OIL & GAS DEVELOPMENT COMPANY LIMITED

TENDER ENQUIRY NO. PROC-SERVICES/CB/P&P-4711/2020

HIRING OF SERVICES FOR EXECUTION OF ATA-2020 JOBS AT NASHPA PLANT

Note:

Bid bond of **PKR 560,000/- (Pak Rupees Five Hundred Sixty 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.

Annexure-A

HIRING OF SERVICES FOR EXECUTION OF ATA-2020 JOBS AT NASHPA PLANT

Nashpa Oil field and LPG Gas Processing plant, District Karak, KPK (located on main Indus highway) consists of Separators, dehydration unit, Condensate stabilization unit, Sale Gas compression area, LPG recovery unit. Annual Turn around (ATA) is planned during **July-Aug 2020**. (Tentatively).

General terms & conditions.

1. Technical services are required for execution of Annual Turn Around (ATA-2020) jobs as per attached scope.
2. Total ATA duration may be tentatively **15 days**. (Inclusive of Initial 24 hours which are required for flushing /purging/isolation of plant equipments and 24 hours for final leak test).
3. The schedule and duration of ATA may be changed (reduced) at any stage. In such situation, OGDCL will go for execution of selected critical/important jobs from planned scope so as to meet the target date of startup and approved ATA timer period. Accordingly, payment will be made as per actual only.
4. Contractor's welding/fabrication, scaffolding and insulation crew should report at site 03 days prior to ATA schedule for Fabrication (Shop joints), Shifting and installation of scaffolding and removal of insulation.
5. Contractor's services will remain intact at site till completion of re-insulation, painting, final housekeeping etc.
6. OGDCL reserves the right to change (increase/decrease) the scope of the work at any time keeping in view the operational requirements.
7. Contractor may visit the site to further understand scope of work before submission of bid. Boarding and lodging may be provided during pre-bid site visit only.
8. Contractor should have established with minimum Five (5) years of working experience of repair and maintenance jobs and submit details of experience along with customer satisfaction/ completion certificate/verifiable documents etc.
9. The ATA jobs are required 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. Working hours for the day may be considered 10 hrs each for day and night shift excluding lunch breaks, Tea breaks and prayer times.
10. Most of the jobs will be carried out in the day shift however; limited tasks will be carried out in the night shift keeping in view the HSEQ requirements.
11. Skilled manpower should be well experienced in their respective crafts. CVs of supervisory level (mechanical, instrument and electrical) manpower to be provided in Technical Bid. The same supervisory team should be deputed at execution stage.

12. HSEQ Rules & Regulations will be strictly observed. For complete compliance, contractor will get HSEQ system manual from OGDCL at the time of mobilization.
13. Contractor's manpower will remain at site for complete Leak Test and complete plant start up.
14. OGDCL can replace any activity with another activity of the same scope.
15. After completion of each activity, work order will be duly signed from concerned maintenance sections, Process/operation section and contractor's area supervisor. OGDCL work order system to be followed.
16. Payment will be made as per actual work done after the completion of assigned ATA jobs against verified work order/invoices. Bidder to submit Annex C of provincial sale tax invoice with "submitted" status along with invoices.
17. Unit rates quoted by bidder shall be firm. No extra payments on account of escalation in prices due to any reason shall be admissible.
18. The Contractor shall be paid only for the work duly approved by OGDCL representative. Any rework due to poor quality, demonstrated by NDT results & inspection by OGDCL shall be on Contractor's account.
19. Contractor will be responsible for dismantling, shifting to workshop and back to site after maintenance, re-installation and alignment of equipment/motors with skilled teams.
20. 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) will be developed by contractor.
21. All valves will be checked for seat leak tests & body test.
22. The technical manpower must be qualified / skilled and have at least Ten (10) years of individual experience in its trade in the field of Oil & Gas/Petrochemical Processing Plants. Contractor skilled manpower may be interviewed by OGDCL professionals in all disciplines (Mechanical, Electrical and Instrument), if deemed necessary and contractor will ensure presence of required crew for such interview. The detailed CV's of direct manpower/supervisors is mandatory.
23. The Contractor shall quote separate rate in PKR for each activity against the quantities mentioned in the scope of work including all charges (tools, cranes, manpower etc.). Contractor shall mention mobilization & demobilization charges separately.
24. Contractor shall submit in the technical bid; Manpower histogram, to be plotted on each-day basis to show the nos. of people to be on site for execution of ATA works scope. The manpower should be segregated/ separately shown for Mech, Electrical and Instrumentation & Control.
25. Contractor should prepare/submit daily progress report and percentage Gantt chart (planned vs actual) at end of the day.
26. Contractor will provide all the calibration certificates (Hard and Soft copy) of all the instruments which will be carried out in the ATA.
27. Proper certification of lifting gears, cranes, lifters, crane operators, drivers etc. will be mandatory.
28. Contractor should arrange HSE I/C, supervisors, inspectors, first aiders, hole watcher, rescuer, fireman and housekeeping man as per work plan activities.

OGDCL RESPONSIBILITIES

1. Electricity will be provided for lightening purpose, general maintenance and hydrotest only at site. Instrument air will be provided for calibration/purging purpose. Supply of water for maintenance jobs will be in OGDCL scope. Contractor should arrange its own generator (if required) for all other purpose. No diesel will be provided by OGDCL for contractor's machinery like fork lifter, cranes, welding generator, vehicles etc. Diesel arrangement is in scope of contractor, however, in case of emergency, if any diesel is provided by OGDCL for machinery of contractor, then payment of same will be deducted from ATA invoices.
2. Painting material (Paint, thinner, turpentine, brushes), however painting services and scaffolding required during painting job at height will be contractor's scope.
3. Spare parts will be provided by OGDCL.
4. Blind/ spades for isolation and pressure testing.
5. NDT/third party inspection/RT etc.
6. Hydro test pumps, tanks and hose pipes.
7. 02 rooms in officer camp for contactor's supervisory officers
8. Nitrogen for leak test.

CONTRACTOR RESPONSIBILITIES

1. HSEQ

1. Contractor will follow OGDCL HSEQ Policy in addition to all governmental regulations applicable to the scope of work for implementation of safe execution of each activity with zero-injury. In case of any accident, OGDCL will not be liable for any claim like insurance etc.
2. Contractor shall submit, before the start of ATA, the detailed documents as follows:
    a. HSE Risk Assessment
    b. Emergency Preparedness and Response Plan.
3. Contractor shall strictly follow the Work-to-Permit System and shall provide plan of activities in advance, submit THAs/JHAs where required and engage only certified staff for the hot jobs.
4. Contractor shall develop and ensure Toolbox Talk Program on Safety, Health and Environmental matters in daily HSE briefings by its HSEQ Rep.
5. Provision of PPE's (Helmet, Coverall, safety shoes, gloves, goggles etc.) of all kinds to hired crew.
6. Contractor shall submit to OGDCL representative an HSE Performance Review Report on regular basis.
7. Contractor will be responsible for housekeeping, clean up the trash, spills, food waste, spill of chemicals, oils, whereas potentially hazardous wastes to be immediately reported to OGDCL HSEQ representative. Further any used material will be transported to store yard by contractor.

8. Contractor shall provide orientation on Emergency Preparedness and Response Procedure to its team and ensure that its personnel are well aware of what procedures are in practice and who is to notify in the event of any emergency.
9. Mobiles, photo camera, cigarettes, lighter etc. are prohibited in the plant premises and contractor should ensure this.
10. Contractor should arrange HSE I/C, supervisors, inspectors, first aid providers, hole watcher, rescuer, fireman and housekeeping man as per work plan activities.
11. Contractor will hire certified crane operator, scaffolder, rigger, drivers, welders, fabricators etc.
12. Each contractor's employee will wear its provided ID card in the premises of plant, ID card will be provided by the contractor displaying name & craft of each employee.
13. In case of any accident of hired crew, medical or compensation will be on contractor's scope. OGDCL will be not responsible for any unfortunate/unforeseen incident faced by manpower and equipments of contractor.
14. In case of any injury, workmanship compensation of contractor's staff will be contractor's responsibility.

2. Field Work

1. The contractor should prepare detailed plan (up to Level-IV in Primavera/ Microsoft Project Planner etc) for ATA activities and submit the plan covering all the ATA activities for carrying out of Nashpa Plant ATA successfully with high quality within stipulated time frame.
2. Contractor must provide man power deployment plan area wise.
3. Contractor will provide daily progress report clearly mentioning the actual work carried out against the planned work.
4. Site administration personnel with associated resources like computers, photocopiers etc.
5. The technical manpower must be qualified / skilled and have at least Ten (10) years of experience in its trade in the field of Oil & Gas/Petrochemical plants. Contractor skilled manpower may be interviewed by OGDCL professionals (Mechanical/Electrical/Instrument). Evaluation of all the short-listed skilled persons will be carried out by OGDCL well before the ATA. Replacement of Skilled personnel will be done with approval of OGDCL. OGDCL reserves the right to replace any person at any time.
6. All welders must be well experienced. Documentary evidence to be provided.
7. Pre ATA jobs/ fabrication works will be started 7 days before scheduled start date of ATA.
8. Locals may be given preference while hiring of skilled/unskilled manpower.
9. Arrangement of 03 Nos diesel engine driven welding machines (minimum).
10. All consumables like Cotton rages, WD-40, masks, ear muff, Gloves in contractor scope.
11. All Welding consumables electrode, cutting disks, in contractors' scope.
12. Provision of general/routine tool kit to the hired staff. (Tools like spanner sets, striking/spud spanners (24mm to 65 mm), hammers, wrenches, adjustable, ratchet sets, shackles, slings, eye bolts etc)

13. Internal Cleaning of tube bundle and pressure vessels through chemical cleaning or lancer cleaning is in contractor scope as per requirement/recommended by OGDCL team at site.
14. 01 No Hydraulic bolt tensioner/bolt tightener along with operator (55 mm, 60 mm, 65 mm, 95 mm and 115 mm).
15. 01 No Hydro jetting machine along with operator (Engine driven).
16. Contractor shall arrange tools and skilled manpower with proper PPE's for control valve and PSV's pressure testing. Contractor must arrange reputable third party contractor for certification of all the PSV's.
17. Skilled machinists to be provided by contractor for isolation valves/Control valves repairing.
18. Lapping machine and expert machinist to be arranged by contractor.
19. Skilled tray fitter for trays dismantling/installation jobs of towers.
20. Contractor should arrange following equipments for instrument related jobs:

I.	Lathe Machine along with expert machinist =	01 No
II.	Lapping Machine / equipment for Lapping of seats, plugs & disks of Control Valves & PSVs=	01 No
III.	PSV test Bench / Hydro test equipments, pressure upto 2000 PSIG=	01 No
IV.	HART Communicators Model 475 =	02 No
V.	milli Ampere Source, =	02 Nos
VI.	Pneumatic Calibrators.	01 Nos
VII.	Digital Multimeters (Fluke / Yokogawa)	04 Nos
VIII.	Temperature Bath/ calibrator	01 No
IX.	Multi Function Process calibrator	01 No
X.	Dead weight Tester	01 No
XI.	Portable pressure calibrator (Fluke/ Ammetek/ Druck etc.)	02 No.
XII.	Tool Boxes having complete tools for electronic & Pneumatic instrument work.	04 Nos
XIII.	All essential tools in order to perform the mentioned jobs during ATA.	
XIV.	Contractor will submit valid certificates for E & I calibration and testing equipments.	

21. Sufficient Electrical cables (2/3/4 cores), electrical panels, Junction Boxes (having circuit breaker /protections available) for provision of electric supply to different area of plant for jobs like exhaust fans, lights, 24V lights in vessels, cutting, grinding etc will be in contractor scope.
22. Test equipment for electrical related jobs like, multi-meters, ampere meters, digital earth testers, bearing heater shall be arranged and provided by the contractor. (The contractor for test equipment shall provide Calibration certificates).
23. 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.
24. Contractor should arrange HSE team, supervisors, inspectors, first aiders, and will work with close coordination of OGDCL team.
25. Tool kits to electricians and instrument fitters/technicians (Tools like pliers, cutters, star set, comb spanner set, L-key set screw drivers etc.).
26. Removal of Insulation/ cladding and re-installation by skilled insulators.

