprocating Capacity = 42.2 US GPM Make: Union Pumps Co., USA	General Tool Box				
2		Inspection of fluid end, i.e. plunger, inlet/outlet valves, gland pusher/ bush/packing etc. for any wear & tear and replace if required	Dis. Pressure = 935.1 psia Size/type : 2 ½ X 3 TD 60					
3		Inspection of sheaves/pulleys & V-belts and replace (if required)						
4		Replacement of lube oil						
5		Alignment						

6		Area claining (House keeping)						
MD5	90X903	Cooling Tower Fan/Gearbox-A/B/C/D (04 Nos.)				4		
1		Dismantling, Cleaning, Repairing & Painting of Fan Blades & hub	AMAR ILLO Right Angle Gear Drive	General Tool Box				
2		Dismantling of Gearbox	Service Factor: 2.0 HP					
3		Shifting of Gearbox to Workshop	RPM Input: 1750					
4		Inspection / repair of Gearboxes	Ratio: 14:1 Reducing					
5		Grey epoxy paint to outer surface of gear box, fan and foundation structure channels.						
6		Re-installation of Gear boxes and Fans						
7		Replacement of Lube Oil						
8		Alignment						
9		Area cleaning						
MD6	LP-1/2/3	FD Fan LP Boiler #1 , 2 & 3 (03 Nos.)				3		
1		Opening of FD Fan inspection windows.		General Tool Box				
2		Inspection/cleaning of Fan duct/dampers.						
3		Replacement of bearings of FD Fan						
4		Alignment						
5		Area cleaning						
MD7	EGT-1,2,3,4	Gas Turbine (04 Nos)				4		
1		Inspection/Cleaning of EGT's Fuel Gas Separators.	EURO PEAN GAS TURBINE	General Tool Box				
2		Inspection / replacement of Fuel Gas Skid Filters	MAKE: SIEMENS, UK					
3		Cleaning/Replacement of Air Intake Filters (80 nos.each unit)	CAP: 4.9 MW AT 15°C					
4		External Cleaning of Lube Oil Coolers	MODE L: SGT-100- 1S					
5		Overall cleaning of Turbine enclosure						
6		Area cleaning						
MD8	X-200A-D	Instrument Air & Nitrogen Package Compressors (06 Nos.)				6		
1	X-201A/B	Overall cleaning of enclosure	MAKE: INGERSOLL- RAND &	General Tool Box				
2		Alignment checks and inspection/cleaning of complete packages	QUINC Y					
3		Cleaning of Oil Cooler/Radiator	Type: Screw Compresso r					

4		Inspection/repair of Compressor Airend, if req.						
5		Replacement of Filter Elements & Coolant, if required						
6		Area cleaning						
MD9	90P900A	Cooling Water Circulation Pump (01 No.)				1		
1		Dismantling/Removal of pump from site.	Single Stage Vertical Turbine Pump	Striking Spanner 36,41,				
2		Inspection of complete pump casing, strainers etc.	Dis.Capacity= 15000 GPM	General Tool Box				
3		Dismantelling/overhauling of pump if any found critical damaged.	Dis.Press.= 60 PSIG					
4		Installation of Pump.						
5		Area cleaning						
MD10		Colony Water Pump (01 No.)				1		
1		Dismantling/Removal of pump from site.	KSB Deep Well Turbine Pump	Striking Spanner				
2		Inspection of complete pump casing, strainers etc.	Model: DWT B7B/2, Q:200 USGPM	General Tool Box				
3		Dismantelling/overhauling of pump if any found critical damaged.	H: 115 FT, BHP: 6.70KW, 2900rpm					
4		Installation of Pump.						
5		Area cleaning						
GROUP-E: UTILITIES:-								
ME1	170S101	ETP Sump Pit				1		
1		Internal cleaning i.e. removal of mud/slurry	Size :4.0 M X 3.0 M X 3.6 M	Scraper and buckets				
2		Cleaning of Suction Foot Valve		Special mud/slurry decanting				
3		Inspection		submersible Pump				
ME2	90PF910	Pressure Filters (02 Nos.)				2		
1	A/B	Scaffolding	Vessel Size: 98" I.D. x 145" HT					
2		Opening of manways.	Manway: 20" x 150 CL					
3		Removal, Cleaning & Charging of gravel/sand/resin (optional) i.e. if required						
4		Repairing of Top Distributer of Filter-A If Required						

