

OIL & GAS DEVELOPMENT COMPANY LIMITED



TENDER ENQUIRY NO. PROC-SERVICES/CB/P&P-5083/2021

**HIRING OF SERVICES FOR INSTALLATION OF FILTER COALESCER VESSEL (FC-101)
INCLUDING FABRICATION, WELDING, CUTTING, INSTALLATION, PAINTING ETC.
OF ASSOCIATED PIPING ALONG WITH RELEVANT E&I JOBS AT QADIRPUR PLANT**

Note:

Bid bond of **PKR 300,000/- (Pak Rupees Three 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 INSTALLATION OF FILTER COALESCER VESSEL (FC-101) INCLUDING FABRICATION, WELDING, CUTTING, INSTALLATION, PAINTING ETC. OF ASSOCIATED PIPING ALONG WITH RELEVANT E&I JOBS AT QADIRPUR PLANT

TERMS & CONDITIONS FOR FC-101 INSTALLATION

- 1- The Owner, **Oil & Gas Development Company Limited (OGDCL)** is interested in inviting bids for the provision of services for Installation of Filter Coalescer FC-101 including fabrication, welding, cutting, installation, painting works etc. of Associated piping & Relevant E&I Jobs (Mechanical Installation) from reputable companies at Qadirpur Gas Plant (Ghotki, Sindh).
- 2- OGDCL reserves the right to change (increase/decrease) the scope of the work at any time keeping in view the operational requirements.
- 3- Contractor must visit the site to confirm the provided scope of work by OGDCL for bidding and clarification of scope (if any).
- 4- In case of any delay in completion of job startup of plant due to contractor. Contractor will be held responsible and will be liable for penalty as per company policy.
- 5- 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. OGDCL reserves the right to change (increase/decrease) the scope of the work at any time keeping in view the operational requirements. In such case, quoted unit rates will be applicable.
- 6- The Contractor shall quote separate rate for each activity against the quantities.
- 7- Unit rates quoted by bidder shall be firm. No extra payments on account of escalation in prices due to any reason shall be admissible.
- 8- 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.
- 9- In case of prolonged delay in execution of jobs at any stage, OGDCL reserves the right to hire any third party on contractor's risk & cost for job completion.

- 10- Only land (for placement of caravans) for lodging (accommodation) will be provided to the Contractor's Man Power.
- 11- Job Completion Time is 30 days from handing over of the site. Contractor will be allowed to work round the clock. Plant shutdown is not required in this case.
- 12- Due to shutdown limited time constraint, Tie-In points (Approx. 338 Dia. inches) will be installed by the ATA-contractor during ATA-2021. Isolation valves with blinds will also be installed by the ATA Contractor on all Tie-In Points. Remaining scope of work for FC-101 complete job will be approximately 1100 Dia. Inches. However, 200 Dia. inches will be kept for contingency plan.

CONTRACTOR'S RESPONSIBILITIES

INSTALLATION OF FILTER COALESCER

- 1- Contractor will be responsible for Lifting, Erection, Levelling & alignment of Filter Coalescer FC-101 along with all the internals (if any).
- 2- Crane required for Erection of Filter Coalescer FC-101 & Associated piping is in contractor's scope of work. Estimated Total Weight: 60 Ton, detailed as
 - a. Estimated weight of FC-101 Vessel = 25~30 Ton
 - b. Estimated weight of Drain Valve Skid = 1 Ton
 - c. Estimated weight of 02 Valve skids = 12 Ton each, 24 Ton for both skids
 - d. Supporting structure of FC-101 i.e Platform, Stairs, etc will be assembled at site. Approx. 5 Ton
- 3- Installation of all accessories i.e. Pipe fittings, Valves, Skids & loose structure elements etc. will be in contractor's scope of work.
- 4- Mechanical Installation of all E&I accessories i.e. PSV, LCV, LSL etc. is in contractor's scope of work (as per drawing provided by OGDCL). This scope covers Mechanical Installation Only.
- 5- Contractor will provide Rigging plan for safe lifting and erection of Filter coalescer.
- 6- Transportation of Filter Coalescer & all associated material i.e. Piping, fittings, valves, skids structure elements and instrumentations etc. from Qadirpur Store within field premises will be contractor's responsibility.
- 7- Installation of Steel Structure of Filter Coalescer, Fabrication & Installation of piping supports is in contractor's scope of work.

FABRICATION & WELDING

- 1- Contractor will execute the complete Fabrication / Welding Jobs of Piping works. It includes Welding / Fabrication of Piping from Filter Coalescer to Tie-In points & vice versa. Total D/I are as follows
 - I. D/I for Installation of FC-101 & associated Piping. = 1100
 - II. D/I for Contingency = 200
- 2- Contractor shall provide WPS & PQR for welding and fabrication jobs prior to execution.
- 3- Contractor shall use Argon welding (TIG) for piping size $\leq 3''$ completely and root & hot passes for piping size $> 3''$.
- 4- Consumables for fabrication / welding / machining etc. will be contractor's responsibility. Consumables includes all the necessary items i.e. Electrodes, cutting disc, grinding disc, Baby grinders, burr set, Drill Machine along with Drill Bit ,DA, oxygen & Argon Cylinders etc.
- 5- Arrangement of Diesel Welding Generator & diesel will be in contractor's scope of work.
- 6- Provision of Electricity for Welding, lightening, Compressor for air blowing etc. will be contractor's scope of work.
- 7- Contractor can use OGDCL workshop facilities for machining jobs etc.
- 8- Contractor will be responsible for any Blinding/De-blinding required for any Hot Job, which may not be foreseen at this stage.
- 9- Gaskets (Only for box up) and Direct material will be provided by OGDCL.
- 10- All Civil Foundations will be the responsibility of OGDCL, However, Cemented Grouting of Filter Coalescer, Valve skids, drain valve skids, piping supports and Levelling & alignment will be in contractor scope of work.

INSPECTION & TESTING

- 1- Contractor shall be responsible for PRE-HEAT & PWHT of welding jobs including PWHT machines, consumables and stress relieving as per NDT results whenever required.
- 2- Hydrostatic test pressure for piping shall be 1600 PSI (1.5 times x Design Pressure). Pressure testing shall be maintained long enough to permit complete inspection but shall not be less than 60 minutes. All arrangement for Hydro testing i.e. pump, temporary gaskets (Non asbestos), temporary bolts, Blind Flanges etc. will be contractor's responsibility.

- 3- Air blowing after hydrostatic testing and drying of line is in contractor's scope of work. All the necessary arrangements for air blowing of lines i.e. compressor for pressurized air shall be contractor's responsibility.
- 4- NDT (DPT & RT) with required consumables & equipment for all welding jobs (Repair work/Modifications) will be contractor's responsibility.
- 5- 30% Radiographic Inspection of new welding joints will be contractor's responsibility. Contractor will arrange inspection through 3rd party and will provide/submit reports to Plant officials for approval.

PAINTING & PROTECTION

- 1- Sand blasting of Pipe lines before installation / painting is in contractor's scope of work.
- 2- The painting of new piping with primer (red oxide) and top coat with high build solids epoxy as per applicable code shall be the responsibility of Contractor. Contractor will also provide necessary arrangements for DFT testing of painted lines.
- 3- All modifications/change in piping will be painted after proper surface cleaning as per color codes.
- 4- Material required for Painting of Lines i.e. Primer & epoxy paints etc. is in contractor's scope of work. Contractor will procure Industrial Grade Paints of any reputable brand.

PREPARATION (GENERAL)

- 1- Arrangement of Electrical Boards/Cables/Lighting/Electrical Tools along with Miniature Circuit Breakers (MCB), Molded Case Circuit Breakers(MCCB) and Earth leakage circuit breaker (ACB) to provide electrical supply/Lighting at different work location as per HSE standard (such as insulation of Electrical Tools where required etc.) will be responsibility of the contractor.
- 2- Dismantling & box up of existing piping (if any) is contractor's responsibility.