27. Scaffolding material and services is in contractor scope.
28. The contractor will carry out security clearance of all the hired crew. OGDCL may provide security to contractor crew within the premises of plant during job execution only. The contractor will solely resolve any issues/matters between the contractor and locals. The contractor will have no authority to terminate/hold the job due to any concerns/issues with locals. The contractor will have to deal with locals at its own. OGDCL will be not responsible for any incident.
29. Boarding / Lodging to all the hired crew will be provided by the contractor.
30. Pick and drop facility for hired crew is in contractor scope.

Contractor manpower must have CNIC and contractor identity card, and will follow OGDCL security policy.

31. Contractor will supply Cranes and Fork Lifters to accomplish the attached SOW within stipulated time frame. However, following minimum logistic support with proposed allocation is recommended:

S.No	Detail	Qty	Utilization
1.	Hydraulic Crane, Capacity 50 Ton,	01 No	
2.	Hydraulic Crane, Capacity 30Ton	02 No	
3.	Fork Lifters, Capacity 05 Ton	02 No	

In case of malfunctioning of crane/lifter, OGDCL will deduct the rental charges as per actual based on prevailing market rates.

32. Soft copies of work order may be provided to bidder upon request.
33. Quotation required in PKR against each individual activity to execute the jobs given in the scope of work (SOW) for ATA.
34. Sample Work order and HSE protocol for contactor are attached herewith.
35. The Contractor shall be responsible for ventilation and getting the vessels fit for entry and working environment. Contractor will be responsible for electric power and water supply for their own manpower at its residence facility.

BIDDER QUALIFICATION

1. All the interested parties intending to participate to execute the ATAs must fulfil all the requirements / parameters required for bidder qualification as per tender document in their bids. The evaluation of the bids shall be carried out through grading of the contractors according to marks calculated as per criteria attached. A Contractor should earn minimum qualifying marks in each category & total 70 marks as overall in order to qualify. The Minimum qualifying marks in each category are also defined.

2. The Contractor(s) are required to provide the following documents for bidder qualification:

I. Certified copy of valid NTN / GST certificates.

II. Contractor profile.

III. Documentary proof for providing the services by contractor for maintenance jobs (which include copy of purchase orders, Contract, completion certificates etc) of at least Five 05 years in oil & gas or petrochemical plants. The supervisory manpower should have atleast 10 year of experience for ATA's in Oil & gas or petrochemical sector. Any ATA experience at other plants like sugar, textile, cement, power generation units etc. will not be considered. Project (like erection of new plants etc.) experience will not be considered as ATA experience.

IV. Comprehensive list of all available equipment, tools, camp, office & workshop facilities, logistic equipment, cranes, lifters etc. should be provided. It may be verified physically if necessary.

V. Contractor's site organogram of ATA, manpower deployment plan & equipment deployment plan with total numbers of each craft, machinery, tools etc. It should cover all required resources (manpower, machinery & tools) specially; Mechanical, Instrument, Electrical, HSEQ, Inspection crews etc.

VI. CVs of the all Management & Supervisory ATA team (as per organogram). The Managers, Engineers, supervisors should have experience of ATA execution.

VII. List of all the offices and service agencies across Pakistan.

VIII. Contractor's HSEQ policy & detail required to claim the marks as per annexure-A Sr. No. 05.

IX. Verifiable copy of purchase orders & satisfactory performance certificate from Oil & Gas companies, refineries or petrochemical plants for execution of previous ATA in order to claim the marks.

X. Lev-1 or 2 (MS Project/MS project or equivalent) schedule to demonstrate how the ATA work will be executed within OGDCL specified time line. The schedule must include all major machinery and tools/ equipment required to carry out ATA activities.

3. In case of bid submitted by any Joint Venture Contractors, the experience of one Contractor will be considered for evaluation (for example 01-year experience of one Contractor & 01 year of the another

JV Contractor will not be considered as two years. Similarly, two ATAs performed by one Contractor & one ATA by JV will not be considered as three ATAs. Contractor to provide JV agreement.

4. Contractor declared as black listed at PPRA website will not be entertained.
5. All interested parties / bidders are requested to visit at site to clarify / understand the scope of work if deem necessary. It will also helpful to understand the scope & submit the bid well in time.
6. OGDCL requirement for bidders is to explicitly demonstrate in their "Technical Bid Submission" that they have allocated enough manpower, machinery, equipment, tools etc. to carry out all ATA activities safely and within planned timeline. Any bidders appearing to be short of resources in their technical bid submission may be rejected. It should also be noted that after award of ATA Contract/service order by OGDCL, Contractor shall have sole responsibility to review the current situation/ onsite situation (including any changes to priorities by OGDCL) and arrange the additional resources (people/ machinery, Tools, equipment, etc.) to ensure ATA delivery within stipulated timeline and OGDCL defined targets. All such activities shall be performed without additional and/or extra cost to OGDCL.
7. Bidder shall confirm to provide & execute all activities as per TOR / Scope of work, any bidder who will obtain 70 marks but not confirm to execute complete TOR / Scope of work will be declared as technically non responsive.

Contractor Qualification Criteria (MARKS)

Sr#	Evaluation Item	Description of Criteria	Marks Calculations	Max. Marks	Min. Qualifying Marks	Remarks
1.	Contractor strength to execute Mechanical, Electrical & Instrumentation work.	Contractor should have past experience for execution of Mechanical, Electrical and Instrument works.	Fully Complied = 15	15	15	The Contractor should submit the detail of scope of work along with supporting documents to prove that they have executed Mechanical, Electrical & Instrument activities during ATAs of oil & gas and petrochemical plants. Experience of Contractor itself will be considered only (experience of manpower is separately covered in TOR)
2.	Specific experience of Annual Turn Around (ATA).	Contractor's experience of ATAs.	Only ATA experience will be considered for marks calculation as per break up given in remarks. ATA's of oil & gas sector and petrochemicals plants will be considered only. *Break up of ATA jobs/work orders in specific year for specific plant will be considered as single ATA.*	30	10	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). If value/ Cost of ATA performed is less than 10 Million but above 07 Million (PKR) 05 points each. If value/ Cost of ATA performed is less than 07 Million but above 04 Million (PKR) 04 points each. If value/ Cost of ATA performed is less than 04 Million but above 1.5 Million (PKR) 03 points each. If value/ Cost of ATA performed is less than 1.5 Million then it will not be considered.
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 4. 04 Marks	15	04	Contractor should submit the valid copy of certificates. No marks for in-progress status and expired certificates.
4.	Offices, Workshop, Tools, Equipment, Machinery, Infrastructure.	Contractor should have following facilities with in 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,	1. 03Marks 2. 08 Marks 3. 03 Marks 4. 06 Marks (04 + 02) 5. 10 Marks.	30	15	Established workshop: 02 Marks Established Office: 01 Marks Mechanical tools: 04 Marks. Instrument tools: 02 Marks. Electrical tools: 02 Marks. 01 Marks for each main equipment / Machinery. 01 Crane (Min 30-50 tons). 02 Marks Max: 04 Marks 01 fork lifters (Min 3 Tons). 01 Mark Max: 02 marks Organogram: 02 Mark. Mechanical CVs: 04 Mark Electrical CVs: 02Mark Instrument CVs: 02Mark

Sr#	Evaluation Item	Description of Criteria	Marks Calculations	Max. Marks	Min. Qualifying Marks	Remarks
		Instrument & Electrical works.				
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 partially compliance zero Marks.	10	06	The Contractor having 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.

Total Marks= 100

Minimum Qualifying Marks = 70

1. *Contractors capable of executing Electrical, Instrument & Mechanical activities will be considered for qualification. Partial compliance i.e. if the Contractor has experience of mechanical jobs only, having no experience in Electrical & Instrumentation field & vice versa, then it will be not considered for qualification.*
2. *Contractor should score minimum qualifying marks in each category as mentioned in above table. In addition, the total marks should also be not less than 70. Any contractor who will score less than 70 marks shall not be considered for qualification.*
3. *In case of JV, JV agreement to be provided by contractor. Experience of both JV partners will be not added together for marks calculation in single category.*

INSTRUMENT SECTION

Dismantling (including debolting), shifting to workshop, refurbishment, inspection, lapping, calibration, pressure testing, parts replacement, re-tubing, shifting to plant area from workshop, re-installation & box up (including tightening) and commissioning of Control Valves and PSVs at Nashpai Plant (job list given below)

S#	WO #	Equipment/Job	Type	Area	Qty	Unit rate	Total rate
1.		Level Transmitter LT-2003	Fisher DLC2010	20	1		
2.		Level Transmitter LDT-2002	Fisher DLC2010	20	1		
3.		Level Transmitter LT-H01	FOXBORO, 244LD-SS3R1RSNHFDZ-ML23	21	1		
4.		Level Transmitter LT-H02	FOXBORO, 244LD-SS3R1RSNHFDZ-ML23	21	1		
5.		Level Transmitter LT-M01	FOXBORO, 244LD-SS3R1RSNHFDZ-ML23	21	1		
6.		Level Transmitter LT-M02	FOXBORO, 244LD-SS3R1RSNHFDZ-ML23	21	1		
7.		Level Transmitter LT-L01	FOXBORO, 244LD-SS3R1RSNHFDZ-ML23	21	1		
8.		Level Transmitter LT-L02	FOXBORO, 244LD-SS3R1RSNHFDZ-ML23	21	1		
9.		Flow Transmitter FT-2001	Rosemount, 2051CD3A02A1BS5M5I5P1Q4	20	1		