5		Repairing/Fabrication of Bottom Collector of Filter-A If Required						
6		Painting of Shell Internal and distributor						
7		Inspection						
8		Box up						
ME3	90SF910	Side Stream Filters (02 Nos.)				2		
1	B/C	Scaffolding	Vessel Size: 98" I.D. x 145" HT					
2		Opening of top manway	Manway: 20" x 150 CL					
3		Removal & charging of gravel/sand/resin (optional) i.e. if required						
4		Painting of Shell Internal and distributor						
5		Inspection						
6		Box up						
ME4	90V900	Deaerator				1		
1		Opening of manway	Manway: 20x150lb "					
2		Dismantling of top Dome	Size: 2500mm DIA x 5800mm LG					
3		Internal cleaning of vessel, LG's LT's						
4		Repair of shell internal & internal distribution pipe, nozzle(s) if required.						
5		Internal & External Painting of complete vessel, structure and all piping under De-aerator						
6		Inspection of nozzles						
7		Box up						
ME5	90X902A	LP BOILER # 1, 2 & 3 (03 Nos)				3		
1	90X902B	Blinding	Model # NSX-G-100	Air driven Grinders				
2	90X902D	Opening of manways of Combustion chamber, Mud and Steam drums.	Make (LP-1&2): National Dynamic Corporation Nebraska USA	Power Brushes for cleaning				
3		Internal inspection of comb. Chamber, Mud and Steam drums.	W. Pressure = 70 psig.					
4		Internal cleaning of tubes (Chem./Mech.)	Steam temperature = 315 deg. F					
5		Cleaning of burners & comb.	Max					

		Chamber	.W. Pressure = 200 psig.						
6		Repair of refractory, if any	Steam capacity = 145000 lbs/hr						
7		Cleaning of Mud & Steam drums	Tube size= 02"x 0.095 &0.105 in.th						
8		Painting of tubes, steam drum & mud drum with apexior compound paint.	Total nos. of tubes = 1742						
9		Hydro/Pressure Test	Materi al of drums = SA – 516- 70						
10		Cleaning of flue gasses chimeny, painting internally & externally including structure/platforms	Materi al of tubes = SA-178 A						
11		Painting of Boilers outer body/casing/structure.	Make (LP-3): Descon- Lahore						
12		Inspection by Chief Inspector of Boilers							
13		Gas Fuel line strainer cleaning							
14		Inspection/Repair/Replacement of LP steam traps							
15		Repair/Replacement of Exhaust Stack Flexible Joint at LP-3 Boiler only							
16		Box up							
17		Deblinding							
ME6	90X902C	HP BOILER# 1 & 2 (02 Nos.)				2			
1	&	Blinding	Model # HRNC- 480	Air driven Grinders					
2	90X902E	Opening of manways of Combustion chamber, Mud and Steam drums.	Make (HP-1): WICKERS HOSKINS (M)SDN. BHD	Power Brushes for cleaning					
3		Internal inspection of comb. Chamber, Mud and Steam drums.	.W. Pressure = 497 psig.						
4		Internal cleaning of tubes (Chem./Mech.)	Steam capacity= 10500 lbd/hr						
5		Cleaning of burners & comb. Chamber	Max .W. Pressure = 568 psig.						

6		Repair of refractory, if any	Test Pressure = 852 psig.					
7		Cleaning of Mud & Steam drums	Steam temperature= 477 deg.F					
8		Damper cleaning/servicing						
9		HP-1: Removal of Exhaust Duct of Kawasaki Turbine and its Blinding						
10		HP-1 FD fan coupling bush removal / reinstallation						
11		Painting of tubes, steam drum & mud drum with apexior compound paint.	Size of water tube=02 in.dia.x0.128"th					
12		Hydro/Pressure Test	Total nos. of finned tubes = 110					
13		Inspection by Chief Inspector of Boilers	Material of tubes= SA- 192					
14		Opening of flue gasses chimenymanway. External painting of stack/chimney.	Make (HP-2): HMC, Taxila					
15		Painting of Boilers outer body/casing/structure.						
16		Inspection /Replacement of HP Steam traps						
17		Gas Fuel line strainer cleaning						
18		Box up and deblinding						
ME7	90X903	COOLING TOWER				1		
1		Cleaning of top water deck & nozzles	Type: Induced Draft Counterflow					
2		Cleaning of CT basin & pump suction pit	Design Water Circulation:27000 USGPM					
3		Cleaning, Repair and Painting of suction pit gate strainers/structure, if any	No. of Cell: 04					
4		Removal/cleaning/Re-Installation of drift eliminators	Basin Size(LxWxD): 144x48x4 ft.					
5		Inspection/Installation of damaged/fallen fills,drift eliminator supports etc.						
6		Inspection/repair of internal cell walls, walk ways, Side walls, Louvers, Top Deck, water distribution/nozzle area etc.				FRP work shall be carried out by		