TOOLS & MACHINERY

- 1- All Tools and consumables for the execution of each job will be Contractor's responsibility. Consumables include but not limited to all the necessary items i.e. WD-40, Cotton rags, Hand Gloves, RTV, Contact cleaner, Insulating Gloves etc.
- 2- Arrangement of Pump, hoses etc. for Flushing of piping will be contractor's responsibility. Water will be provided by OGDCL.

- 3- Scaffolding erection and dismantling along with complete scaffolding material for all the work at height jobs will be contractor's responsibility.

GENERAL ARRANGEMENTS

- 1- Only land (for placement of caravans) for lodging (accommodation) will be provided to the Contractor's Man Power.
- 2- All arrangement for boarding & lodging for contractor's man power will be contractors responsibility. Only 02 Officers Engg. Cadre & 02 Supervisors level will be provided temporary residence & messing.
- 3- Arrangement of Camp utilities electricity, portable water, portable washrooms/toilets with their cleaning will be responsibility of Contractor.
- 4- Contractor must submit list of total no's of deployed manpower (cadre wise).
- 5- Contractor shall provide adequate meals / on-site refreshment twice in 12 hour shift and laundry services to their employees.
- 6- Contractor should ensure his manpower has no any kind of ammunition and narcotics. (Security concern)
- 7- Contractor should deploy its security personals to control the manpower's in/out movement at plant and field main gate with the coordination of OGDCL security Incharge.
- 8- Pick & drop of any type for contractor's manpower will be his responsibility.
- 9- Contractor will arrange 02 times daily Refreshment & 01 time proper meal per shift at site as per requirement.

HSEQ

- 1- Contractor will ensure all prevailing protocols regarding COVID-19 pandemic at the time of mobilization & Job execution. Use of Face masks, hand sanitizers & social distancing will be mandatory. Contractor is responsible for arrangement of such resources.
- 2- 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.
- 3- Contractor shall submit, before the start of the job, the detailed documents as follows:
 - a. HSE Risk Assessment
 - b. JHA/JSAs of the relevant Jobs
 - c. Emergency Preparedness and Response Plan.

- 4- 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.
- 5- Contractor shall develop and ensure Toolbox Talk Program on Safety, Health and Environmental matters in daily HSE briefings by its HSEQ Rep.
- 6- Contractor shall immediately report to OGDCL representative all significant and important incidents involving fatality, injury, illness, environmental impacts, near hits, and/or hazardous situations.
- 7- Contractor shall submit to OGDCL representative an HSE Performance Review Report on regular basis.
- 8- 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.
- 9- 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.
- 10- Arrangement of all the safety equipment & PPE's i.e. Gloves, Helmet, Safety glasses Harness, respirators etc. for contractor employees is contractor's responsibility. **All the lifting and rigging equipment should be 3rd party certified.**
- 11- Mobiles, photo camera, cigarettes, lighter etc. are prohibited in the plant premises and contractor should ensure this.
- 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 / emergency, OGDCL will provide only general first aid whereas any other medical treatment would be the responsibility of contractor.
- 14- In case of any injury, workmanship compensation of contractor's staff will be contractor's responsibility.

OGDCL's SCOPE

- 1- OGDCL will provide complete design package for Installation of Filter Coalescer & associated Piping
- 2- OGDCL will provide all the necessary Isometric diagrams for Installation / erection of Piping.

- 3- Civil work i.e. Erection of Foundations for Filter Coalescer and Piping supports (Civil works only) etc. is in OGDCL scope of work. However, Cemented Grouting of Filter Coalescer, Levelling & alignment will be in contractor scope of work.
- 4- OGDCL will provide work Permit to work facility in time, as per schedule according to HSEQ standards at plant
- 5- OGDCL will provide only space for placement of temporary office facility for indirect staff.
- 6- OGDCL will provide a maximum of 30 Ton Crane (if required).
- 7- OGDCL will provide accommodation to 02 officers & 02 Supervisors only.
- 8- OGDCL will provide supply of water for hydro testing.

Note:

- Bid bond of **PKR 300,000/- (Pak Rupees Three 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 fabrication, welding, installation/ commissioning, surface preparation, painting works etc.	Contractor should have min. 05 years of experience for execution of rigging, fabrication, welding, installation/ commissioning, surface preparation, painting works etc. in Oil & Gas/fertilizer/ petrochemical industry.	10 years exp.: 20 07 years exp.: 15 05 years exp.: 10 Less than 05 years exp.: 0	20	10	The Contractor should submit the details of scope of work (especially dia. Inches welded, pipe schedule) along with supporting documents (Job Completion Certificates) to prove the relevant experience. Only job orders more than 05 Million PKR Minimum will be considered.
2.	Personnel capacities to be deployed.	Contractor's manpower should have min. 05 years of relevant trade experience in Oil & Gas/fertilizer/ petrochemical industry:	<u>Fabricator:</u> 10 years exp.: 10 07 years exp.: 07 05 years exp.: 05 Less than 05 years: 0 <u>Welder:</u> 10 years exp.: 10 07 years exp.: 07 05 years exp.: 05 Less than 05 years: 0 <u>Fitter:</u> 10 years exp.: 10 07 years exp.: 07 05 years exp.: 05 Less than 05 years: 0 <u>Riggers:</u> 10 years exp.: 10 07 years exp.: 07 05 years exp.: 05 Less than 05 years: 0	40	5+5+5+5=20	All Four trades must qualify min. marks. 0 marks in any of the trade will disqualify the category even if other trades score 20 marks as Total CV's to be provided with experience certificates.
3.	Welder's qualification	Contractor to deploy certified welders only.	Welder Qualification Certificates to be provided in this regard.	10	10	Contractor will conduct WQT of welders at QP site and will share weld joint radiography results with client
4.	Relevant PEC Category	Bidder must have PEC registration in relevant category (Min. category)	10	10	10	Valid PEC certificate to be submitted
5.	Complete compliance of Term and Conditions	Signed/Stamped TOR's to be submitted with technical bid	Fully Complied: 20	20	20	The contractor should submit the complete compliance certificate with the bid, any deviation from term and condition is not acceptable.

Total Marks= 100

Minimum Qualifying Marks = 70

Note:

- Contractor should get minimum qualifying marks in each category as mentioned in above table. Contractor will not be qualified if above mentioned minimum qualifying marks in any category will not be scored by the contractor. 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 evaluation.

2. Contractor must have five years total experience of providing rigging, fabrication, welding, installation, surface preparation, painting works etc. services. Contractors having experience less than five years will be disqualified & shall not be considered for evaluation even they score marks more than 70 as per above tabulated criteria.
3. In case of JV, JV agreement to be provided by contractor. Experience of lead JV partner will be considered only for evaluation. In no case, experience of both JV partner will be added together for marks calculation.