MECHANICAL SECTION

SR #	WO #	Description of Job	Asset/Detail/ Equipment Tag #	Area Code	QTY	Unit rate PKR	Total Price PKR
Slug Catcher & Separation Batteries. (Unit-2000/2100)							
1.		Installation of Scaffolding at Slug Catcher Oil Header	SC-2001	20	20 ft^2		
2.		Opening/cleaning/inspection of end plates of Slug Catcher Water boot (both ends) by using hydratight	SC-2001	20	1		
3.		Opening/cleaning/inspection of HMC HP Separators including all Level Gauges and Strainers	V-2101	21	1		
4.		Opening/cleaning/inspection of HMC MP Separators including all Level Gauges and Strainers	V-2102	21	1		
5.		Opening/cleaning/inspection of HMC LP Separators including all Level Gauges and Strainers	V-2103	21	1		
6.		Opening/cleaning/inspection of Battery # 1 Separators HP-1 including all Level Gauges and Strainers	HP-1	21	1		
7.		Opening/cleaning/inspection of Battery # 1 Separators HP-2 including all Level Gauges and Strainers	HP-2	21	1		
8.		Opening/cleaning/inspection of Battery # 1 Separators MP-1 including all Level Gauges and Strainers	MP-1	21	1		
9.		Opening/cleaning/inspection of Battery # 1 Separators MP-2 including all Level Gauges and Strainers	MP-2	21	1		
10.		Opening/cleaning/inspection of Battery # 1 Separators LP-1 including all Level Gauges and Strainers	LP-1	21	1		
11.		Opening/cleaning/inspection of Battery # 1 Separators LP-2 including all Level Gauges and Strainers	LP-2	21	1		
12.		Servicing/greasing of all 12"/10"/8"/6" isolation & bypass valves of SC-2001/HMC HP/MP/LP Separators (V-2101/2102/2103).	V-2101 V-2102 V-2103	20 21	1		
13.		Ball Valve RTJ 12" Class 900 Repair/Replacement (HMC HP Inlet Valve)	V-2103	21	1		
14.		Ball Valve 10" Class 900 Repair/Replacement (HMC HP Liquid Line)		21	1		
15.		Heat Exchanger Opening, cleaning, pressure test and Box Up.	E-2001	21	1		
16.		External cleaning of inlet evaporative cooler louvre inspection & rectification (if required), fan pitch inspection, fan shaft & hub inspection.	EA-2101	21	1		
17.		Removal of Scaffolding at Slug Catcher Oil Header	SC-2001	20	20 ft^2		
18.		Surface preparation for NDT jobs for Slug Cather	SC-2001	20	1		
19.		Surface preparation for NDT for HMC HP Separator	V-2101	21	1		
20.		Surface preparation for NDT for HMC MP Separator	V-2102	21	1		
21.		Surface preparation for NDT for HMC LP Separator	V-2103	21	1		
22.		Insulation of crude heater outlet line to MP Separator.	E-2001	21	3600 ft^2		
23.		Insulation of MP Separator.	MP Separator.	21	1000 ft^2		
24.		Insulation on MP separator crude outlet line till flash separator inlet.	MP Separator.	21	8500 ft^2		
25.		4" Sch 80 Elbow Replacement	MP Separator	21	16 Dia Inch		
Crude Stabilization Unit (Unit-2200)							
26.		Installation of Scaffolding at Stabilizer Reboiler /Stabilizer Heat Exchanger	E-2201/E-2202	22	Approx 40 ft^2		
27.		Removal of Insulation at Stabilizer Reboiler/Stabilizer Heat Exchanger Condensate Filters Condensate Coalescer Filters	E-2201/E-2202/F-2201A/B/ F-2202	22	Approx 500 ft^2		
28.		Opening/cleaning/inspection of Flash Separator and cleaning of all level gauges	V-2201	22	1		
29.		Replacement/cleaning of filters	F-2201-A	22	1		
30.		Replacement/cleaning of filters	F-2201-B	22	1		
31.		Replacement/cleaning of coallesor filters	F-2202	22	1		
32.		Cleaning of Strainer	P-2201-A	22	1		
33.		Cleaning of Strainer	P-2201-B	22	1		
34.		Opening/cleaning/inspection of tower.	C-2201	22	1		
35.		(Reboiler) bundle removal/cleaning/replacement/Pressure Testing.	E-2201	22	1		
36.		(Pre-heater) Bundle removal/cleaning/Pressure Testing.	E-2202	22	1		
37.		Cleaning of all LGs of condensate stabilization unit.	Unit-2200	22	1		
38.		External cleaning of crude cooler louver inspection & rectification (if required), fan pitch inspection, fan shaft & hub inspection.	EA-2201	22	1		

39.		External cleaning of crude cooler, louver inspection & rectification (if required), fan pitch inspection, fan shaft & hub inspection.	EA-2204	22	1		
40.		Overhead Compressor 1st/2nd stage & new knock out drum Opening/cleaning/inspection.	V-2202	22	1		
41.		Overhead Compressor 1st/2nd stage & new knock out drum Opening/cleaning/inspection.	V-2203	22	1		
42.		Overhead Compressor 1st/2nd stage & new knock out drum Opening/cleaning/inspection.	V-2204	22	1		
43.		Cleaning of Suction Strainers.	Unit-2200	22	1		
44.		External cleaning of 1st/2nd Stage, Jacket water/Auxiliary Water Coolers lower inspection & rectification (if required), fan pitch inspection, fan shaft & hub inspection.	EA-2202/2203	22	2		
45.		Installation of Insulation at Stabilizer Reboiler/Stabilizer Heat Exchanger/Condensate Filters/Condensate Coalescer Filters.	E-2201/E-2202/F-2201A/B/ F-2202	22	Approx 500 ft^2		
46.		Removal of Scaffolding at Stabilizer Reboiler Stabilizer Reboiler /Stabilizer Heat Exchanger	E-2201 E-2202	22	Approx 40 ft^2		
47.		Surface preparation for NDT of Stabilization Unit(at different points on same equipment)	Unit-2200	22	1		
48.		Painting of Exhaust of Engine.	Unit-2200	22	1		
49.		NRV RTJ 3" Class Replacement/Repair 900 (Overhead Compressor 2nd Stage Discharge line)	K-2201	22	1		
Gas Dehydration Unit (Unit-2300)							
50.		Installation of scaffolding at Dehydration Unit	Unit-2300	23	Approx 70 ft^2		
51.		Removal of Insulation at Dehydration Unit	Unit-2300	23	100 ft^2		
52.		Opening/cleaning/inspection of inlet scrubber	V-2301	23	1		
53.		Replacement/cleaning of Feed Gas Coalescer Filter	F-2301-A	23	1		
54.		Replacement/cleaning of Feed Gas Coalescer Filter	F-2301-B.	23	1		
55.		Replacement/cleaning of Dust Filter	F-2302A	23	1		
56.		Replacement/cleaning of Dust Filter	F-2302B	23	1		
57.		Replacement/cleaning of Mercury Filter	F-2303-A	23	1		
58.		Replacement/cleaning of Mercury Filter	F-2303-B	23	1		
59.		Inspection of Mol Sieve Desiccant. (Man way and Top Inlet Opening, removal of floating screen (Replacement of floating Screen/Removal of ¾" Ceramic Balls/Desiccant Decanting top layer and makeup) If required. by using hydratight	V-2302-A	23	1		
60.		Inspection of Mol Sieve Desiccant. (Man way and Top Inlet Opening), removal of floating screen (Replacement of floating Screen/Removal of ¾" Ceramic Balls/Desiccant Decanting top layer and makeup) If required. by using hydratight	V-2302-B	23	1		
61.		Inspection of Mol Sieve Desiccant. (Man way and Top Inlet Opening, removal of floating screen (Replacement of floating Screen/Removal of ¾" Ceramic Balls/Desiccant Decanting top layer and makeup) If required. by using hydratight	V-2302-C	23	1		
62.		Inlet Gas Cooler Bundle removal/cleaning/Pressure Testing, tube internal cleaning (Hydrojeting and manual rodding)	E-2304	23	1		
63.		Regen Gas Pre-heater Bundle removal/cleaning/replacement/Pressure Testing, tube internal & external cleaning (Hydrojeting and manual rodding).	E-2303	23	1		
64.		Regen Gas heater Bundle removal/cleaning/replacement/Pressure Testing, external tube cleaning is required.	E-2302	23	1		
65.		External cleaning of Regen Gas Cooler, louver inspection & rectification (if required), fan pitch inspection, fan shaft & hub inspection. Opening of tubes plugs both sides, dismantling of 4"x 900 connections, internal cleaning (Hydrojeting and manual rodding) is required. Also Eddy Current testing is required	EA-2301	23	1		
66.		Cleaning of all LGs of gas dehydration unit.	Unit-2300	23	1		
67.		Ball Valve RF 10"x8" Class 600 Repair/Replacement (Inlet Gas Valve)	E-2301 V-2301	23	1		
68.		Ball Valve RF 10"x8" Class 600 Repair/Replacement (Mercury Guard Bed Inlet & By pass Valves)	F-2302 V-2304	23	2		
69.		Ball Valve RF 2"x1-1/2" Class 600 Repair/Replacement (Inlet Gas Filter LT Isolation Valves)	F-2301	23	2		
70.		Globe Valve RTJ 2" Class 900 Repair/Replacement (Mol. Sieve Dryer A,B,C Drain Line)	V-2302 A/B/C	23	3		
71.		Gate Valve RTJ 2" Class 900 Repair/Replacement (Mol. Sieve Dryer A,B,C Drain Line)	V-2302 A/B/C	23	3		
72.		Ball Valve RF 1" Class 600 Repair/Replacement (Mol. Sieve Inlet Scrubber LCV Bypass line)	V-2301	23	1		
73.		Opening/cleaning/inspection of Regen scrubber	V-2303.	23	1		
74.		Cleaning of suction strainer Regeneration Blowers	K-2301-A	23	1		
75.		Cleaning of suction strainer Regeneration Blowers	K-2301-B	23	1		
76.		Replacement of Pipe Spool 4" Sch 80 with 03 Elbows	K-2301	23	36 Dia Inches		

77.		Replacement of Elbows 6" Sch 160	E-2302	23	48 Dia Inches		
78.		Surface preparation for NDT for Regeneration Gas cycle (at different points on same equipment)	Unit-2300	23	1		
79.		Insulation of 2" new line from LCV downstream.	V-2300	23	450 ft^2		
80.		Insulation on electric heat tracings of dehydration unit LT's.	Unit-2300	23	1		
81.		Installation of Insulation at Dehydration Unit	Unit-2300	23	100 ft^2		
82.		Removal of scaffolding at Dehydration Unit	Unit-2300	23	Approx 70 ft^2		
LPG Recovery Unit (Unit-2400)							
83.		Installation of Scaffolding at LPG Unit	Unit-2400	24	20 ft^2		
84.		Removal of Insulation from LPG Unit	Unit-2400	24	50 ft^2		
85.		Opening/inspection/cleaning	V-2404	24	1		
86.		Opening/inspection/cleaning	V-2405	24	1		
87.		Opening/inspection/cleaning	V-2406	24	1		
88.		Opening/inspection/cleaning	V-2407	24	1		
89.		Opening/inspection/cleaning	C-2401	24	1		
90.		Opening/inspection/cleaning	C-2402	24	1		
91.		Opening/inspection/cleaning	C-2403	24	1		
92.		Opening/inspection/cleaning	C-2404	24	1		
93.		Cleaning of Inlet Screen	CS-2401	24	1		
94.		Cleaning of Inlet Screen	CS-2402	24	1		
95.		Cleaning of Inlet Screen	CS-2403	24	1		
96.		Cleaning of Inlet Screen	CS-2404	24	1		
97.		Cleaning of Inlet Screen	CS-2411	24	1		
98.		Cleaning of Inlet Screen	CS-2412	24	1		
99.		Turbo Expander Inlet Screen	Unit-2400	24	1		
100.		Turbo Expander Inlet Screen (Bypass)	Unit-2400	24	1		
101.		Turbo Expander Re Compressor Inlet Screen	Unit-2400	24	1		
102.		Cleaning of all LGs of LPG recovery unit.	Unit-2400	24	1		
103.		Cleaning of Suction Strainers	P-2401A	24	1		
104.		Cleaning of Suction Strainers	P-2401B	24	1		
105.		Cleaning of Suction Strainers	P-2402A	24	1		
106.		Cleaning of Suction Strainers	P-2402B	24	1		
107.		Cleaning of Suction Strainers	P-2403A	24	1		
108.		Cleaning of Suction Strainers	P-2403B	24	1		
109.		Cleaning of Suction Strainers	P-2404A	24	1		
110.		Cleaning of Suction Strainers	P-2404B	24	1		
111.		Bundle removal/cleaning/Pressure Testing/Installation	E-2405	24	1		
112.		Bundle removal/cleaning/Pressure Testing/Installation	E-2407	24	1		
113.		Bundle removal/cleaning/Pressure Testing/Installation	E-2408	24	1		
114.		External cleaning of LPG Condenser EA-2401, EA-2403/EA-2404/EA-2701 (Product Coolers), louver inspection & rectification (if required), fan pitch inspection, fan shaft & hub inspection.	EA-2401 EA-2403 EA-2404 EA-2701	24	1		
115.		Rotor assembly inspection/replacement of (Turbo Expander).	Unit-2400	24	1		
116.		Refrigeration Package propane cooler water basin cleaning.	Unit-2400	24	1		
117.		Refrigeration Package propane coolers cleaning and fans inspection.	Unit-2400	24	1		
118.		Surface preparation for NDT for LPG Recovery Unit (at different points on same equipment)	Unit-2400	24	1		
119.		Globe Valve SW 1" Class 1500 Replacement (Absorber Bottom Methanol Injection)	C-2401	24	1		
120.		Ball Valve RF 1"x3/4" Class 600 Repair/Replacement (Methanol Injection Multi pass Exchanger inlet line)	E-2403	24	1		
121.		Ball Valve RF 4" Class 300 SS Repair/Replacement (CS-2411 Downstream isolating valve)	E-2403/CS-2411/V-2405	24	1		
122.		Ball Valve RF 6" Class 300 Repair/Replacement (CS-2412 Upstream isolating valve)	E-2403/CS-2412/V-2404	24	1		
123.		Ball Valve RF 8" Class 300 SS Repair/Replacement (CS-2402 Downstream isolating valves)	C-2401/CS-2402/E-2406	24	1		
124.		Painting of Exhaust of Engines.	Unit-2400	24	1		
125.		Installation of Insulation at LPG Unit	Unit-2400	24	50 ft^2		
126.		Removal of Scaffolding from LPG Unit	Unit-2400	24	20 ft^2		
Hot Oil Heaters (Unit-3100)							
127.		Installation of Scaffolding at Hot Oil Side Stream Filter Vessel	Unit-3100	31	20 ft^2		
128.		Removal of Insulation at Hot Oil Circulation Pump Strainers	Unit-3100	31	Approx 100 ft^2		
129.		Suction strainer cleaning of Hot Oil Pumps	P-3101A	31	1		