		(FRP repairs)			expert firm in field of FRP Cooling Towers			
7		Torque tightening of structure nut/bolts						
8		Civil repair of CWP suction pit (Plaster repair) and Cooling Tower basin (Seepage repair)						
9		Cleaning / repair of pump suction strainers						
ME8	90X904	INCINERATOR				1		
1		Opening of manway	Manway: 24"					
2		Initial Inspection	Size: I.D. 4ft, Length: 5ft					
3		Repair of Burner duct, furnace & exhaust duct and stack refractory & external insulation etc.	Size: I.D. 10ft, Length: 37.5ft					
4		Cleaning/replacement of flame sight glasses						
5		Cleaning of burner tips						
6		Repair / replacement of ceramic wool of Combustion chamber.						
7		Cleaning of FD Fans, dampers & links. (repair if req.)						
8		Inspection						
9		Box up						
GROUP-F: MANUAL VALVES:-								
MF1	H2S T-10	Manual Valves of H2S T-10			Valves list attached	31		
1		Dismantling of Valves from location						
2		Shifting of valves to workshop						
3		Initial Testing/Inspection of valves						
4		Repair of defected valves						
5		Pressure Testing						
6		Painting of Valves with Silver/Aluminium Paint.						
7		Shifting / Installation of valves at location						
8		Replacement of Valves having size 1-1/2" & below						
9		Inplace cleaning/service & greasing of manual valves of H2S T-10 as per operation requirement						
MF2	H2S T-20	Manual Valves of H2S T-20			Valves list attached	30		
1		Dismantling of Valves from location						
2		Shifting of valves to workshop						

3		Testing/Inspection of valves						
4		Repair of defected valves						
5		Pressure Testing						
6		Painting of Valves with Silver/Aluminium Paint.						
7		Shifting / Installation of valves at location						
8		Replacement of Valves having size 1-1/2" & below						
9		Inplace cleaning/service & greasing of all manual valves of H2S T-20						
MF3	Dehy.	Manual Valves of Dehydration			Valves list attached	23		
1	T-10, 20 &30	Dismantling of Valves from location						
2		Shifting of valves to workshop						
3		Testing/Inspection of valves						
4		Repair of defected valves						
5		Pressure Testing						
6		Painting of Valves with Silver/Aluminium Paint.						
7		Shifting / Installation of valves at location						
8		Inplace cleaning/service & greasing of all manual valves of Dehy. T-10 & 20						
MF4	UTILITIES & GATHERING	Manual Valves of Utilities & Gathering Area			Valves list attached	32		
1	GATHERING	Dismantling of Valves from location						
2		Shifting of valves to workshop						
3		Testing/Inspection of valves						
4		Repair of defected valves						
5		Pressure Testing						
6		Painting of Valves with Silver/Aluminium Paint.						
7		Shifting / Installation of valves at location						
8		Inplace cleaning/service & greasing of all manual valves of Utilities area						
GROUP-G: MISCELLANEOUS JOBS:-								
MG1		Insulation Jobs:-	Approx. Dimensions					
1	HP Condensate Lines	Installation of insulation on complete HP condensate return header from boiler area upto CCR backside	4" dia, 2000 ft length (approx.)					
MG2		UPL END (DERA MURAD JAMALI)- PROD. FACILITIES						
1		Replacement of 02 nos. Gear Operated Ball Valves	24" x 600CL			2		
2		Replacement of Sale Gas Filter Elements (27 nos. per Vessel)	42" dia. Vertical Vessel (02 Nos.)			2		

GROUP-H: MODIFICATION/FABRICATION JOBS:-								
1	10-V-100	Inlet separator H/C Side troll drain valve replacement	Gate Valve 3/4" x 800#	3/4 Dia Inch SS Welding				
2	10-E-200A	X-Heat Exchanger Inlet eblow u/s of inlet isolating valve minor repair	Elbow Joint CS 12" x 150#	24 Dia inch CS Welding				
3	10-S-201	Charcoal filter Installation NRV at Amine inlet line	Check Valve 4"x150"	4 Dia Inch CS Welding				
4	20-E-100	Inlet cooler/Heater 1.5" steam line to condensate pot leakage repair at 1 point.	CS line, 1.5"	12 Dia Inch CS Welding				
5	20-V-203	Reboiler condensate pot LCV-9514 D/S isolating valve flange joint leakage & Vessel Leakage Repair	4 inch line	4 Dia Inch CS Welding 10 Inch Linear Welding				
6	90-V-100A	Pin Hole Leakage rectification in Level Troll		Pin Hole Leakage				
7	D10/20-V-101	Integral scrubber open drain valve replacmenet	3/4", 800 lb	1.5 Dia Inch SS Welding				
8	Deaerator Area	Replacement of Gate Valve & 1/2" Line at HP Steam Samplng Point	1/2" 800lb	4 Dia Inch CS Welding				
9	20-V-100	Replacement of 3/4" Gate Valve of LG Isolation	3/4" 800lb	3 Dia Inch SS Welding				
Total Cost (Mechanical SOW)								