FINANCIAL BID FORMAT/EVALUATION CRITERIA

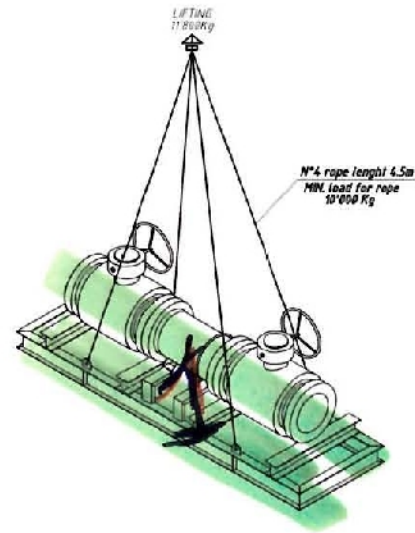
Hiring of services at its Qadirpur Gas Plant for Installation of Filter Coalescer FC-101 & fabrication, welding, cutting, installation, painting etc. of associated piping & Relevant E&I Jobs (Mechanical Installation)

Sr. #	DESCRIPTION	QTY.	Price in PKR (inclusive of applicable all taxes except PST/ICT)	
			UNIT RATE	TOTAL PRICE
1	Installation of Filter skid	01 No. (60 Tons) LumpSum		
2	Services cost for Welding, Cutting, Fabrication, Fit-up of pipes & fittings of Filter skid and associated piping on per dia. inch basis as Per TOR (the cost must be inclusive of all types of equipment's, tools, machinery, consumable and PPE)	1300 Dia. Inch.		
3	Services cost for sand blasting + primer coating of pipes, fittings and equipment on per square meter basis as Per TOR (the cost must be inclusive of all types of equipment's, tools, machinery, consumable, PPE & Primer Material)	172 Sq. Mtr.		
4	Services cost for painting of pipes, fittings & equipment on per square meter basis as Per TOR (the cost must be inclusive of all types of equipment's, tools, machinery, consumable, PPE & Painting Material)	172 Sq. Mtr.		
5	Electrical & Instrument Jobs (Mechanical Installation of all valves, PSV, Level Switches etc.)	Lumpsum		
6	Mob / Demob cost (Lump Sum) (to be paid after completion of work)	Lumpsum		
TOTAL PRICE (inclusive of all taxes except PST/ICT):				

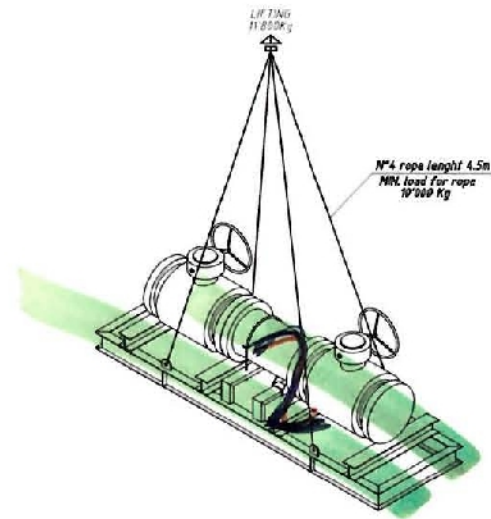
Notes:

- a) The prices should be inclusive of all applicable taxes, duties, levies, charges etc. (except Provisional Sales Tax/ICT Tax on Services in Pakistan).
- b) OGDCL reserves the right to delete / cancel any activity mentioned in the scope. At the time of contractor mobilization, they will be informed about such deletion/cancellation of activity and payment will be adjusted accordingly.
- c) No Advance payment will be made at the time signing the contract.
- d) Evaluation will be based on complete package basis and contract will be awarded to technically responsive and financially lowest evaluated bidder.
- e) Payment will be made after submission of completion certificate and verified invoices duly signed by Field Manager, Relevant section In-charges. Payment for Item 02, 03 & 04 will be on actual work basis. Unit rates shall prevail. For item no. 02, estimated dia. Inches are 1100 whereas 200 D/I are kept for contingency.
- f) Commercial Invoice should be included the activity list with pricing verified by field official.
- g) Sales Tax invoice with Annexure 'C', must be provided.
- h) Call up period to report at site and execute the work will be 15 days.
- i) Job Completion Time is 30 days from handing over of the site. Contractor will be allowed to work round the clock. Plant shutdown is not required in this case.

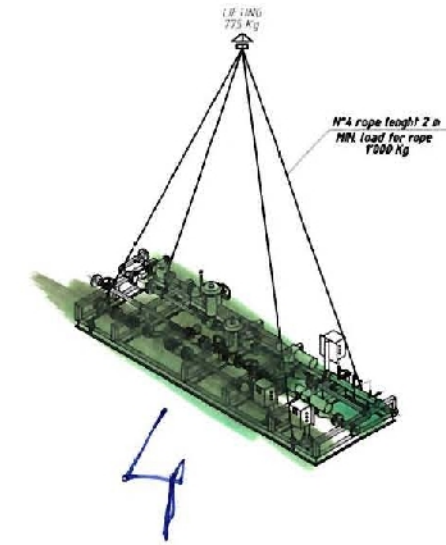
TYPICAL LIFTING FOR HK01-01



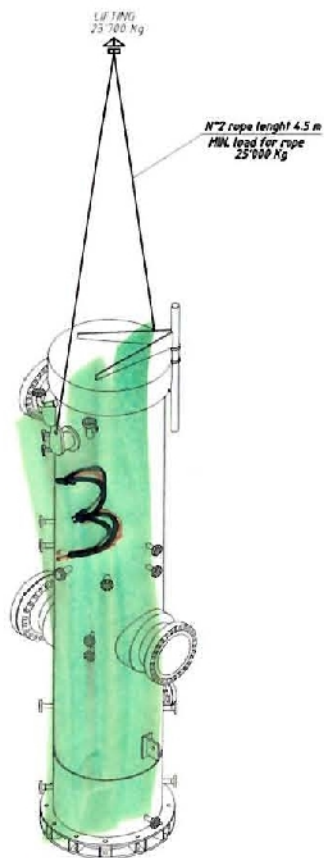
TYPICAL LIFTING FOR HK01-02



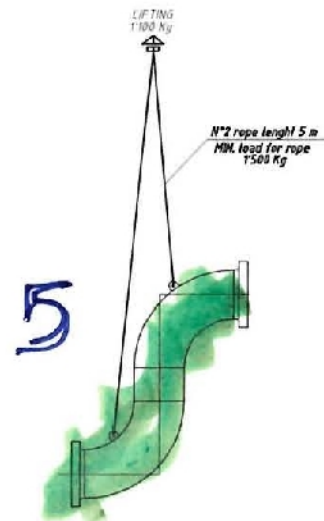
TYPICAL LIFTING FOR HK01-03



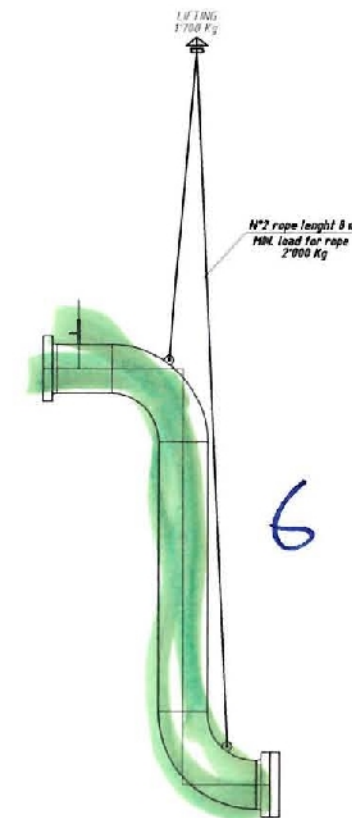
TYPICAL LIFTING FOR FILTER SEPARATOR



TYPICAL LIFTING FOR HP01-02



TYPICAL LIFTING FOR HP01-03



BATTERY LIMIT
 VALVITALIA
 OTHERS

Reference VSD documents:

Field	190375 SY 01
Civil layout	190375 OY 01
Filter separator drawing	190375 OM 11
Spools drawing	190375 HP 01
Baseframe drawing	190375 HK 01
Ladder drawing	190375 HK 11

Rev.	Date	Description / Description	By	Appr.	Use	Standard	Appr.	Appr.
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