130.		Suction strainer cleaning of Hot Oil Pumps	P-3101B	31	1		
131.		Suction strainer cleaning of Hot Oil Pumps	P-3101C	31	1		
132.		Hot Oil Filter replacement/cleaning	F-3101	31	1		
133.		Opening of Hot Oil Heaters man ways and inspection windows for internal inspection & Cleaning	H-3101-A	31	1		
134.		Opening of Hot Oil Heaters man ways and inspection windows for internal inspection & Cleaning	H-3101-B	31	1		
135.		Main burner tip inspection and cleaning if required.	Unit-3100	31	1		
136.		Pilot flame arrestor cleaning.	Unit-3100	31	1		
137.		Refractory repair (If required).	Unit-3100	31	1		
138.		Pilot Gun cleaning.	Unit-3100	31	1		
139.		Inspection of Air Blowers.	Unit-3100	31	1		
140.		Hot Oil Leakage removal	Unit-3100	31	1		
141.		Installation of Insulation at Hot Oil Circulation Pump Strainers	Unit-3100	31	Approx 100 ft^2		
142.		Removal of Scaffolding at Hot Oil Side Stream Filter Vessel	Unit-3100	31	20 ft^2		
Sales Gas Compressors (Unit-2500)							
143.		Sales Gas Compressors Suction & discharge Knock out drum opening/internal inspection/cleaning	K-2501-A	25	1		
144.		Sales Gas Compressors Suction & discharge Knock out drum opening/internal inspection/cleaning	K-2501-B	25	1		
145.		Sales Gas Compressors Suction & discharge Knock out drum opening/internal inspection/cleaning	K-2501-C	25	1		
146.		Sales Gas Compressors Discharge Coolers/Jacket Water Cooler/Auxiliary Water Cooler external cleaning & lower inspection & rectification (if required), fan pitch inspection, fan shaft & hub inspection.	K-2501-A	25	1		
147.		Sales Gas Compressors Discharge Coolers/Jacket Water Cooler/Auxiliary Water Cooler external cleaning & lower inspection & rectification (if required), fan pitch inspection, fan shaft & hub inspection.	K-2501-B	25	1		
148.		Sales Gas Compressors Discharge Coolers/Jacket Water Cooler/Auxiliary Water Cooler external cleaning & lower inspection & rectification (if required), fan pitch inspection, fan shaft & hub inspection.	K-2501-C	25	1		
149.		General Housekeeping of Sales Gas Compressors canopy.	K-2501 A/B/C	25	3		
150.		Painting of Exhaust of Sales Gas Compressors A/B/C.	K-2501 A/B/C	25	3		
151.		Cleaning of all LGs of Gas compression unit.	K-2501 A/B/C	25	3		
LPG Storage & Loading (Unit-2700/2800)							
152.		Removal of Insulation from LPG loading pump skid	Unit-2700/2800	27	75 ft^2		
153.		Suction Strainer cleaning	P-2701A	27	1		
154.		Suction Strainer cleaning	P-2701B	27	1		
155.		Suction Strainer cleaning	P-2701C	27	1		
156.		Suction Strainer cleaning	P-2702A	27	1		
157.		Suction Strainer cleaning	P-2702B	27	1		
158.		Suction Strainer cleaning	P-2702C	27	1		
159.		Suction Strainer cleaning	P-2801A	28	1		
160.		Suction Strainer cleaning	P-2801B	28	1		
161.		Suction Strainer cleaning	P-2801C	28	1		
162.		Ball Valve RF 6"x4" Class 150 Repair/Replacement (LPG Loading Pump A & B suction)	P-2701 A/B	27	2		
163.		Ball Valve RF 3"x2" Class 150 Repair/Replacement (LPG Loading Pump A recycle valve)	P-2701 A	27	1		
164.		Installation of Insulation from LPG loading pump skid	Unit-2700/2800	28	75 ft^2		
Instrument Air & Nitrogen Generation Package (Unit-3400/3900)							
165.		Cleaning & Replacement of filters F-3401 A/B/C/D, F-3402 A/B, F-3901 A/B, F-3902 A/B, F-3903 A/B	Unit-3400 Unit-3900	34 39	10		
166.		Cleaning of Instrument Air Package Coolers & Air Coolers.	Unit-3400 Unit-3900	34 39	1		
167.		Dryer Desiccant replacement if required.	Unit-3400 Unit-3900	34 39	1		
Flare System/Closed Drain System/Produced Water System (Unit-3200/3300/3800)							
168.		Cleaning of Strainers of Produced water Transfer Pumps	P-3801A	38	1		
169.		Cleaning of Strainers of Produced water Transfer Pumps	P-3801B	38	1		
170.		Flare KO Drum Opening and Cleaning including Level Gauges	V-3201	32	1		
171.		Flare KO Drum Pump Suction Strainer Cleaning.	P-3201A	32	1		
172.		Flare KO Drum Pump Suction Strainer Cleaning.	P-3201B	32	1		
173.		Produced Water Pump Suction Strainer Cleaning.	P-3804A	38	1		
174.		Produced Water Pump Suction Strainer Cleaning.	P-3804B	38	1		
175.		Internal Cleaning of CPI PIT	P-3801	38	1		

176.		Opening/Internal Cleaning/inspection of (Degasser).	V-3801	38	1		
177.		Opening/Internal Cleaning/inspection of (Closed Drain Vessel).	V-3301	33	1		
178.		Cleaning of flame arrestor	V-3301	33	1		
179.		Pump inspection.	P-3301A	33	1		
180.		Pump inspection.	P-3301B	33	1		
181.		Inspection/cleaning of Oily water basin	T-3801	38	1		
182.		Flare Stack Burner Tip Inspection.		38	1		
Fire Water System/Utility Water System RO Unit (Unit-3500/3700)							
183.		Cleaning of Suction Strainers of Utility area pumps	P-3701A	37	1		
184.		Cleaning of Suction Strainers of Utility area pumps	P-3701B	37	1		
185.		Cleaning of Suction Strainers of Utility area pumps	P-3701C	37	1		
186.		PVC Leakages rectification.	Unit-3500/3700	35	1		
187.		Cleaning of Coagulation Tank	C-001	35	1		
188.		Inspection of Fire Water Pumps	P-3501A	35	1		
189.		Inspection of Fire Water Pumps	P-3501B	35	1		
190.		Inspection of Fire Water Pumps	P-3502	35	1		
191.		Inspection of Fire Water Pumps	P-3503A	35	1		
192.		Inspection of Fire Water Pumps	P-3503B	35	1		
193.		External Cleaning of Coolant Air Coolers.	G1/G2/G3		3		
194.		Cleaning of Air Filters.	G1/G2/G3		3		
195.		General Housekeeping of Generator Enclosure & Power House.	G1/G2/G3		3		
Modification /Fabrication Activities							
196.		Install strainers at Upstream of LCV-2001 & LDCV-2002.	LCV-2001 LCV-2002	20	15 Dia Inches Approx		
197.		Develop Tie-in for new LP Compressor (List provided).	Unit-2200	22	100 Dia Inches Approx		
198.		Methanol provision for LCV-2300. 2" Sch 160	Unit-2300	23	10 Dia Inches Approx		
199.		Fabrication/installation of 2" Sch 160 line from LCV downstream to E-2201 crude Heat exchanger Inlet	V-3301	23	260 Dia Inches Approx		
200.		Bypass installation E-2409 10" Sch 80	E-2409	24	160 Dia Inches Approx		
201.		Provision of direct filling of Fire Water Tank. 2" Sch 80(ECR already approved/ATA-19 pending).	Unit-3500 Unit-3700	35	90 Dia Inches Approx		
202.		Flaring provision of leaky LPG bowser, (ATA-19 pending Job/HSEQ CPR raised).	Unit-2700 Unit-2800	28	250 Dia inch Approx		
203.		Height increase of LPG Pump & Loading area PSV common vent bottle & Installation of rain cap	Unit-2700 Unit-2800	28	13 Meter		
204.		Installation of Isolation valves on downstream of Sales Gas Compressor A/B/C discharge line & Off Gas 2nd Stage discharge line (160 Sch)	K-2201 K-2501 A/B/C	22 25	42 Dia Inches Approx		
205.		Modification of separation battery 01 & HMC LG drain manifold (Sch 40)	HMC Separators	21	40 Dia Inches Approx		
206.		MP compressor KO drain to LP separator (Sch 40)	MP Compressor	21	15 Dia Inches Approx		
207.		Mela Trunk Line Tie In	E-2001	21	50 Dia Inches Approx		
10.		Flow Transmitter FT-2002	Cameron, Access BA202Di-44	20	1		
11.		Flow Transmitter FT-2003	Cameron, Access BA202Di-44	20	1		
12.		Flow Transmitter FT-2004	Rosemount, 2051CD2A02A1BS5M5I5P1Q4	20	1		
13.		Flow Transmitter FT-2005	KROHNE, H250/RR/M9/ESK2A/EX	20	1		
14.		Flow Transmitter FM-H01	SIEMENS, SITRANS P D-76181	21	1		
15.		Flow Transmitter FM-H02	SIEMENS, SITRANS P D-76181	21	1		
16.		Flow Transmitter FT-M01	SIEMENS, SITRANS P D-76181	21	1		
17.		Flow Indicator FM-M01	SIEMENS, SITRANS P D-76181	21	1		