UCH-I GAS PROCESSING PLANT - ATA 2021 (MANUAL VALVE LIST)									
S.#	EQUIP. NAME	EQ. TAG. NO	DESCRIPTION / LOCATION	VALVE SPECS	TYPE / SIZE / RATING	QTY	Unit Rate	Total Cost	REMARKS
GATHERING AREA VALVES (PF-Prod.):									
1	WESTERN / CENTRAL HEADER		ISOLATING VALVES	D2BFR	Ball Valve (Flanged), 12"x600lb	2			Replacement
2			ISOLATING VALVES	D2BFR	Ball Valve (Flanged), 10"x600lb	4			Replacement
3			NON-RETURN VALVES	D5RWS	Check Valve (Wafer), 8"x600lb	2			Replacement
4	LP SEPERATOR	V-100	UPSTREAM ISOLATING VALVE OF PSV	B2BFR	Ball Valve (Flanged), 4"x300lb	1			
5		V-101	UPSTREAM ISOLATING VALVE OF PSV	B2BFR	Ball Valve (Flanged), 4"x300lb	1			
						10			
H2S TRAIN-10 VALVES:-									
6	INLET COOLER / HEATER	10-E-100	BYPASS OF BATTERY LIMIT VALVE	D4RRS	Globe Valve(Flanged), 2"x600lb	1			
7		10-E-100	COOLING WATER SUPPLY & RETURN VALVE	A1RRC	Gate Valve(Flanged), 8"x150lb	2			
8		10-E-100	STEAM INLET NRV	A5RWC	Check Valve(Wafer), 6"x150lb	1			
9		10-E-100	ISOLATION VALVE TCV-1112	A1RRC	Gate Valve(Flanged), 6"x150lb	2			
10	FILTER COALESCER	10-S-202	PRODUCED WATER COMMON ISOLATION VALVE	F2RRC	Ball Valve (Flanged), 2"x1500	1			Replacement
11	AMINE CONTACTOR	10-C-100	UP STREAM GAS LINE NRV	D5RWS	Check Valve(Wafer), 12"x600lb	1			
12		10-C-100	AMINE INLET LINE NRV	D5RWS	Check Valve(Wafer), 10"x600lb	1			
13	OVERHEAD SCRUBBER	10-V-101	TEATED GAS OUTLET BY-PASS VALVE	D4RRD	Globe Valve(Flanged), 2"x600lb	1			
14	X-HEAT EXCHANGER	10-E-200	LEAN AMINE ISOLATING VALVES	A1RRC	Gate Valve(Flanged), 12"x150lb	4			
15		10-E-200	RICH AMINE ISOLATING VALVES	A1RRC	Gate Valve(Flanged), 10"x150lb	4			
16	AMINE STRIPPER	10-C-200	STRIPPING STEAM LINE NRV	A5RWC	Check Valve(Wafer), 2"x150lb	1			
17		10-C-200	REFLUX LINE NRV	A5RWS	Check Valve(Wafer), 3"x150lb	1			
18	REBOILER CONDENSATE POT	10-V-203	ISOLATING & BYPASS VALVES OF LCV-9314.	A1RRC	Gate Valve(Flanged), 4"x150lb	2			
19	AMINE BOOSTER PUMP	10-P-200	DISCHARGE NRV'S	A5RWC	Check Valve(Wafer), 12"x150lb	2			
20		10-P-200	SUCTION VALVES	A1RRC	Gate Valve(Flanged), 14"x150lb	2			
21	CARTRIDGE FILTER	10-S-200	INLET VALVE OF CARTRIDGE FILTERS	A1RRC	Gate Valve(Flanged), 4"x150lb	1			
22		10-S-200	OUTLET VALVE OF CARTRIDGE FILTERS	A1RRC	Gate Valve(Flanged), 4"x150lb	1			
23				A4RRS	Globe Valve(Flanged), 4"x150lb	1			