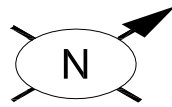
QUADRIPUR GAS FIELD
 INLET FILTER CONDENSER
 GENERAL LAYOUT

VSD1900375
 190375 OM 01

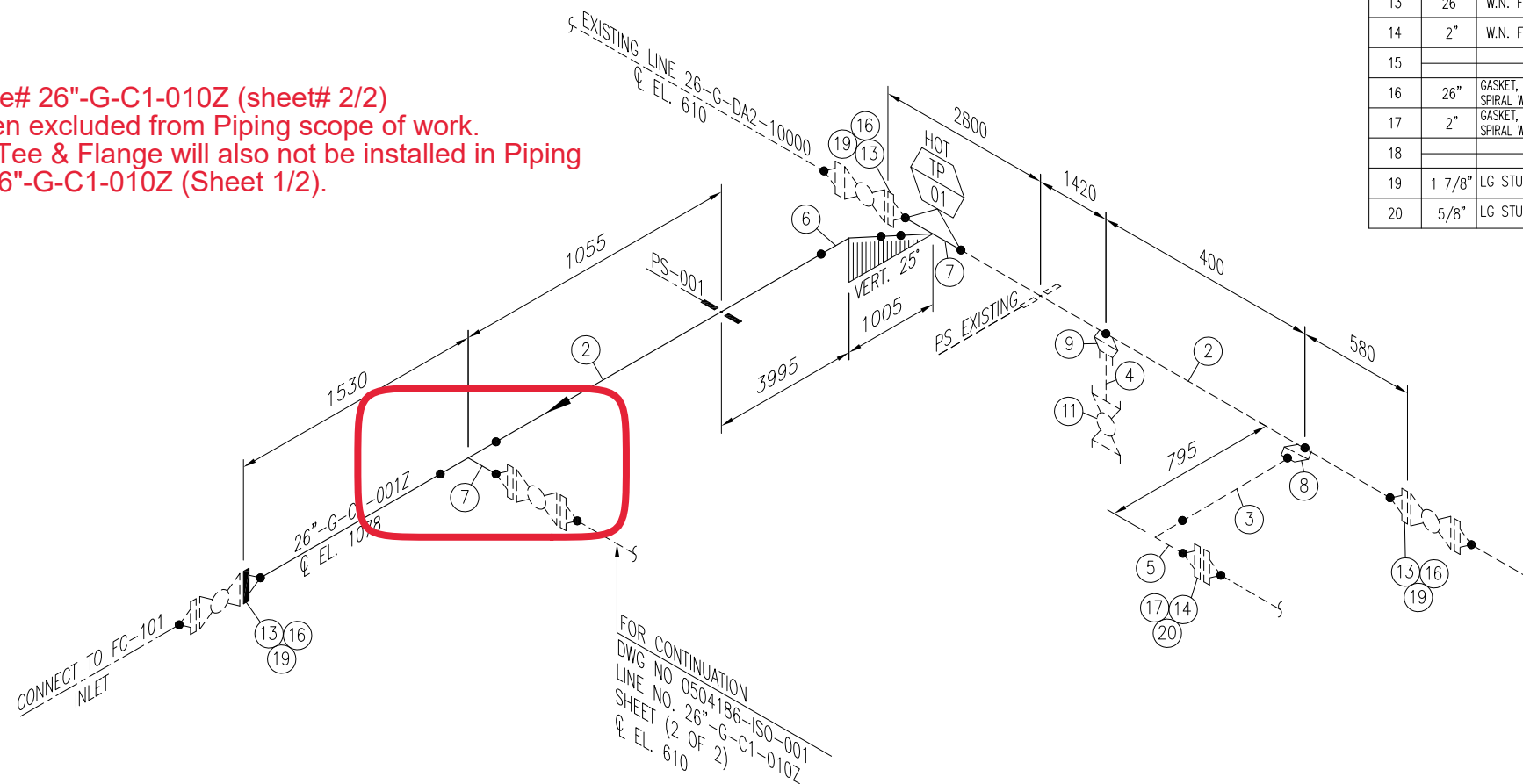
DATE: 23/04/2010



ISOMETRICS



The Line# 26"-G-C1-010Z (sheet# 2/2) has been excluded from Piping scope of work. Hence Tee & Flange will also not be installed in Piping Line# 26"-G-C1-010Z (Sheet 1/2).



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	NEW MATERIAL	EXISTING MATERIAL	REMARKS
1		DELETED		DELETED				
2	26"	PIPE WALL THK.25.4 BE SMLS	10.3M	ASTM A-106 GR.B	C1	6.5M	3.8M	
3	2"	PIPE SCH.160 SMLS B.E	0.35M	ASTM A-106 Gr.B	DA2	-	0.35M	
4	3/4"	PIPE SCH.160 SMLS P.E	0.2M	ASTM A-106 Gr.B	DA2	-	0.2M	
5	2"	ELBOW 90° LR SCH.160 BW	1	ASTM A-234 Gr. WPB	DA2	-	1	
6	26"	MITER 25° WALL THK.25.4 BW	1	ASTM A-234 Gr. WPB	C1	1	-	
7	26"	EQUAL TEE WALL THK.25.4 BW	2	ASTM A-234 Gr. WPB	C1	2	-	
8	26"x2"	WELDOLET SCH.160 BW	1	ASTM A-105	DA2	-	1	
9	26"x3/4"	SOCKOLET 3000#	1	ASTM A-105	DA2	-	1	
10		DELETED		DELETED				
11	3/4"	BALL VALVE SW. 800#.	1	-	DA2	-	1	
12		DELETED		DELETED				
13	26"	W.N. FLANGE R.F WALL THK.25.4 BW 600#.	3	ASTM A-105	DA2	1	2	
14	2"	W.N. FLANGE R.F SCH.160 BW 600#.	1	ASTM A-105	DA2	-	1	
15		DELETED		DELETED				
16	26"	GASKET, 600# THK. 3mm COMPRESS GRAPHIT FILLED SPIRAL WOUND, 304 S.S. CENTER RING PER ASME B 16.20	3	304 S.S.	C1	3	-	
17	2"	GASKET, 600# THK. 3mm COMPRESS GRAPHIT FILLED SPIRAL WOUND, 304 S.S. CENTER RING PER ASME B 16.20	1	304 S.S.	DA2	1	-	
18		DELETED		DELETED				
19	1 7/8"	LG STUD BOLTS C/W 2 NUTS 385mm LONG	84	ASTM A 193 B7M ASTM A 194 2HM	C1	84	-	
20	5/8"	LG STUD BOLTS C/W 2 NUTS 110mm LONG	8	ASTM A 193 B7M ASTM A 194 2HM	C1	8	-	

ISSUED FOR CONSTRUCTION

NOTES:

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION

REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT			CLIENT
2	11-09-20	ISSUED FOR CONSTRUCTION	NU	SAR		
1	04-08-20	RE-ISSUED FOR REVIEW	NU	SAR		
0	21-02-19	ISSUED FOR REVIEW	NU	SAR		