18.		Flow Indicator FM-M02	SIEMENS, SITRANS P D-76181	21	1		
19.		Flow Transmitter FT-L01	SIEMENS, SITRANS P D-76181	21	1		
20.		Flow Indicator FM-L01	SIEMENS, SITRANS P D-76181	21	1		
21.		Flow Indicator FM-L02	SIEMENS, SITRANS P D-76181	21	1		
22.		Pressure Control Valve PCV-2001		20	1		
23.		Pressure Control Valve PCV-2002		20	1		
24.		Level Control Valve LCV-2001		20	1		
25.		Level Control Valve LDCV-2002		20	1		
26.		Pressure Control Valve PCV-H01	NORRISEAL 8", RJ-21TGS-12NX	21	1		
27.		Pressure Control Valve PCV-M01	NORRISEAL 2", RJ-14TGS-12NX	21	1		
28.		Pressure Control Valve PCV-L01	NORRISEAL 2", RF-02TGS-12NX	21	1		
29.		Level Control Valve LCV-H01A	NORRISEAL 6", RJ-21TGS-L8NX	21	1		
30.		Level Control Valve LCV-H01B		21	1		
31.		Level Control Valve LCV-H02A	NORRISEAL 2", RJ-21TGS-12NX	21	1		
32.		Level Control Valve LCV-H02B		21	1		
33.		Level Control Valve LCV-M01	NORRISEAL 6"	21	1		
34.		Level Control Valve LCV-M02	NORRISEAL 1", RJ-14TGS-12NX	21	1		
35.		Level Control Valve LCV-L01	NORRISEAL 4", RF-02TGS-10NX	21	1		
36.		Level Control Valve LCV-L02	NORRISEAL 1", RF-02TGS-12NX	21	1		
37.		Pressure Safety Valve PSV-2001	Crosby 1.5", 1.5G3JBS-E55RJ	20	1		
38.		Pressure Safety Valve PSV-2002	Crosby 3", 3K6JBS-E55RJ	20	1		
39.		Pressure Safety Valve PSV-2003	Crosby 4", 4L6JBS-E55RJ	20	1		
40.		Pressure Safety Valve PSV-2004	Crosby 4", 4L6JBS-E55RJ	20	1		
41.		Pressure Safety Valve PSV-H01	EFS-1415, 4"	21	1		
42.		Pressure Safety Valve PSV-H02	EFS-1415, 4"	21	1		
43.		Pressure Safety Valve PSV-M01	EFS-1415, 3"	21	1		
44.		Pressure Safety Valve PSV-M02	EFS-1415, 3"	21	1		
45.		Pressure Safety Valve PSV-L01	EFS-1415, 3"	21	1		
46.		Temperature Transmitter TT-2001	Rosemount, 644HAI5XAJ5M5Q4	20	1		
47.		Temperature Transmitter TT-2004	Rosemount, 644HAI5XAJ5M5Q4	20	1		
48.		Temperature Transmitter TT-2111	Rosemount, 644HAK5J5M5	20	1		
49.		Temperature Transmitter TT-2102	Rosemount, 644HAI5XAJ5M5Q4	20	1		
50.		Temperature Transmitter TT-H03		21	1		
51.		Temperature Transmitter TT-M02		21	1		
52.		Temperature Transmitter TT-L02		21	1		
53.		Pressure Transmitter PT-2001	Rosemount, 2051TG4A2B21BI5M5P1Q4	20	1		
54.		Pressure Transmitter PT-2002	Rosemount, 2051TG4A2B21BI5M5P1Q4	20	1		
55.		Pressure Transmitter PT-2003	Rosemount, 2051TG4A2B21BI5M5P1Q4	20	1		
56.		Pressure Transmitter PT-2004	Rosemount, 2051TG4A2B21BI5M5P1Q4	20	1		
57.		Pressure Transmitter PT-2005	Rosemount, 3051TG4A2B21BB4I1M5HR5	20	1		
58.		Pressure Transmitter PT-H01		21	1		
59.		Pressure Transmitter PT-M01		21	1		
60.		Pressure Transmitter PT-L01		21	1		

61.		Level Transmitter LDT-2201	Fisher DLC2010	22	1		
62.		Level Transmitter LDT-2202	Fisher DLC2010	22	1		
63.		Level Transmitter LT-2205	Fisher DLC2010	22	1		
64.		Level Transmitter LT-2202	Fisher DLC2010	22	1		
65.		Level Transmitter LT-2207	KROHNE, BM26A/P/C/RR/EH/EXD/F/V /V	22	1		
66.		Level Transmitter LT-2208	KROHNE, BM26A/P/C/RR/EH/EXD/F/V /V	22	1		
67.		Level Transmitter LT-2206	KROHNE, BM26A/P/C/RR/EH/EXD/F/V /V	22	1		
68.		Level Transmitter LT-2204	Fisher DLC2010	22	1		
69.		Level Transmitter LT-2211		22	1		
70.		Pressure Safety Valve PSV-2201	Crosby 1", 1E2JBS-E15J	22	1		
71.		Pressure Safety Valve PSV-2202	Crosby 1", 1E2JBS-E15J	22	1		
72.		Pressure Safety Valve PSV-2203	Crosby 1", 1E2JBS-E15J	22	1		
73.		Pressure Safety Valve PSV-2204	Crosby 1", 1E2JBS-E15J	22	1		
74.		Pressure Safety Valve PSV-2205	Anderson Greenwood 1.5", 24305H153/S1	22	1		
75.		Pressure Safety Valve PSV-2208		22	1		
76.		Pressure Safety Valve PSV-2209	Farris 2", 26HA12-120	22	1		
77.		Pressure Safety Valve PSV-22502	Farris 1", 26DB10-120	22	1		
78.		Level Control Valve LDCV-2201	Fisher 1"	22	1		
79.		Level Control Valve LDCV-2203	Fisher 1"	22	1		
80.		Level Control Valve LCV-2202		22	1		
81.		Temperature Control Valve TCV-2209		22	1		
82.		Level Control Valve LCV-2205	Fisher 6"	22	1		
83.		Temperature Control Valve TCV-2217	Fisher 3"	22	1		
84.		Level Control Valve LCV-2204	Fisher 6"	22	1		
85.		Pressure Control Valve PCV-2203A	Fisher 1.5"	22	1		
86.		Pressure Control Valve PCV-2203B	Fisher 1.5"	22	1		
87.		Pressure Control Valve PCV-2223	Fisher 3"	22	1		
88.		Pressure Control Valve PCV-2224		22	1		
89.		Pressure Control Valve PCV-2233		22	1		
90.		Pressure Control Valve PCV-2229		22	1		
91.		Level Control Valve LCV-2211		22	1		
92.		Level Control Valve LCV-2206		22	1		
93.		Level Control Valve LCV-2207		22	1		
94.		Level Control Valve LCV-2208		22	1		
95.		Flow Indicator FI-2201		22	1		
96.		Flow Indicator FI-2202		22	1		
97.		Flow Indicator FI-22501		22	1		
98.		Pressure Transmitter PT-2209	Rosemount, 2051TG3A2B21BI5M5P1Q4	22	1		
99.		Pressure Transmitter PT-2207	Rosemount, 2051TG3A2B21BI5M5P1Q4	22	1		
100.		Pressure Transmitter PT-2212	Rosemount, 2051TG3A2B21BI5M5P1Q4	22	1		
101.		Pressure Transmitter PT-2219	Rosemount, 2051TG3A2B21BI5M5P1Q4	22	1		
102.		Pressure Transmitter PT-2227	Yokogawa Electric, EJA530E-JCS4N-017DL/FF1/D1	22	1		
103.		Pressure Transmitter PT-2229	Yokogawa Electric, EJA530E-JCS4N-017DL/FF1/D1	22	1		

104.		Pressure Transmitter PT-2235	Yokogawa Electric, EJA530E-JCS4N-017DL/FF1/D1	22	1		
105.		Pressure Transmitter PT-22502	Yokogawa Electric, EJA530E-JCS4N-017DL/FF1/D1	22	1		
106.		Pressure Transmitter PT-2203	Rosemount, 2051TG3A2B21BI5M5P1Q4	22	1		
107.		Pressure Transmitter PT-2205	Rosemount, 2051TG3A2B21BI5M5P1Q4	22	1		
108.		Pressure Transmitter PT-2215	Rosemount, 2051TG3A2B21BI5M5P1Q4	22	1		
109.		Pressure Transmitter PT-2223	Yokogawa Electric, EJA530E-JCS4N-017DL/FF1/D1	22	1		
110.		Pressure Transmitter PT-2233	Yokogawa Electric, EJA530E-JDS4N-017DL/FF1/D1	22	1		
111.		Pressure Transmitter PDT-2203	Rosemount, 2051CD3A02A1BS5M5I5P1Q4	22	1		
112.		Pressure Transmitter PDT-2202	Rosemount, 2051CD3A02A1BS5M5I5P1Q4	22	1		
113.		Pressure Transmitter PDT-2201	Rosemount, 2051CD3A02A1BS5M5I5P1Q4	22	1		
114.		Temperature Transmitter TT-2203	Rosemount, 644HAI5XAJ5M5Q4	22	1		
115.		Temperature Transmitter TT-2204	Rosemount, 644HAI5XAJ5M5Q4	22	1		
116.		Temperature Transmitter TT-2205	Rosemount, 644HAI5XAJ5M5Q4	22	1		
117.		Temperature Transmitter TT-2207		22	1		
118.		Temperature Transmitter TT-2211	Rosemount, 644HAI5XAJ5M5Q4	22	1		
119.		Temperature Transmitter TT-2209	Rosemount, 644HAI5XAJ5M5Q4	22	1		
120.		Temperature Transmitter TT-2212	Rosemount, 644HAI5XAJ5M5Q4	22	1		
121.		Temperature Transmitter TT-2217	Rosemount, 644HAI5XAJ5M5Q4	22	1		
122.		Temperature Transmitter TT-2220	Rosemount, 644HAI5XAJ5M5Q4	22	1		
123.		Temperature Transmitter TT-2221	Rosemount, 644HAI5XAJ5M5Q4	22	1		
124.		Temperature Transmitter TT-2201	Rosemount, 644HAI5XAJ5M5Q4	22	1		
125.		Temperature Transmitter TT-2223		22	1		
126.		Temperature Transmitter TT-2222		22	1		
127.		Pressure Safety Valve PSV-2320	Anderson Greenwood 1.5", 24310H153/S1	23	1		
128.		Pressure Safety Valve PSV-2321	Anderson Greenwood 2", 24310J23/S1	23	1		
129.		Pressure Safety Valve PSV-2300	Crosby 4", 4L6JBS-E55RJ	23	1		
130.		Pressure Safety Valve PSV-2301	Crosby 1", 1D2JBS-E45J	23	1		
131.		Pressure Safety Valve PSV-2302	Crosby 1", 1D2JBS-E45J	23	1		
132.		Pressure Safety Valve PSV-2303	Crosby 2", 2H3JBS-E55RJ	23	1		
133.		Pressure Safety Valve PSV-2304	Crosby 2", 2H3JBS-E55RJ	23	1		
134.		Pressure Safety Valve PSV-2312	Crosby 2", 2H3JBS-E55RJ	23	1		
135.		Pressure Safety Valve PSV-2311	Crosby 1.5", 1.5F2JBS-E45J	23	1		
136.		Pressure Safety Valve PSV-2307	Crosby 1.5", 1.5D2JBS-E55RJ	23	1		
137.		Pressure Safety Valve PSV-2309	Crosby 1.5", 1.5D2JBS-E55RJ	23	1		
138.		Pressure Safety Valve PSV-2310	Crosby 3", 3K4JOS-E35J	23	1		
139.		Pressure Safety Valve PSV-2308	Crosby 1", 1D2JBS-E45J	23	1		
140.		Pressure Safety Valve PSV-2306	Crosby 1", 1D2JBS-E45J	23	1		
141.		Pressure Safety Valve PSV-2313	Crosby 1.5", 1.5G3JBS-E45J	23	1		
142.		Level Transmitter LT-2320	Fisher DLC2010	23	1		
143.		Level Transmitter LT-2300	Fisher DLC2010	23	1		
144.		Level Transmitter LT-2301	Fisher DLC2010	23	1		
145.		Level Transmitter LT-2302	Fisher DLC2010	23	1		