24	AMINE CIRCULATION PUMP	10-P-201	DISCHARGE NRV'S	D5RWC	Check Valve(Wafer), 12"x600lb	2			
						31			
H2S-TRAIN-20 VALVES:-									
25	INLET COOLER/HEATER	20-E-100	COOLING WATER SUPPLY & RETURN VALVE	A1RRC	Gate Valve(Flanged), 8"x150lb	2			
26		20-E-100	STEAM INLET NRV	A5RWC	Check Valve(Wafer), 6"x150lb	1			
27		20-E-100	ISOLATION VALVE TCV-1112	A1RRC	Gate Valve(Flanged), 6"x150lb	2			
28	FILTER COALESCER	20-S-202	PRODUCED WATER COMMON ISOLATION VALVE	F2RRC	Ball Valve (Flanged), 2"x1500	1			Replacement
29	AMINE CONTACTOR	20-C-100	UP STREAM GAS LINE NRV	D5RWS	Check Valve(Wafer), 12"x600lb	1			
30		20-C-100	AMINE INLET LINE NRV	D5RWS	Check Valve(Wafer), 10"x600lb	1			
31	OVERHEAD SCRUBBER	20-V-101	TEATED GAS OUTLET BY-PASS VALVE	D4RRD	Globe Valve(Flanged), 2"x600lb	1			
32	X-HEAT EXCHANGER	20-E-200	LEAN AMINE ISOLATING VALVES	A1RRC	Gate Valve(Flanged), 12"x150lb	4			
31		20-E-200	RICH AMINE ISOLATING VALVES	A1RRC	Gate Valve(Flanged), 10"x150lb	4			
32	AMINE STRIPPER	20-C-200	STRIPPING STEAM LINE NRV	A5RWC	Check Valve(Wafer), 2"x150lb	1			
33		20-C-200	REFLUX LINE NRV	A5RWS	Check Valve(Wafer), 3"x150lb	1			
33	REBOILER CONDENSATE POT	20-V-203	ISOLATING & BYPASS VALVES OF LCV-9514.	A1RRC	Gate Valve(Flanged), 4"x150lb	2			
33	AMINE BOOSTER PUMP	20-P-200	DISCHARGE NRV'S	A5RWC	Check Valve(Wafer), 12"x150lb	2			
34		20-P-200	SUCTION VALVES	A1RRC	Gate Valve(Flanged), 14"x150lb	2			
35	CARTRIDGE FILTER	20-S-200	INLET VALVE OF CARTRIDGE FILTERS	A1RRC	Gate Valve(Flanged), 4"x150lb	1			
34		20-S-200	OUTLET VALVE OF CARTRIDGE FILTERS	A1RRC	Gate Valve(Flanged), 4"x150lb	1			
35				A4RRS	Globe Valve(Flanged), 4"x150lb	1			
36	AMINE CIRCULATION PUMP	20-P-201	DISCHARGE NRV'S	D5RWC	Check Valve(Wafer), 12"x600lb	2			
						30			
DEHYDRATION-TRAIN-10 VALVES:-									
37	GLYCOL CONTACTOR	10-C-100	NRV ON TEG LINE IN 10-C-100	D5RWS	Check Valve(Wafer), 3"x600lb	1			
38	GLYCOL CIRCULATION PUMP	10-P-200	SUCTION VALVES	D1RRC	Gate Valve(Flanged), 4"x600lb	2			
39		10-P-200	DISCHARGE VALVES	D1RRC	Gate Valve(Flanged), 3"x600lb	2			
40		10-P-200	RECYCLE VALVE	D4RRC	Globe Valve(Flanged), 3"x600lb	2			
41	GLYCOL REBOILER	10-E-201	ISOLATING VALVES OF TCV-200 (STEAM INLET)	B1RRC	Gate Valve(Flanged), 4"x300lb	2			

42		10-E-201	ISOLATING VALVES OF STEAM TRAP	B1RRC	Gate Valve(Flanged), 3"x300lb	2			
						11			
DEHYDRATION-TRAIN-20 VALVES:-									
43	GLYCOL CONTACTOR	20-C-100	NRV ON TEG LINE IN 10-C-100	D5RWS	Check Valve(Wafer), 3"x600lb	1			
44	GLYCOL CIRCULATION PUMP	20-P-200	SUCTION VALVES	D1RRC	Gate Valve(Flanged), 4"x600lb	2			
45		20-P-200	DISCHARGE VALVES	D1RRC	Gate Valve(Flanged), 3"x600lb	2			
46		20-P-200	RECYCLE VALVE	D4RRC	Globe Valve(Flanged), 3"x600lb	2			
47	GLYCOL REBOILER	20-E-201	ISOLATING VALVES OF TCV-200 (STEAM INLET)	B1RRC	Gate Valve(Flanged), 4"x300lb	2			
48		20-E-201	ISOLATING VALVES OF STEAM TRAP	B1RRC	Gate Valve(Flanged), 3"x300lb	2			
						11			
DEHYDRATION-TRAIN-30 VALVES:-									
49	SURGE DRUM	30-V-200	DOWNSTREAM ISOLATING VALVE OF PSV	A1RRC	Gate Valve (Flanged), 6"x150lb	1			
						1			
UTILITIES/BOILER VALVES:-									
50	FUEL GAS LINE		NRV FUEL GAS LINE ON FUEL GAS SKID	D5RWS	Check Valve(Wafer), 8"x600	1			
51	COOLING TOWER	90-X-903	HOT WATER DISTRIBUTION VALVES	A9XXC	Angle Valve(Flanged), 16"x150lb	8			
52		90-X-903	COOLING WATER RECYCLE VALVE	A4RRC	Globe Valve (Flanged), 10"x150lb	1			
53		90-X-903	COOLING TOWER DRAIN VALVE	A1RRC	Gate Valve (Flanged), 6"x150lb	1			
54		90-X-903	ISOLATION VALVE OF LCV 9801	A1RRC	Gate Valve(Flanged), 8"x150lb	2			
55	INST. AIR COMPRESSOR	X-200 B	DISCHARGE VALVE		Gate Valve (Threaded), 40mm PN 25	1			Replacement
56	INST. AIR RECEIVER VESSEL	V-600 A/B	ISOLATION VALVE	A1RRC	Gate Valve (Flanged), 2"x150lb	4			Repair / Replace
57	BACK WASH PUMP	90-P-910B	DISCHARGE VALVE OF PUMP-B	A7RRC	Butterfly Valve (Wafer), 6"x150lb	1			
58		90-P-910B	DISCHARGE NRV OF PUMP-B	A5RWC	Check Valve(Wafer), 6"x150	1			
59		90-P-910A	DISCHARGE NRV OF PUMP-A	A5RWC	Check Valve(Wafer), 6"x150	1			
60	DEAREATOR	90-V-900	HP CONDENSATE LINE AT TOP DOME	A1RRC	Gate Valve 4"x150	1			
						22			
Total Cost (Manual Valves)									