PG PETROCHEMICAL ENGINEERING CONSULTANTS
 C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

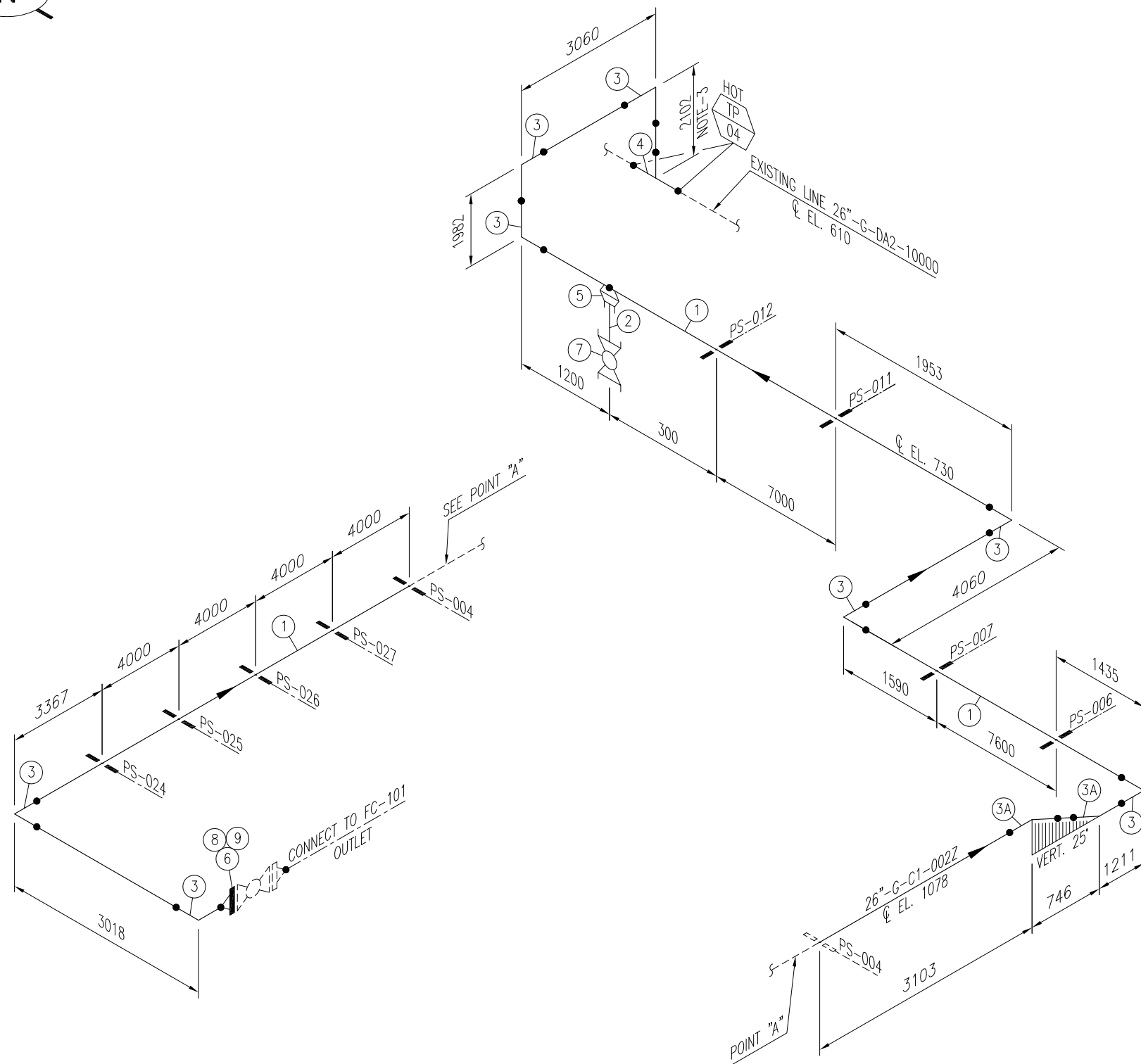
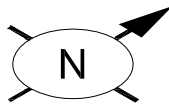
CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **INSTALLATION OF FILTER COALESCER FOR SERIES OPERATION OF PRCP AND QICP**

TITLE: **PIPING ISOMETRIC
LINE No. 26"-G-C1-001Z**

DESIGN PRESSURE	1100 PSIG	DESIGN TEMPERATURE	212°F	INSULATION	PP	PRESSURE TEST	HYDRO TEST
OPERATING PRESSURE	240 PSIG	OPERATING TEMPERATURE	100°F	FABRICATION	SHOP/FIELD	STRESS ANALYSIS	YES
TEST PRESSURE	1650 PSIG	STRESS RELIEVE	NO	PAINTING	NO	DPT	100% FOR WELDOET/ WELDOFLANGE
COLOR CODE	-	X-RAY / RT	10%	COAT WRAPPING	-	SPECIFICATION CODE	C1

DRAWING NO.	SHEET	SCALE	REV.
0504186-ISO-001	NO. OF 1 2	N.T.S. A3	2



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	26"	PIPE WALL THK.25.4 BE SMLS	45.6M	ASTM A-106 GR.B	C1	
2	3/4"	PIPE SCH.XXS SMLS P.E	0.1M	ASTM A-106 Gr.B	C1	
3	26"	ELBOW 90° LR WALL THK.25.4 BW	8	ASTM A-234 Gr. WPB	C1	
3A	26"	MITER 25° WALL THK.25.4 BW	2	ASTM A-234 Gr. WPB	C1	
4	26"	EQUAL TEE WALL THK.25.4 BW	1	ASTM A-234 Gr. WPB	C1	
5	26"x3/4"	SOCKOLET 9000#	1	ASTM A-105	C1	
6	26"	W.N. FLANGE R.F WALL THK.25.4 BW 600#.	1	ASTM A-105	C1	
7	3/4"	BALL VALVE SW. 800#.	1	SEE TAG NO. VB-100	C1	
8	26"	GASKET, 600# THK. 3mm COMPRESS GRAPHIT FILLED SPIRAL WOUND, 304 S.S CENTER RING PER ASME B 16.20	1	304 S.S.	C1	
9	1 7/8"	LG STUD BOLTS C/W 2 NUTS 385mm LONG	28	ASTM A 193 B7M ASTM A 194 2HM	C1	

ISSUED FOR CONSTRUCTION

NOTES:

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION
3. ELEVATION TO BE ADJUSTED AS PER SITE REQUIREMENT.

REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT			CLIENT
2	11-09-20	ISSUED FOR CONSTRUCTION	NU	SAR		
1	04-08-20	RE-ISSUED FOR REVIEW	NU	SAR		
0	21-02-19	ISSUED FOR REVIEW	NU	SAR		

PG PETROCHEMICAL ENGINEERING CONSULTANTS
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.
 TEL. +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@ppec.com.pk web site: www.ppec.com.pk

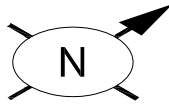
CLIENT **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT : **INSTALLATION OF FILTER COALESCER FOR SERIES OPERATION OF PRCP AND QICP**