146.		Level Transmitter LT-2303	Fisher DLC2010	23	1		
147.		Level Transmitter LT-2304	Fisher DLC2010	23	1		
148.		Level Transmitter LT-2305	Fisher DLC2010	23	1		
149.		Level Transmitter LT-23041A		23	1		
150.		Level Transmitter LT-23041B		23	1		
151.		Level Control Valve LCV-2320	Fisher 2" 300	23	1		
152.		Level Control Valve LCV-2301		23	1		
153.		Level Control Valve LCV-2303		23	1		
154.		Level Control Valve LCV-2300		23	1		
155.		Level Control Valve LCV-2305		23	1		
156.		Temperature Control Valve TCV-2317		23	1		
157.		Temperature Control Valve TCV-2330		23	1		
158.		Temperature Control Valve TCV-2355		23	1		
159.		Pressure Control Valve PCV-2319		23	1		
160.		Pressure Transmitter PT-2301	Rosemount, 2051TG4A2B21BI5M5P1Q4	23	1		
161.		Pressure Transmitter PT-2304	Rosemount, 2051TG4A2B21BI5M5P1Q4	23	1		
162.		Pressure Transmitter PT-2305	Rosemount, 2051TG4A2B21BI5M5P1Q4	23	1		
163.		Pressure Transmitter PT-2306	Rosemount, 2051TG4A2B21BI5M5P1Q4	23	1		
164.		Pressure Transmitter PT-2307	Rosemount, 2051TG4A2B21BI5M5P1Q4	23	1		
165.		Pressure Transmitter PT-2312	Rosemount, 2051TG4A2B21BI5M5P1Q4	23	1		
166.		Pressure Transmitter PT-2315	Rosemount, 2051TG4A2B21BI5M5P1Q4	23	1		
167.		Pressure Transmitter PT-2313	Rosemount, 2051TG4A2B21BI5M5P1Q4	23	1		
168.		Pressure Transmitter PT-2308	Rosemount, 2051TG4A2B21BI5M5P1Q4	23	1		
169.		Pressure Transmitter PT-2310	Rosemount, 2051TG4A2B21BI5M5P1Q4	23	1		
170.		Pressure Transmitter PT-2322	Rosemount, 2051TG4A2B21BI5M5P1Q4	23	1		
171.		Pressure Transmitter PT-2319	Rosemount, 2051TG4A2B21BI5M5P1Q4	23	1		
172.		Pressure Transmitter PT-23006A		23	1		
173.		Pressure Transmitter PT-23006B		23	1		
174.		Pressure Transmitter PT-23009A		23	1		
175.		Pressure Transmitter PT-23009B		23	1		
176.		Pressure Transmitter PT-23010A		23	1		
177.		Pressure Transmitter PT-23010B		23	1		
178.		Pressure Transmitter PT-23016A		23	1		
179.		Pressure Transmitter PT-23016B		23	1		
180.		Pressure Transmitter PT-23040A		23	1		
181.		Pressure Transmitter PT-23040B		23	1		
182.		Pressure Transmitter PT-2320A		23	1		
183.		Pressure Transmitter PT-2320B		23	1		
184.		Pressure Transmitter PT-2321A		23	1		
185.		Pressure Transmitter PT-2321B		23	1		
186.		Pressure Transmitter PDT-2300	Rosemount, 2051CD3A02A1BS5M5I5P1Q4	23	1		
187.		Pressure Transmitter PDT-2301	Rosemount, 2051CD3A02A1BS5M5I5P1Q4	23	1		
188.		Pressure Transmitter PDT-2302	Rosemount, 2051CD3A02A1BS5M5I5P1Q4	23	1		
189.		Pressure Transmitter PDT-2303	Rosemount, 2051CD3A02A1BS5M5I5P1Q4	23	1		

190.		Pressure Transmitter PDT-2304	Rosemount, 2051CD3A02A1BS5M5I5P1Q4	23	1		
191.		Temperature Transmitter TT-2330	Rosemount, 644HAI5XAJ5M5Q4	23	1		
192.		Temperature Transmitter TT-2320	Rosemount, 644HAI5XAJ5M5Q4	23	1		
193.		Temperature Transmitter TT-2321	Rosemount, 644HAI5XAJ5M5Q4	23	1		
194.		Temperature Transmitter TT-2300	Rosemount, 644HAI5XAJ5M5Q4	23	1		
195.		Temperature Transmitter TT-2301	Rosemount, 644HAI5XAJ5M5Q4	23	1		
196.		Temperature Transmitter TT-2304	Rosemount, 644HAI5XAJ5M5Q4	23	1		
197.		Temperature Transmitter TT-2305	Rosemount, 644HAI5XAJ5M5Q4	23	1		
198.		Temperature Transmitter TT-2306	Rosemount, 644HAI5XAJ5M5Q4	23	1		
199.		Temperature Transmitter TT-2307	Rosemount, 644HAI5XAJ5M5Q4	23	1		
200.		Temperature Transmitter TT-2308	Rosemount, 644HAI5XAJ5M5Q4	23	1		
201.		Temperature Transmitter TT-2309	Rosemount, 644HAI5XAJ5M5Q4	23	1		
202.		Temperature Transmitter TT-2316	Rosemount, 644HAI5XAJ5M5Q4	23	1		
203.		Temperature Transmitter TT-2322	Rosemount, 644HAI5XAJ5M5Q4	23	1		
204.		Temperature Transmitter TT-2332		23	1		
205.		Temperature Transmitter TT-2317	Rosemount, 644HAI5XAJ5M5Q4	23	1		
206.		Temperature Transmitter TT-2327		23	1		
207.		Temperature Transmitter TT-2312	Rosemount, 644HAI5XAJ5M5Q4	23	1		
208.		Temperature Transmitter TT-2314	Rosemount, 644HAI5XAJ5M5Q4	23	1		
209.		Temperature Transmitter TT-2325	Rosemount, 644HAI5XAJ5M5Q4	23	1		
210.		Temperature Transmitter TT-2303	Rosemount, 644HAI5XAJ5M5Q4	23	1		
211.		Temperature Transmitter TT-2311	Rosemount, 644HAI5XAJ5M5Q4	23	1		
212.		Temperature Transmitter TT-23052A		23	1		
213.		Temperature Transmitter TT-23052B		23	1		
214.		Temperature Transmitter TT-2323A		23	1		
215.		Temperature Transmitter TT-2323B		23	1		
216.		Temperature Transmitter TT-2324A		23	1		
217.		Temperature Transmitter TT-2324B		23	1		
218.		Flow Transmitter FT-2304	Rosemount, 2051CD3A02A1BS5M5I5P1Q4	23	1		
219.		Pressure Safety Valve PSV-2400	Anderson Greenwood 2", 24310J23/S1	24	1		
220.		Pressure Safety Valve PSV-2401	Crosby 1", 1D2JBS-E45SJ	24	1		
221.		Pressure Safety Valve PSV-2402	Anderson Greenwood 3", 24910L34/S	24	1		
222.		Pressure Safety Valve PSV-2403	Crosby 3", 3K4JBS-E35SJ	24	1		
223.		Pressure Safety Valve PSV-2410	Crosby 3", 3K4JBS-E35SJ	24	1		
224.		Pressure Safety Valve PSV-2404	Crosby 1", 1E2JOS-E35J	24	1		
225.		Pressure Safety Valve PSV-2407	Crosby 4", 4L6JBS-E35J	24	1		
226.		Pressure Safety Valve PSV-2411	Anderson Greenwood 3", 24310L34/S1	24	1		
227.		Pressure Safety Valve PSV-2406	Crosby 1", 1D2JOS-E35J	24	1		
228.		Pressure Safety Valve PSV-2412	Crosby 1", 1D2JBS-E35J	24	1		
229.		Pressure Safety Valve PSV-2409	Crosby 1", 1D2JBS-E35J	24	1		
230.		Pressure Safety Valve PSV-2408	Crosby 1", 1D2JOS-E35J	24	1		
231.		Level Transmitter LT-2411		24	1		

232.		Level Transmitter LT-2400		24	1		
233.		Level Transmitter LT-2401/1&2		24	1		
234.		Level Transmitter LT-2402		24	1		
235.		Level Transmitter LT-2403		24	1		
236.		Level Transmitter LT-2404		24	1		
237.		Level Transmitter LT-2405		24	1		
238.		Level Transmitter LT-2406		24	1		
239.		Level Transmitter LT-2407		24	1		
240.		Level Transmitter LT-2408		24	1		
241.		Level Transmitter LT-2409		24	1		
242.		Level Transmitter LT-2410		24	1		
243.		Level Control Valve LCV-2400		24	1		
244.		Level Control Valve LCV-2401		24	1		
245.		Level Control Valve LCV-2403		24	1		
246.		Level Control Valve LCV-2404		24	1		
247.		Level Control Valve LCV-2406		24	1		
248.		Level Control Valve LCV-2407		24	1		
249.		Level Control Valve LCV-2409		24	1		
250.		Level Control Valve LCV-2410		24	1		
251.		Level Control Valve LCV-2411		24	1		
252.		Temperature Control Valve TCV-2403		24	1		
253.		Temperature Control Valve TCV-2404		24	1		
254.		Pressure Control Valve PCV-2412		24	1		
255.		Flow Control Valve FCV-2402		24	1		
256.		Pressure Control Valve PCV-2435		24	1		
257.		Temperature Control Valve TCV-2422		24	1		
258.		Pressure Control Valve PDCV-2404		24	1		
259.		Flow Control Valve FCV-2404		24	1		
260.		Temperature Control Valve TCV-2428		24	1		
261.		Pressure Control Valve PCV-2428A/B		24	1		
262.		Flow Control Valve FCV-2406		24	1		
263.		Temperature Control Valve TCV-2449		24	1		
264.		Pressure Control Valve PCV-2434A/B		24	1		
265.		Flow Control Valve FCV-2407		24	1		
266.		Temperature Control Valve TCV-2457		24	1		
267.		Flow Transmitter FT-2403		24	1		
268.		Flow Transmitter FT-2400		24	1		
269.		Flow Transmitter FT-2405		24	1		
270.		Flow Transmitter FT-2404		24	1		
271.		Flow Transmitter FT-2431		24	1		
272.		Flow Transmitter FT-2408		24	1		
273.		Flow Transmitter FT-2406		24	1		
274.		Flow Transmitter FT-2432		24	1		
275.		Flow Transmitter FT-2409		24	1		
276.		Flow Transmitter FT-2407		24	1		
277.		Flow Transmitter FT-2459		24	1		
278.		Flow Transmitter FT-2402		24	1		

279.		Pressure Transmitter PT-2406		24	1		
280.		Pressure Transmitter PT-2455		24	1		
281.		Pressure Transmitter PT-2450		24	1		
282.		Pressure Transmitter PT-2407		24	1		
283.		Pressure Transmitter PT-2412		24	1		
284.		Pressure Transmitter PT-2425		24	1		
285.		Pressure Transmitter PT-2426		24	1		
286.		Pressure Transmitter PT-2451		24	1		
287.		Pressure Transmitter PT-2420		24	1		
288.		Pressure Transmitter PT-2452		24	1		
289.		Pressure Transmitter PT-2428		24	1		
290.		Pressure Transmitter PT-2453		24	1		
291.		Pressure Transmitter PT-2434		24	1		
292.		Pressure Transmitter PT-2454		24	1		
293.		Pressure Transmitter PT-2419		24	1		
294.		Pressure Transmitter PDT-2400		24	1		
295.		Pressure Transmitter PDT-2405		24	1		
296.		Pressure Transmitter PDT-2406		24	1		
297.		Pressure Transmitter PDT-2411		24	1		
298.		Pressure Transmitter PDT-2404		24	1		
299.		Pressure Transmitter PDT-2408		24	1		
300.		Pressure Transmitter PDT-2410		24	1		
301.		Pressure Transmitter PDT-2413		24	1		
302.		Pressure Transmitter PDT-2401		24	1		
303.		Temperature Transmitter TT-2406		24	1		
304.		Temperature Transmitter TT-2400		24	1		
305.		Temperature Transmitter TT-2403		24	1		
306.		Temperature Transmitter TT-2404		24	1		
307.		Temperature Transmitter TT-2408		24	1		
308.		Temperature Transmitter TT-2410		24	1		
309.		Temperature Transmitter TT-2412		24	1		
310.		Temperature Transmitter TT-2413		24	1		
311.		Temperature Transmitter TT-2461		24	1		
312.		Temperature Transmitter TT-2462		24	1		
313.		Temperature Transmitter TT-2463		24	1		
314.		Temperature Transmitter TT-2420		24	1		
315.		Temperature Transmitter TT-2422		24	1		
316.		Temperature Transmitter TT-2423		24	1		
317.		Temperature Transmitter TT-2464		24	1		
318.		Temperature Transmitter TT-2430		24	1		
319.		Temperature Transmitter TT-2418		24	1		
320.		Temperature Transmitter TT-2431		24	1		
321.		Temperature Transmitter TT-2433		24	1		
322.		Temperature Transmitter TT-2435		24	1		
323.		Temperature Transmitter TT-2438		24	1		
324.		Temperature Transmitter TT-2440		24	1		
325.		Temperature Transmitter TT-2442		24	1		