OIL AND GAS DEVELOPMENT COMPANY LIMITED								
T&I- Section (PE&FD), Production Department								
ATA-2021 - UCH-I								
Sr. No.	Tag No.	Instruments Type /Make	Job Description	Tools/Equps. Required	Remarks	QTY.	UNIT RATE	Total Cost
GATHERING AREA:-								
WESTERN & CENTRAL LOBE:-								
1	PRV_2001A PRV_2001B	16" Emergency Valve Morin/Emerson	<ul style="list-style-type: none"> Onsite Testing & Rectification of PRVS Opening / Closing indications(Limit Switch) through CCR HMI Display Greasing & Cleaning of PRVs 	All tools, consumables, calibration equipments at contractor's end 1-Multi-meter 2-Engineering Station 3-Hart Communicator 4-Spanners Set (In/mm) 5-Screw Drivers Set 6-Resistance Box. 7-Pressure Calibrator 8-mA Source 9-Heavy Machinery (if reqd.).	1. OGDCL will deduct from actual cost if any job is not possible to be carried out. 2. OGDCL will deduct in case of non-availability of tools and calibration equipments. 3. mA Source and pressure calibrator at Contractor end 4. All the procedure as per manual will be provided by OGDCL that must be followed. 5. Site test with SCADA left as per process requirement	2		
2	ESDV_2001A ESDV_2001B		<ul style="list-style-type: none"> Onsite Testing & Rectification of PRVS Opening / Closing indications(Limit Switch) through CCR HMI Display Greasing & Cleaning of ESDVs 			2		
3	FCV_2001A FCV_2001B	Control Valves 16" / Fisher	<ul style="list-style-type: none"> Onsite Testing, Calibration, integrity checks of actuator , positioner , I/P converter and service verified by CCR HMI Rectify Feedback transmitting signals Open/ Close of FCV &etc Rectify faulty indications of all instruments / valves etc (if required) 			2		
4	MVT_2001 AMVT_2001B	Rosemount	<ul style="list-style-type: none"> Onsite Testing, Calibration, integrity of service verified by SCADA CCR HMI 			2		
EASTERN LOBE:-								
1	FCV_2001C FCV_2001D FCV_2001F FCV_2001E	Control Valves 8" / Fisher	<ul style="list-style-type: none"> Onsite Testing, Calibration, integrity checks of actuator , positioner , I/P converter and service verified by CCR HMI Rectify Feedback transmitting signals Open/ Close of FCV &etc Rectify faulty indications of all instruments / valves etc (if required) 	All tools, consumables, calibration equipments at contractor's end 1-Multi-meter 2-Engineering Station 3-Hart Communicator 4-Spanners Set (In/mm) 5-Screw Drivers Set 6-Resistance Box. 7-Pressure Calibrator 8-mA Source 9-Heavy Machinery (if reqd.).	1. OGDCL will deduct from actual cost if any job is not possible to be carried out. 2. OGDCL will deduct in case of non-availability of tools and calibration equipments. 3. mA Source and pressure calibrator at Contractor end 4. All the procedure as per manual will be provided by OGDCL that must be followed. 5. Site test with SCADA left as per process requirement	2		
2	ESDV_2001C ESDV_2001D ESDV_2001F ESDV_2001E	8" ESDV Valve Morin/Emerson	<ul style="list-style-type: none"> Dismantling of Actuator , shifting to W/S, replacement of Gasket& O Rings and maintenance etc. Actuator integrity testing and calibration, Onsite Testing & Rectification of PRVS Opening / Closing indications(Limit Switch) through CCR HMI Display Greasing & Cleaning of ESDVs 			4		