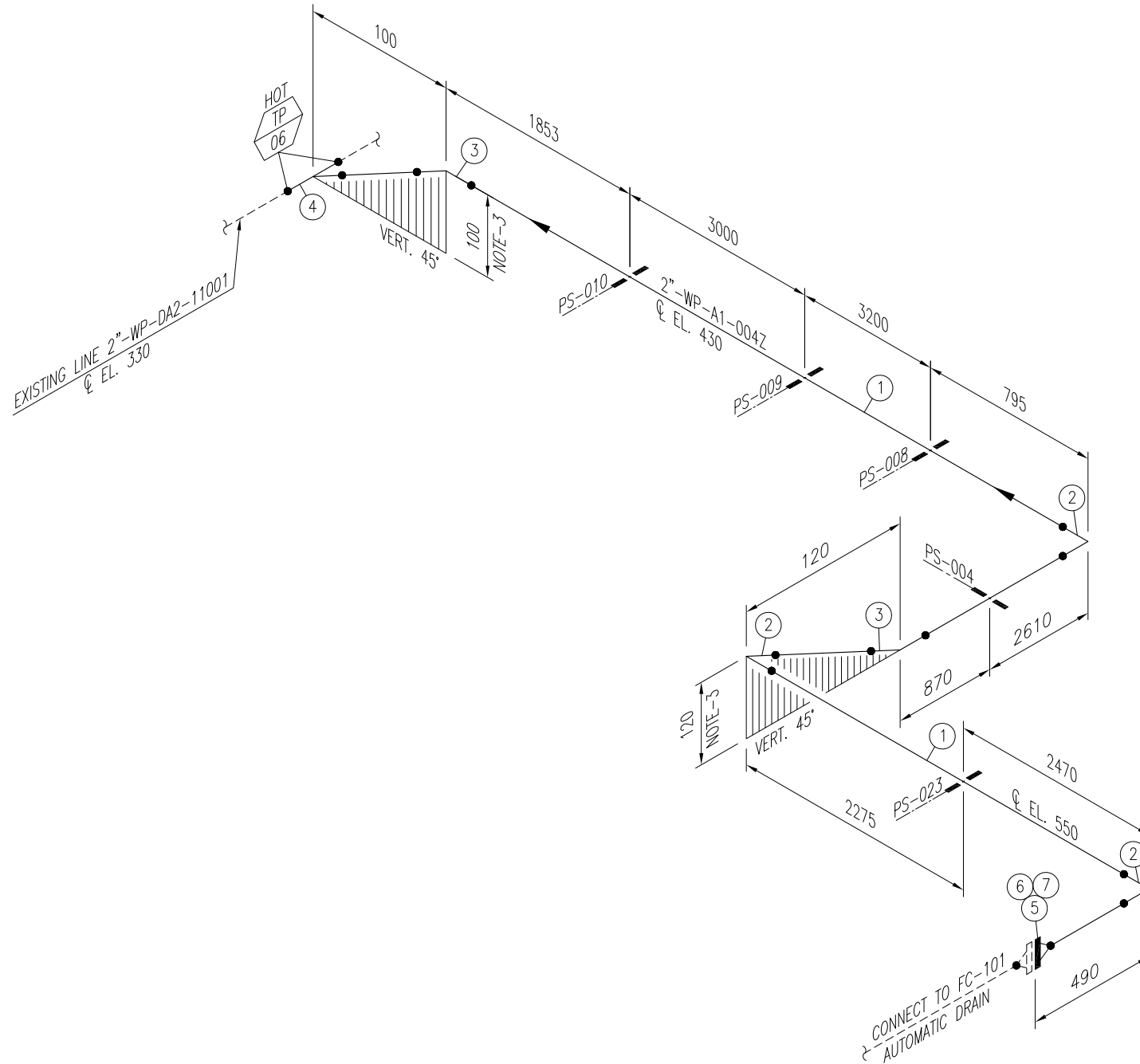
TITLE : **PIPING ISOMETRIC
LINE No. 26"-G-C1-002Z**

DESIGN PRESSURE	1100 PSIG	DESIGN TEMPERATURE	212°F	INSULATION	PP	PRESSURE TEST	HYDRO TEST
OPERATING PRESSURE	240 PSIG	OPERATING TEMPERATURE	100°F	FABRICATION	SHOP/FIELD	STRESS ANALYSIS	YES
TEST PRESSURE	1650 PSIG	STRESS RELIEVE	NO	PAINTING	NO	DPT	100% FOR WELDOET/ WELDOFLANGE
COLOR CODE	-	X-RAY / RT	10%	COAT WRAPPING	-	SPECIFICATION CODE	C1

DRAWING NO.	SHEET	SCALE	REV.
0504186-ISO-002	NO.	OF	N.T.S.
	1	1	A3



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	2"	PIPE SCH.80 BE SMLS	17.4M	ASTM A-106 GR.B	A1	
2	2"	ELBOW 90° LR SCH.80 BW	3	ASTM A-234 Gr. WPB	A1	
3	2"	ELBOW 45° LR SCH.80 BW	2	ASTM A-234 Gr. WPB	A1	
4	2"	EQUAL TEE SCH.80 BW	1	ASTM A-234 Gr. WPB	A1	
5	2"	W.N. FLANGE R.F SCH.80 BW 150#.	1	ASTM A-105	A1	
6	2"	GASKET, 150# THK. 3mm COMPRESS GRAPHIT FILLED SPIRAL WOUND, 304 S.S CENTER RING PER ASME B 16.20	1	304 S.S.	A1	
7	5/8"	LG STUD BOLTS C/W 2 NUTS 85mm LONG	4	ASTM A 193 B7M ASTM A 194 2HM	A1	



ISSUED FOR CONSTRUCTION

NOTES:

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION.
3. ELEVATION TO BE ADJUSTED AS PER SITE REQUIREMENT.

REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT			CLIENT
2	11-09-20	ISSUED FOR CONSTRUCTION	NU	SAR		
1	04-08-20	RE-ISSUED FOR REVIEW	NU	SAR		
0	21-02-19	ISSUED FOR REVIEW	NU	SAR		

PG PETROCHEMICAL ENGINEERING CONSULTANTS
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pec.com.pk web site: www.pec.com.pk

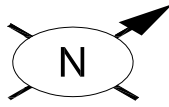
CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **INSTALLATION OF FILTER COALESCER FOR SERIES OPERATION OF PRCP AND QICP**

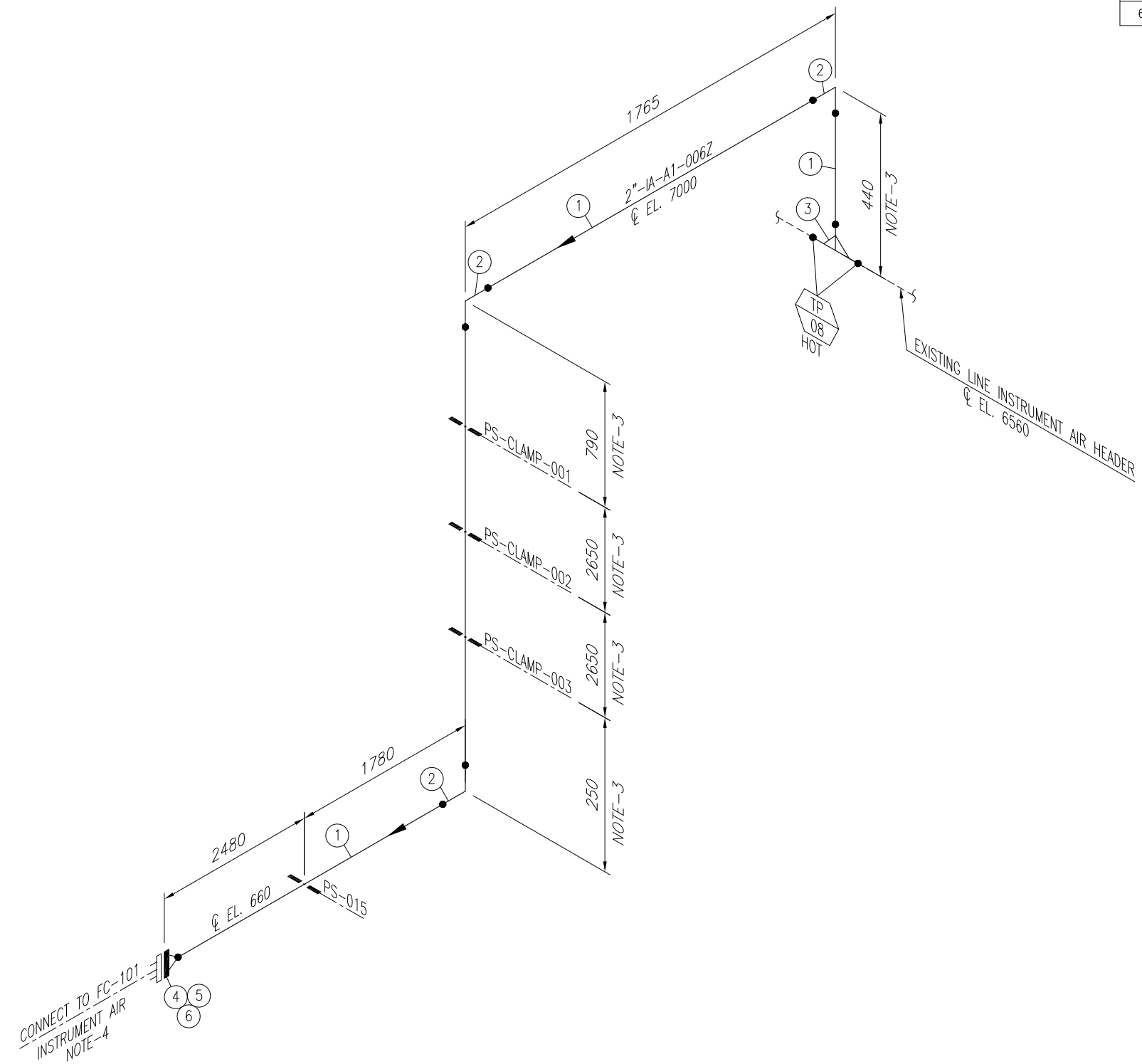
TITLE: **PIPING ISOMETRIC
LINE No. 2"-WP-A1-004Z**