326.		Temperature Transmitter TT-2424		24	1		
327.		Temperature Transmitter TT-2425		24	1		
328.		Temperature Transmitter TT-2426		24	1		
329.		Temperature Transmitter TT-2427		24	1		
330.		Temperature Transmitter TT-2409		24	1		
331.		Temperature Transmitter TT-2459		24	1		
332.		Temperature Transmitter TT-2428		24	1		
333.		Temperature Transmitter TT-2460		24	1		
334.		Temperature Transmitter TT-2429		24	1		
335.		Temperature Transmitter TT-2443		24	1		
336.		Temperature Transmitter TT-2444		24	1		
337.		Temperature Transmitter TT-2446		24	1		
338.		Temperature Transmitter TT-2455		24	1		
339.		Temperature Transmitter TT-2448		24	1		
340.		Temperature Transmitter TT-2449		24	1		
341.		Temperature Transmitter TT-2450		24	1		
342.		Temperature Transmitter TT-2465		24	1		
343.		Temperature Transmitter TT-2451		24	1		
344.		Temperature Transmitter TT-2452		24	1		
345.		Temperature Transmitter TT-2453		24	1		
346.		Temperature Transmitter TT-2454		24	1		
347.		Temperature Transmitter TT-2456		24	1		
348.		Temperature Transmitter TT-2457		24	1		
349.		Temperature Transmitter TT-2466		24	1		
350.		Temperature Transmitter TT-2458		24	1		
351.		Temperature Transmitter TT-2710		27	1		
352.		Pressure Transmitter PT-2413		24	1		
353.		Pressure Transmitter PT-2414		24	1		
354.		Pressure Transmitter PT-2719		27	1		
355.		Pressure Transmitter PDT-2402		24	1		
356.		Pressure Transmitter PDT-2403		24	1		
357.		Pressure Transmitter PDT-24904		24	1		
358.		Pressure Transmitter PDT-24905		24	1		
359.		Pressure Transmitter PDT-24941		24	1		
360.		Pressure Transmitter PDT-24942		24	1		
361.		Pressure Transmitter PDT-24958		24	1		
362.		Pressure Transmitter PDT-24959		24	1		
363.		Temperature Transmitter TT-24934		24	1		
364.		Temperature Transmitter TT-24935		24	1		
365.		Temperature Transmitter TT-24939		24	1		
366.		Temperature Transmitter TT-24936		24	1		
367.		Temperature Transmitter TT-24937		24	1		
368.		Temperature Control Valve TCV-3107		31	1		
369.		Temperature Control Valve TCV-3101		31	1		
370.		Temperature Control Valve TCV-3103		31	1		
371.		Flow Control Valve FCV-3101		31	1		
372.		Flow Control Valve FCV-3104		31	1		

373.		Flow Control Valve FCV-3102		31	1		
374.		Pressure Control Valve PCV-3121		31	1		
375.		Pressure Control Valve PDCV-3101		31	1		
376.		Pressure Control Valve PDCV-3102		31	1		
377.		Level Indicator LI-3102		31	1		
378.		Flow Indicator FI-3101		31	1		
379.		Flow Indicator FI-3105		31	1		
380.		Flow Indicator FI-3103		31	1		
381.		Flow Indicator FI-3102		31	1		
382.		Flow Indicator FI-3104		31	1		
383.		Pressure Switch PSL-3101		31	1		
384.		Pressure Switch PSL-3102		31	1		
385.		Pressure Switch PSL-3103		31	1		
386.		Pressure Switch PSH-3101		31	1		
387.		Pressure Switch PSH-3102		31	1		
388.		Pressure Switch PSH-3103		31	1		
389.		Temperature Transmitter TT-3105		31	1		
390.		Temperature Transmitter TT-3103		31	1		
391.		Temperature Transmitter TT-3153		31	1		
392.		Temperature Transmitter TT-3125		31	1		
393.		Temperature Transmitter TT-3151		31	1		
394.		Temperature Transmitter TT-3127A		31	1		
395.		Temperature Transmitter TT-3127B		31	1		
396.		Temperature Transmitter TT-3152A		31	1		
397.		Temperature Transmitter TT-3152B		31	1		
398.		Temperature Transmitter TT-3103A		31	1		
399.		Temperature Transmitter TT-3103B		31	1		
400.		Temperature Transmitter TT-3109		31	1		
401.		Temperature Transmitter TT-3107		31	1		
402.		Temperature Transmitter TT-3156		31	1		
403.		Temperature Transmitter TT-3121		31	1		
404.		Temperature Transmitter TT-3154		31	1		
405.		Temperature Transmitter TT-3123A		31	1		
406.		Temperature Transmitter TT-3123B		31	1		
407.		Temperature Transmitter TT-3155A		31	1		
408.		Temperature Transmitter TT-3155B		31	1		
409.		Temperature Transmitter TT-3107A		31	1		
410.		Temperature Transmitter TT-3107B		31	1		
411.		Temperature Transmitter TT-3101		31	1		
412.		Temperature Transmitter TT-3102		31	1		
413.		Temperature Transmitter TT-3126		31	1		
414.		Temperature Transmitter TT-3129		31	1		
415.		Pressure Transmitter PT-3108		31	1		
416.		Pressure Transmitter PT-3101		31	1		
417.		Pressure Transmitter PT-3124		31	1		
418.		Pressure Transmitter PT-3126		31	1		
419.		Pressure Transmitter PT-3151		31	1		

420.		Pressure Transmitter PT-3112		31	1		
421.		Pressure Transmitter PT-3103		31	1		
422.		Pressure Transmitter PT-3120		31	1		
423.		Pressure Transmitter PT-3122		31	1		
424.		Pressure Transmitter PT-3152		31	1		
425.		Pressure Transmitter PT-3105		31	1		
426.		Pressure Transmitter PT-3106		31	1		
427.		Pressure Transmitter PT-3128		31	1		
428.		Pressure Transmitter PT-3130		31	1		
429.		Pressure Transmitter PT-3161		31	1		
430.		Pressure Transmitter PT-3162		31	1		
431.		Pressure Transmitter PT-3163		31	1		
432.		Pressure Transmitter PDT-3103		31	1		
433.		Pressure Safety Valve PSV-2503A		25	1		
434.		Pressure Safety Valve PSV-2504A		25	1		
435.		Pressure Safety Valve PSV-2503B		25	1		
436.		Pressure Safety Valve PSV-2504B		25	1		
437.		Pressure Safety Valve PSV-2503C		25	1		
438.		Pressure Safety Valve PSV-2504C		25	1		
439.		Pressure Safety Valve PSV-2500A		25	1		
440.		Pressure Safety Valve PSV-2501A		25	1		
441.		Pressure Safety Valve PSV-2500B		25	1		
442.		Pressure Safety Valve PSV-2501B		25	1		
443.		Pressure Safety Valve PSV-2500C		25	1		
444.		Pressure Safety Valve PSV-2501C		25	1		
445.		Pressure Safety Valve PSV-2502A		25	1		
446.		Pressure Safety Valve PSV-2502B		25	1		
447.		Pressure Safety Valve PSV-2502C		25	1		
448.		Flow Indicator FI-2503A		25	1		
449.		Flow Indicator FI-2503B		25	1		
450.		Flow Indicator FI-2503C		25	1		
451.		Flow Indicator FI-2502A		25	1		
452.		Flow Indicator FI-2502B		25	1		
453.		Flow Indicator FI-2502C		25	1		
454.		Pressure Control Valve PCV-2500		25	1		
455.		Pressure Control Valve PCV-2510		25	1		
456.		Pressure Control Valve PCV-2501A		25	1		
457.		Pressure Control Valve PCV-2501B		25	1		
458.		Pressure Control Valve PCV-2501C		25	1		
459.		Flow Control Valve FCV-2502A		25	1		
460.		Flow Control Valve FCV-2502B		25	1		
461.		Flow Control Valve FCV-2502C		25	1		
462.		Level Control Valve LCV-2500A		25	1		
463.		Level Control Valve LCV-2500B		25	1		
464.		Level Control Valve LCV-2500C		25	1		
465.		Level Control Valve LCV-2505A		25	1		
466.		Level Control Valve LCV-2505B		25	1		

467.		Level Control Valve LCV-2505C		25	1		
468.		Level Transmitter LT-2513		25	1		
469.		Level Transmitter LT-2500A		25	1		
470.		Level Transmitter LT-2500B		25	1		
471.		Level Transmitter LT-2500C		25	1		
472.		Level Transmitter LT-2501A		25	1		
473.		Level Transmitter LT-2501B		25	1		
474.		Level Transmitter LT-2501C		25	1		
475.		Pressure Transmitter PT-2500/1		25	1		
476.		Pressure Transmitter PT-2500/2		25	1		
477.		Pressure Transmitter PT-2500/3		25	1		
478.		Pressure Transmitter PT-2510		25	1		
479.		Pressure Transmitter PT-2502A		25	1		
480.		Pressure Transmitter PT-2502B		25	1		
481.		Pressure Transmitter PT-2502C		25	1		
482.		Pressure Transmitter PT-25001A		25	1		
483.		Pressure Transmitter PT-25001B		25	1		
484.		Pressure Transmitter PT-25001C		25	1		
485.		Pressure Transmitter PT-2504A		25	1		
486.		Pressure Transmitter PT-2504B		25	1		
487.		Pressure Transmitter PT-2504C		25	1		
488.		Pressure Transmitter PT-2505A		25	1		
489.		Pressure Transmitter PT-2505B		25	1		
490.		Pressure Transmitter PT-2505C		25	1		
491.		Pressure Transmitter PT-2501A		25	1		
492.		Pressure Transmitter PT-2501B		25	1		
493.		Pressure Transmitter PT-2501C		25	1		
494.		Pressure Transmitter PT-2503A		25	1		
495.		Pressure Transmitter PT-2503B		25	1		
496.		Pressure Transmitter PT-2503C		25	1		
497.		Pressure Transmitter PT-25001A		25	1		
498.		Pressure Transmitter PT-25001B		25	1		
499.		Pressure Transmitter PT-25001C		25	1		
500.		Temperature Gauge TI-2510		25	1		
501.		Temperature Gauge TI-2511		25	1		
502.		Temperature Transmitter TT-2510		25	1		
503.		Temperature Transmitter TT-2500A		25	1		
504.		Temperature Transmitter TT-2500B		25	1		
505.		Temperature Transmitter TT-2500C		25	1		
506.		Temperature Transmitter TT-2501A		25	1		
507.		Temperature Transmitter TT-2501B		25	1		
508.		Temperature Transmitter TT-2501C		25	1		
509.		Temperature Transmitter TT-2502A		25	1		
510.		Temperature Transmitter TT-2502B		25	1		
511.		Temperature Transmitter TT-2502C		25	1		
512.		Temperature Transmitter TT-2503A		25	1		
513.		Temperature Transmitter TT-2503B		25	1		

514.		Temperature Transmitter TT-2503C		25	1		
515.		Temperature Transmitter TT-2504A		25	1		
516.		Temperature Transmitter TT-2504B		25	1		
517.		Temperature Transmitter TT-2504C		25	1		
518.		Temperature Transmitter TT-25005A		25	1		
519.		Temperature Transmitter TT-25005B		25	1		
520.		Temperature Transmitter TT-25005C		25	1		
521.		Temperature Transmitter TT-25011A		25	1		
522.		Temperature Transmitter TT-25011B		25	1		
523.		Temperature Transmitter TT-25011C		25	1		
524.		Temperature Transmitter TT-25012A		25	1		
525.		Temperature Transmitter TT-25012B		25	1		
526.		Temperature Transmitter TT-25012C		25	1		
527.		Temperature Transmitter TT-25013A		25	1		
528.		Temperature Transmitter TT-25013B		25	1		
529.		Temperature Transmitter TT-25013C		25	1		
530.		Temperature Transmitter TT-25014A		25	1		
531.		Temperature Transmitter TT-25014B		25	1		
532.		Temperature Transmitter TT-25014C		25	1		
533.		Level Transmitter LT-3201		32	1		
534.		Temperature Transmitter TT-3201		32	1		
535.		Temperature Transmitter TT-3202		32	1		
536.		Pressure Transmitter PT-3002		30	1		
537.		Pressure Transmitter PT-3004		30	1		
538.		Temperature Transmitter TT-3002		30	1		
539.		Flow Transmitter FT-3004		30	1		
540.		Level Transmitter LT-3001		30	1		
541.		Level Control Valve LCV-3001		30	1		
542.		Pressure Control Valve PCV-3002A		30	1		
543.		Pressure Control Valve PCV-3002B		30	1		
544.		Pressure Safety Valve PSV-3001		30	1		
545.		Flow Transmitter FT-3302		33	1		
546.		Pressure Transmitter PT-3002		30	1		
547.		Pressure Transmitter PT-3003		30	1		
548.		Level Transmitter LT-3001		30	1		
549.		Temperature Transmitter TT-3001		30	1		
550.		Pressure Control Valve PCV3401		34	1		
551.		Pressure Control Valve PCV-3402		34	1		
552.		Pressure Control Valve PCV-3409		34	1		
553.		Analyzer AI-3401		34	1		
554.		Analyzer AI-3901		39	1		
555.		Analyzer AI-3902		39	1		
556.		Pressure Transmitter PT-3401		34	1		
557.		Pressure Transmitter PT-3402		34	1		
558.		Pressure Transmitter PT-3409		34	1		
559.		Pressure Transmitter PT-3901		39	1		
560.		Flow Transmitter FT-3901		39	1		