3	PRV_2001C PRV_2001D PRV_2001F PRV_2001E	8" ESDV Valve Morin/Emerson	<ul style="list-style-type: none"> Onsite Testing & Rectification of PRVs Opening / Closing indications(Limit Switch) through CCR HMI Display Greasing & Cleaning of PRVs 			4		
4	MVT_2001 CMVT_2001 1DMVT_2001 EMVT_2001F		<ul style="list-style-type: none"> Onsite Testing, Calibration, integrity of service verified by SCADA CCR HMI 			4		
WELL SITE:-								
EASTERN LOBE:-								
1	FCV_07	Flow Control Valve , Size 4" / Mokveld	<ul style="list-style-type: none"> Onsite Testing, Calibration, integrity checks of actuator , positioner , I/P converter and service verified by CCR HMI Rectify Feedback transmitting signals Open/ Close of FCV &etc Rectify faulty indications of all instruments / valves etc (if required) 	All tools, consumables, calibration equipments at contractor's end 1-Multi-meter 2-Engineering assistance software 3-Hart Communicator 4-Spanners Set (In/mm) 5-Screw Drivers Set 6-Resistance Box. 7-Pressure Calibrator 8-mA Source 9-Heavy Machinery (if reqd.).	1. OGDCL will deduct from actual cost if any job is not possible to be carried out. 2. OGDCL will deduct in case of non-availability of tools and calibration equipments. 3. mA Source and pressure calibrator at Contractor end 4. All the procedure as per manual will be provided by OGDCL that must be followed. 5. Site test with SCADA left as per process requirement	4		
	FCV_08							
	FCV_09							
	FCV_06B							
2	ESDV_07	TK valve , Emergency Shutdown Valve Size 4"	<ul style="list-style-type: none"> Onsite Testing & Rectification of PRVs Opening / Closing indications(Limit Switch) through CCR HMI Display Greasing & Cleaning of ESDVs 			4		
	ESDVV_08							
	ESDV_09							
	ESDV_06B							
3	FT_o7	MVT / Rosemount 3095	<ul style="list-style-type: none"> Calibration, servicing and maintenance will be carried out and verification of reading will be monitored by CCR-HMI 			4		
	FT_08							
	FT_09							
	FT_6B							
CENTRAL LOBE:-								
1	FCV_03	Flow Control Valve , Size 4" / Mokveld	<ul style="list-style-type: none"> Onsite Testing, Calibration, integrity checks of actuator , positioner , I/P converter and service verified by CCR HMI Rectify Feedback transmitting signals Open/ Close of FCV &etc Rectify faulty indications of all instruments / valves etc (if required) 	All tools, consumables, calibration equipments at contractor's end 1-Multi-meter 2-Engineering assistance software 3-Hart Communicator 4-Spanners Set (In/mm) 5-Screw Drivers Set 6-Resistance Box. 7-Pressure Calibrator 8-mA Source 9-Heavy Machinery (if reqd.).	1. OGDCL will deduct from actual cost if any job is not possible to be carried out. 2. OGDCL will deduct in case of non-availability of tools and calibration equipments. 3. mA Source and pressure calibrator at Contractor end 4. All the procedure as per manual will be provided by OGDCL that must be followed. 5. Site test with SCADA left as per process requirement	5		
	FCV_17							
	FCV_18							
	FCV_11							
	FCV_14							
2	ESDV_03	TK valve , Emergency Shutdown Valve Size 4"	<ul style="list-style-type: none"> Onsite Testing & Rectification of PRVs Opening / Closing indications(Limit Switch) through CCR HMI Display Greasing & Cleaning of ESDVs 			5		
	ESDV_17							
	ESDV_18							
	ESDV_11							
	ESDV_14							
3	FT_03	MVT / Rosemount 3095	<ul style="list-style-type: none"> Calibration, servicing and maintenance will be carried out and verification of reading will be monitored by CCR-HMI 			5		
	FT_17							
	FT_18							
	FT_11							
	FT_14							