561.		Level Transmitter LT-3801		38	1		
562.		Flow Indicator FI-2301		23	1		
563.		Level Control Valve LCV-3801		38	1		
564.		Pressure Control Valve PCV-2801		28	1		
565.		Pressure Safety Valve PSV-3801		38	1		
566.		Level Indicator LI-3803		38	1		
567.		Level Indicator LI-3802		38	1		
568.		Level Indicator LI-3805		38	1		
569.		Level Switch LAHH-3804		38	1		
570.		Level Switch LALL-3804		38	1		
571.		Level Switch LAHH-3803		38	1		
572.		Level Switch LALL-3803		38	1		
573.		Analyzer AIT-3710		37	1		
574.		Analyzer AIT-3711		37	1		
575.		Analyzer AIT-3712		37	1		
576.		Analyzer AIT-3713		37	1		
577.		Analyzer AIT-3714A		37	1		
578.		Analyzer AIT-3714 B		37	1		
579.		Analyzer AIT-3714C		37	1		
580.		Flow Indicator FI-3710		37	1		
581.		Flow Indicator FI-3701		37	1		
582.		Flow Indicator FI-3711A		37	1		
583.		Flow Indicator FI-3711B		37	1		
584.		Flow Indicator FI-3711C		37	1		
585.		Flow Indicator FI-3712A		37	1		
586.		Flow Indicator FI-3712B		37	1		
587.		Flow Indicator FI-3712C		37	1		
588.		Level Indicator LI-3701		37	1		
589.		Level Indicator LI-3702		37	1		
590.		Level Indicator LI-3704		37	1		
591.		Pressure Switch PAL-2701		27	1		
592.		Pressure Switch PAH-2704		27	1		
593.		Pressure Safety Valve PSV-2741		27	1		
594.		Pressure Gauge PI-3711A		37	1		
595.		Pressure Gauge PI-3711B		37	1		
596.		Pressure Gauge PI-3711C		37	1		
597.		Pressure Gauge PI-3712A		37	1		
598.		Pressure Gauge PI-3712B		37	1		
599.		Pressure Gauge PI-3712C		37	1		
600.		Pressure Gauge PI-3713A		37	1		
601.		Pressure Gauge PI-3713B		37	1		
602.		Pressure Gauge PI-3713C		37	1		
603.		Differential Pressure Gauge DPI-3710A		37	1		
604.		Differential Pressure Gauge DPI-3710B		37	1		
605.		Differential Pressure Gauge DPI-3711A		37	1		
606.		Differential Pressure Gauge DPI-3711B		37	1		
607.		Differential Pressure Gauge DPI-3712A		37	1		

608.		Differential Pressure Gauge DPI-3712B		37	1		
609.		Differential Pressure Gauge DPI-3712C		37	1		
610.		Differential Pressure Gauge DPI-3713A		37	1		
611.		Differential Pressure Gauge DPI-3713B		37	1		
612.		Pressure Gauge PI-3503		35	1		
613.		Level gauge LI-3501		35	1		
614.		Flow Indicator FI-3532		35	1		
615.		Installation of LPG mass flow meter along with configuration in CCR.			1		
616.		Bring all Loops of HP wells/LP wells Separator to CCR.			18		
617.		New LP separator discharge header PT configuration to CCR.			1		
618.		New PSV for new LP Compressor discharge header. Set pressure 650 psig.			1		
619.		Battery # 1 HP-1&2/MP-1&2/LP-1&2 LT's calibration and servicing.			6		
620.		Calibration and servicing of all oil side LTs and LCVs of Battery # 01 HP1, HP2, MP1, MP2, LP1, LP2. (06 LT, 06 LCV, 3TT, 3 PT, 3 PCV)			21		
621.		Installation of mass flow meter at LPG R/D line.			1		
622.		Inspection/Rectification of leakage at manifold of De-Ethanizer Reboiler/De-Butanizer Reboiler.			2		
623.		Pilot flame Scanners BE-3103ABC, BE-3104ABC & Burner flame Scanners BE-3101ABC, BE-3102ABC Checking and Monitoring of Burners			12		
624.		Flare Tip TTs inspection (job at height)			3		
625.		Inspection and testing of all SV loops of Instrument Air and Nitrogen Package.			18		

ELECTRICAL SECTION

SR #	WO#	Description of Job	Asset/Detail/ Equipment Tag #	Area Code	Qty.	Unit rate in PKR	Total
1		Servicing, Greasing of motors of Dehydration Area Motors along with cleaning.	M-2301A,B, EA 2301A,B	23	*4*		
2		Servicing, Greasing of motors of Hot Oil.	M-3101,M-3102, P-3101 A, B,C, EA-3101A,B,C, B-3101 A,B,C,D, P-3102	31	13		
3		Servicing, Greasing of motors of Flare Area Motors.	P-3201A,B	32	2		
4		Servicing, Maggering, Greasing of motors of Slug Catcher Area Motors.	P-2001A,B	20	2		
5		Servicing, Greasing of motors of HMC Separator Area Motors.	EA-2101A,B, P-2101A,B,C,D	21	6		
6		Servicing, Greasing of motors of diesel system Area Motors.	P-4001 A,B	40	2		
7		Servicing, Greasing of motors of Produced Water Area Motors.	P-3801A,B, P-3804A,B	**38**	4		
8		Servicing Greasing of motors of Water treatment Area Motors.	P-3701A,B,C, P-3702A,B	37	5		
9		Servicing, Greasing of motors of Closed drain Area Motors.	P-3301A,B	33	2		
10		Servicing, Greasing of motors of Methanol system Area Motors.	P-4101A,B	41	2		
11		Servicing, Greasing of motors of Propane storage Area Motors.	P-2801A,B	28	2		

12		Servicing, Greasing of motors of LPG Storage Area Motors.	P-2701A,B,C, P-2702A,B	27	5		
13		Servicing, Greasing of motors of Condensate stabilization Area Motors.	P-2201A,B, EA-2201A,B,C,D	22	6		
14		Servicing, Greasing of motors of Firefighting Area Motors.	P-3501A,B, P-3502, P-3503A,B	35	5		
15		Servicing, Greasing of motors of Sale Gas Compressor Area Motors.	2501A-FAN1,2,3,4,5, 2501B-FAN1,2,3,4,5, 2501A-JB06A,B , 2501B-JB06A,B, 2501C-FAN1,2,3,4,5, 2501C-JB06A,B, EA2502A,B, P-2510A,B,C	25	26		
16		Servicing, Greasing of motors of LPG Area Motors.	EA-2402A,B, P-2431A,B,C, TE-2401A,B, TE-EA 2401A,B, P-2401A,B, P-2402A,B, P-2403A,B, P-2404A,B, EA-2401A,B,C,D, PU-2401A Pump-A,B, PU-2401B Pump-A,B, EA-2405A,B,C,D, EA-2405/1,2, P-2405A,B	24	33		
17		Servicing, Greasing of motors of Instrument Air Compressor Area Motors.	P-3501A,B	35	2		
18		Providing electrical supply ,extension boards and flood lights at area as per requirement			30		
19		Inspection ,servicing, Cleaning, tightening of terminations of Power / control cables of MCC modules, VFD Modules, Soft Starters modules.	AA1,AA2,AA3,AA4,AA5,AA6,AA7,AA8,AA9,AA10,AA11,AA12,AA13,AA14,AA15,AA16,AA17,AA18,AA19,1A1,1A2,1A3,1A4,1A5,1A6,1A7,1A8,1A9,1A10,1A11,1A12,1A13,1A14,1B1,1B2,1B3,1B4,1B5,1B6,1B7,1B8,1B9,1B10,1B11,1B12,2A1,2A2,2A3,2A4,2A5,2A6,2A7,3A1,3A2,3A3,3A4		54		
20		Cleaning, Servicing of UPS Panels.	UPS-1, UPS-2		2		
21		Cleaning, Servicing of UPS Batteries.			372		
22		Cleaning, Servicing of Alternator of Plant Gas and Diesel Generators.	010-GG-001, 010-GG-002, 010-GG-003,010-GG-004		4		
23		bearing replacement of cooler fan motor of dehydration area	M2302(18.5 KW)	23	1		
24		bearing replacement of hot oil circulation pump motor	P3101A	31	1		
25		bearing replacement of cooler fan motors of sale gas compressor area	2501 A-FAN2,FAN3(18.5 KW each)	25	2		
26		bearing replacement of cooler fan motors of sale gas compressor area	2501B-FAN1(18.5 KW),2501B-FAN4(22 KW)	25	2		
27		bearing replacement of cooler fan motors of sale gas compressor area	2501C-FAN2(18.5 KW), 2501C-FAN4(22 KW)	25	2		
28		bearing replacement of evaporative air cooler motor of sale gas compressor area	EA-2502A,B(15 KW each)	25	2		
29		Bearing replacement of inlet evaporative air cooler motor of HMC separator area.	EA2101A,B(30 KW each)	21	2		

30		Bearing replacement of condensate air cooler motor of condensate stabilization area.	EA2201A,B,C,D(30 KW each)	22	4		
31		bearing replacement of De-Butaniser OVHD condenser air cooler motor of LPG area	EA-2401A,C(18.5 KW each)	24	2		
32		bearing replacement of LPG loading pump motor of LPG storage area	P2701B(30 KW)	27	1		
33		Bearing replacement of produced water disposal pump motor of produced water area.	P3804B(7.5 KW)	38	1		
34		Cleaning, Servicing of Gas and Diesel Generator's control panels.	010-GCP-001,010-GCP-001,010-GCP-002,010-GCP-003,010-GCP-004		4		
G.Total							
MOB/DEMOB							
G. TOTAL be inclusive of all taxes, duties, levies, charges etc except Provincial Sales Tax/ ICT Tax on Services							

Note: Bidder should quote all the jobs mentioned in scope and not to change serial number or sequence of line. (Single stage two envelope basis)

Note:

- Financial evaluation will be carried out on Grand Total basis. Contract will be awarded to technically responsive and financially lowest evaluated bidder.
- The prices shall be quoted in Pak Rupees.
- The prices shall be inclusive of all taxes (except Provincial Sales Tax/ ICT Tax on Services, where applicable), duties, levies, charges etc. Provincial Sales Tax/ ICT Tax on Services, if applicable will be borne by OGDCL.
- **Payment Terms:** Payment will be made in Pak Rupees through cross cheque at actual against verified invoices after completion of ATA Job.

- **Duration of contract**

Contract duration will be initially for a period of six months from the date of issuance of Service Order extendable with written mutual consent of both the parties.

- Bid bond of PKR 560,000/- (Pak Rupees Five Hundred Sixty Thousand Only) must be submitted with the technical bid. Please see master set of tender documents (services) for further detail.
- The master set of tender documents (services) uploaded on OGDCL website (www.ogdcl.com) is the integral part of this TOR.