WESTERN LOBE:-							
1	FCV_12	Flow Control Valve , Size 4" / Mokveld	<ul style="list-style-type: none"> Onsite Testing, Calibration, integrity checks of actuator , positioner , I/P converter and service verified by CCR HMI Rectify Feedback transmitting signals Open/ Close of FCV &etc Rectify faulty indications of all instruments / valves etc (if required) 	All tools, consumables, calibration equipments at contractor's end 1-Multi-meter 2-Engineering assistance software 3-Hart Communicator 4-Spanners Set (In/mm) 5-Screw Drivers Set 6-Resistance Box. 7-Pressure Calibrator 8-mA Source 9-Heavy Machinery (if reqd.).	1. OGDCL will deduct from actual cost if any job is not possible to be carried out. 2. OGDCL will deduct in case of non-availability of tools and calibration equipments. 3. mA Source and pressure calibrator at Contractor end 4. All the procedure as per manual will be provided by OGDCL that must be followed. 5. Site test with SCADA left as per process requirement	6	
	FCV_13						
	FCV_15						
	FCV_16						
	FCV_02						
	FCV_10						
2	ESDV_12	TK valve , Emergency Shutdown Valve Size 4"	<ul style="list-style-type: none"> Onsite Testing & Rectification of PRVS Opening / Closing indications(Limit Switch) through CCR HMI Display Greasing & Cleaning of ESDVs 	4-Spanners Set (In/mm) 5-Screw Drivers Set 6-Resistance Box. 7-Pressure Calibrator 8-mA Source 9-Heavy Machinery (if reqd.).	1. OGDCL will deduct from actual cost if any job is not possible to be carried out. 2. OGDCL will deduct in case of non-availability of tools and calibration equipments. 3. mA Source and pressure calibrator at Contractor end 4. All the procedure as per manual will be provided by OGDCL that must be followed. 5. Site test with SCADA left as per process requirement	6	
	ESDV_13						
	ESDV_15						
	ESDV_16						
	ESDV_02						
	ESDV_10						
3	FT_12	MVT / Rosemount 3095	<ul style="list-style-type: none"> Calibration, servicing and maintenance will be carried out and verification of reading will be monitored by CCR-HMI 	8-mA Source 9-Heavy Machinery (if reqd.).	1. OGDCL will deduct from actual cost if any job is not possible to be carried out. 2. OGDCL will deduct in case of non-availability of tools and calibration equipments. 3. mA Source and pressure calibrator at Contractor end 4. All the procedure as per manual will be provided by OGDCL that must be followed. 5. Site test with SCADA left as per process requirement	6	
	FT_13						
	FT_15						
	FT_16						
	FT_02						
	FT_10						
LP SEPARATORS (V-100 & V-101):-							
1	LT -3201 LT-3250	LT	<ul style="list-style-type: none"> V-100 & V-101 (LCVs, PSVs, PCVs) Inspection, calibration and maintenance will be carried out and verification of controlling will be executed by CCR- HMI [operator command]. To record as found calibration data. Site calibration and integrity checks of actuator, positioner, I/P converter. Loop calibration through SCADA 	<ul style="list-style-type: none"> All tools, calibration equipments at contractor's end Spanners Set (In/mm) Screw Drivers Set Hex Key set. Multi-meter Pipe Wrench set Engineering assistance software Hart Communicator Spanners Set (In/mm) Screw Drivers Set Multi-meter Resistance Box. Pressure Calibrator 	1. OGDCL will deduct from actual cost if any job is not possible to be carried out. 2. OGDCL will deduct in case of non-availability of tools and calibration equipments. 3. mA Source and pressure calibrator at Contractor end 4. All the procedure as per manual will be provided by OGDCL that must be followed. 5. Site test with SCADA left as per process requirement	2	
2	25-PSV-3205 25-PSV-3255	PSV, Size= 4" / Anderson Greenwood & Co.				2	
3	PCV-3215 PCV-3271	PCV , Size=2" / Fisher				2	
SLUG CATCHER (M-200):-							
1	LT_2025 LT_2020	LT	Rectify following inspection, calibration and maintenance will be carried out and verification of controlling will be executed by CCR- HMI [operator command]. [Boot calibration & Servicing]	<ul style="list-style-type: none"> All tools, consumables, calibration equipments at contractor's end Spanners Set (In/mm) Screw 	1. OGDCL will deduct from actual cost if any job is not possible to be carried out. 2. OGDCL will deduct in case of non-availability of tools and calibration	2	

2	FT_2002	MVT / Rosemount	Calibration, servicing and maintenance will be carried out and verification of reading will be monitored by CCR-HMI.	Drivers Set • Hart Communicator & Etc • Spanners Set (In/mm) • Screw Drivers Set • Multi-meter • Resistance Box. • Pressure Calibrator	equipments. 3. mA Source and pressure calibrator at Contractor end 4. All the procedure as per manual will be provided by OGDCL that must be followed. 5. Site test with SCADA left as per process requirement	1		
3	25-PSV-2015	PSV , Size = 4" / Anderson Greenwood & Co	Calibration, servicing and maintenance will be carried out and verification of reading will be monitored by CCR-HMI.			1		
CONDENSATE STORAGE TANKS (T-101 & T-102)								
1	LT_3405 LT_3305	LT- [T-101 & T-102]	Rectify error and calibrations of the LT- (T-101 & T- 102) will be carried out and verified by CCR – HMI , Operator command	• Hart Communicator • Spanners Set (In/mm) • Screw Drivers Set • Multi-meter • Resistance Box. • Pressure Calibrator	• OGDCL will deduct from actual cost if any job is not possible to be carried out. • OGDCL will deduct in case of non-availability of tools and calibration equipments. • mA Source and pressure calibrator at Contractor end	2		
2	LS_3310 LS_3410	LS- [T-101 & T-102]	Rectification of error and calibration job will be executed both LS-(T-101 & T-102); will be verified by CCR-HMI, Operator command.		• All the procedure as per manual will be provided by OGDCL that must be followed. • Site test with SCADA left as per process requirement	2		
Total Cost (T&I SOW)								

References:

- ASME Sec II Part-A (Ferrous material Specifications)
- ASME Sec II Part-C (Specifications for welding rods, electrodes and filler materials)
- ASME VIII Div-I (Rules for Construction of Pressure Vessels)
- ASME Sec IX (Welding and Brazing Qualifications)
- ASME B31.3 (Process Piping)
- ASME Sec V (Non Destructive Examination)
- API-510 (Code for Inspection of pressure vessels repair, alteration and re-rating)
- API-572 (Inspection of Pressure Vessels)
- API-570 (Inspection, Repair, Alteration and re-rating of piping)
- API-598 (Valves Inspection & Testing)
- MSS-SP-61 (Pressure Testing of Steel Valves)
- NACE MR-0175
- OGDCL's Specifications & HSEQ Manual