DESIGN PRESSURE	256 PSIG	DESIGN TEMPERATURE	212°F	INSULATION	PP	PRESSURE TEST	HYDRO TEST
OPERATING PRESSURE	50 PSIG	OPERATING TEMPERATURE	100°F	FABRICATION	SHOP/FIELD	STRESS ANALYSIS	YES
TEST PRESSURE	384 PSIG	STRESS RELIEVE	NO	PAINTING	NO	DPT	10% FOR WELDOET/ WELDOFLANGE
COLOR CODE	-	X-RAY / RT	10%	COAT WRAPPING	-	SPECIFICATION CODE	A1

DRAWING NO.		SHEET	SCALE	REV.
0504186-ISO-006		NO. OF	N.T.S.	2
		1 1	A3	



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	2"	PIPE SCH.80 BE SMLS	12.5M	ASTM A-106 GR.B	A1	
2	2"	ELBOW 90° LR SCH.80 BW	3	ASTM A-234 Gr. WPB	A1	
3	3"x2"	RED. TEE SCH.40x80 BW	1	ASTM A-234 Gr. WPB	A1	
4	2"	W.N. FLANGE R.F SCH.80 BW 150#.	1	ASTM A-105	A1	
5	2"	GASKET, 150# THK. 3mm COMPRESS GRAPHIT FILLED SPIRAL WOUND, 304 S.S CENTER RING PER ASME B 16.20	1	304 S.S.	A1	
6	5/8"	LG STUD BOLTS C/W 2 NUTS 85mm LONG	4	ASTM A 193 B7M ASTM A 194 2HM	A1	



ISSUED FOR CONSTRUCTION

NOTES:

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION
3. ELEVATION TO BE ADJUSTED AS PER SITE REQUIREMENT.
4. PIPING TO BE ADJUST AS PER SITE REQUIREMENT DUE TO UNAVAILABILITY OF NOZZLE CONNECTION.

REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT			CLIENT
2	11-09-20	ISSUED FOR CONSTRUCTION	NU	SAR		
1	04-08-20	RE-ISSUED FOR REVIEW	NU	SAR		
0	21-02-19	ISSUED FOR REVIEW	NU	SAR		

PG PETROCHEMICAL ENGINEERING CONSULTANTS
 C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@ppec.com.pk web site: www.ppec.com.pk

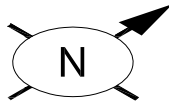
CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT : **INSTALLATION OF FILTER COALESCER FOR SERIES OPERATION OF PRCP AND QICP**

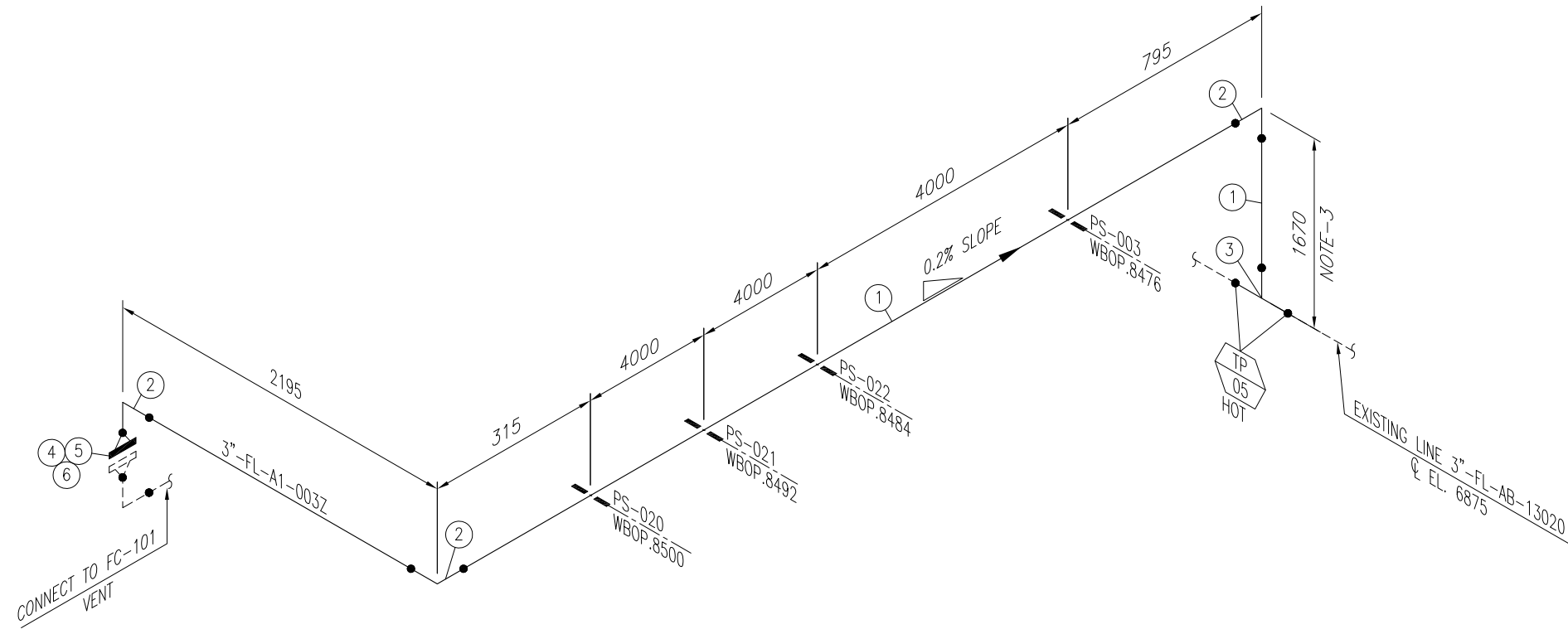
TITLE : **PIPING ISOMETRIC
LINE No. 2"-IA-A1-006Z**

DESIGN PRESSURE	256 PSIG	DESIGN TEMPERATURE	212°F	INSULATION	PP	PRESSURE TEST	HYDRO TEST
OPERATING PRESSURE	30-50 PSIG	OPERATING TEMPERATURE	100-120°F	FABRICATION	SHOP/FIELD	STRESS ANALYSIS	YES
TEST PRESSURE	384 PSIG	STRESS RELIEVE	NO	PAINTING	NO	DPT	10% FOR WELDOET/ WELDOFLANGE
COLOR CODE	-	X-RAY / RT	10%	COAT WRAPPING	-	SPECIFICATION CODE	A1

DRAWING NO.		SHEET	SCALE	REV.
0504186-ISO-007		NO. OF	N.T.S.	2
		1 1	A3	



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	3"	PIPE SCH.40 BE SMLS	16.3M	ASTM A-106 GR.B	A1	
2	3"	ELBOW 90° LR SCH.40 BW	3	ASTM A-234 Gr. WPB	A1	
3	3"	EQUAL TEE SCH.40 BW	1	ASTM A-234 Gr. WPB	A1	
4	3"	W.N. FLANGE R.F SCH.40 BW 150#.	1	ASTM A-105	A1	
5	3"	GASKET, 150# THK. 3mm COMPRESS GRAPHIT FILLED SPIRAL WOUND, 304 S.S CENTER RING PER ASME B 16.20	1	304 S.S.	A1	
6	5/8"	LG STUD BOLTS C/W 2 NUTS 90mm LONG	4	ASTM A 193 B7M ASTM A 194 2HM	A1	



ISSUED FOR CONSTRUCTION

NOTES:

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION.
3. ELEVATION TO BE ADJUSTED AS PER SITE REQUIREMENT.

REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT			CLIENT
2	11-09-20	ISSUED FOR CONSTRUCTION	NU	SAR		
1	04-08-20	RE-ISSUED FOR REVIEW	NU	SAR		
0	21-02-19	ISSUED FOR REVIEW	NU	SAR		

PG PETROCHEMICAL ENGINEERING CONSULTANTS
 C-2, BLOCK NO. 17, GULSHAN-E-IQBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.
 TEL. +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@ppec.com.pk web site: www.ppec.com.pk

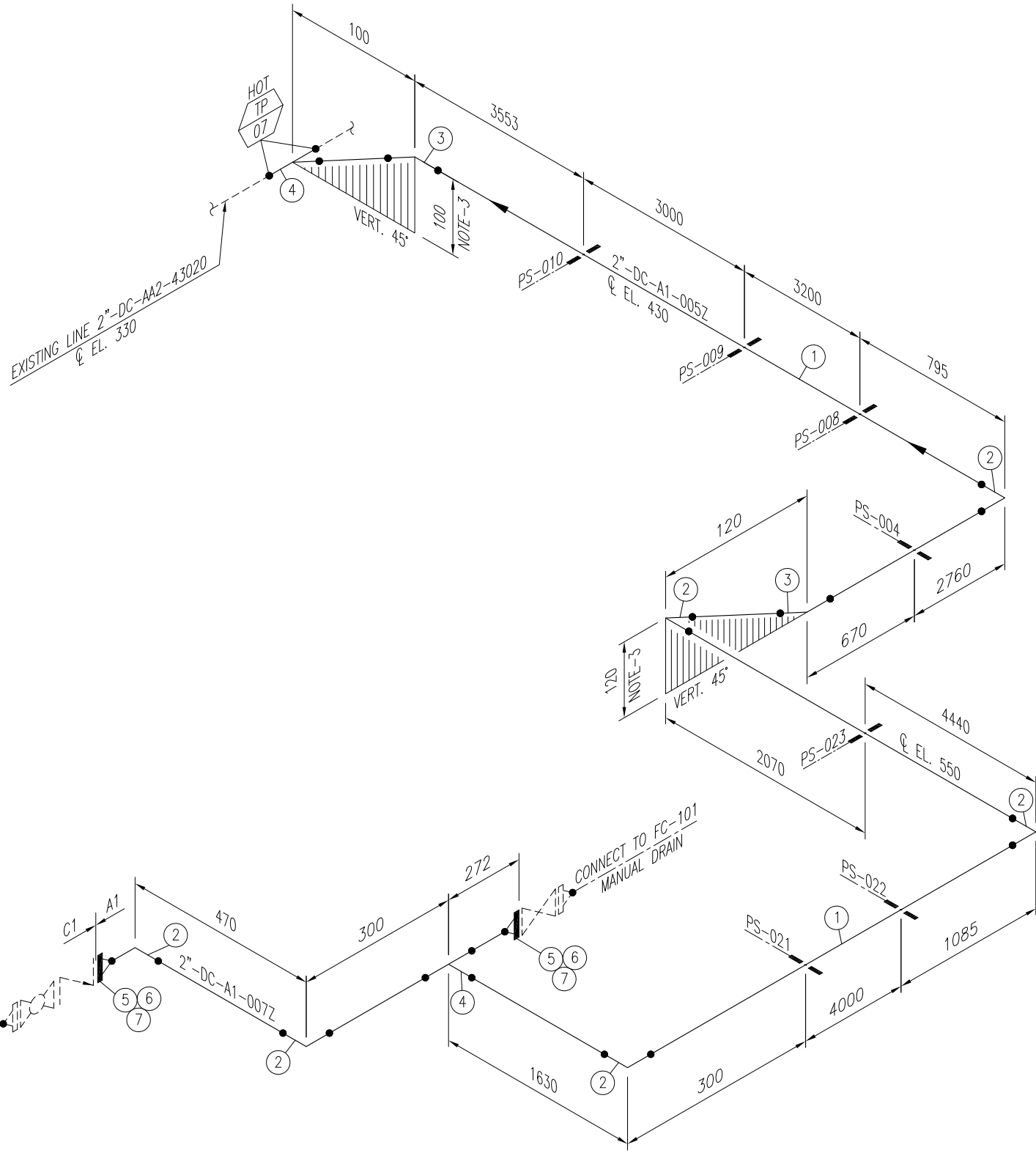
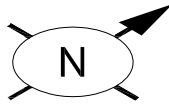
CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **INSTALLATION OF FILTER COALESCER FOR SERIES OPERATION OF PRCP AND QICP**

TITLE: **PIPING ISOMETRIC
LINE No. 3"-FL-A1-003Z**

DESIGN PRESSURE	256 PSIG	DESIGN TEMPERATURE	212°F	INSULATION	PP	PRESSURE TEST	HYDRO TEST
OPERATING PRESSURE	50 PSIG	OPERATING TEMPERATURE	-°F	FABRICATION	SHOP/FIELD	STRESS ANALYSIS	YES
TEST PRESSURE	384 PSIG	STRESS RELIEVE	NO	PAINTING	NO	DPT	10% FOR WELDOET/ WELDOFLANGE
COLOR CODE	-	X-RAY / RT	10%	COAT WRAPPING	-	SPECIFICATION CODE	A1

DRAWING NO.	SHEET	SCALE	REV.
0504186-ISO-008	NO. OF	N.T.S.	
	1 1	A3	2



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	2"	PIPE SCH.80 BE SMLS	27.8M	ASTM A-106 GR.B	A1	
2	2"	ELBOW 90° LR SCH.80 BW	6	ASTM A-234 Gr. WPB	A1	
3	2"	ELBOW 45° LR SCH.80 BW	2	ASTM A-234 Gr. WPB	A1	
4	2"	EQUAL TEE SCH.80 BW	2	ASTM A-234 Gr. WPB	A1	
5	2"	W.N. FLANGE R.F SCH.80 BW 600#.	2	ASTM A-105	-	
6	2"	GASKET, 600# THK. 3mm COMPRESS GRAPHIT FILLED SPIRAL WOUND, 304 S.S CENTER RING PER ASME B 16.20	2	304 S.S.	-	
7	5/8"	LG STUD BOLTS C/W 2 NUTS 110mm LONG	16	ASTM A 193 B7M ASTM A 194 2HM	-	

ISSUED FOR CONSTRUCTION

- NOTES:**
- ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
 - ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION.
 - ELEVATION TO BE ADJUSTED AS PER SITE REQUIREMENT.

FOR CONTINUATION
DWG NO 0504186-ISO-010
LINE NO. 2"-DC-C1-008Z
¢ EL. 550

REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT			CLIENT
2	11-09-20	ISSUED FOR CONSTRUCTION	NU	SAR		
1	04-08-20	RE-ISSUED FOR REVIEW	NU	SAR		
0	21-02-19	ISSUED FOR REVIEW	NU	SAR		

PG PETROCHEMICAL ENGINEERING CONSULTANTS
C-2, BLOCK NO. 17, GULSHAN-E-IGBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.
TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@ppec.com.pk web site: www.ppec.com.pk

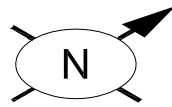
CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **INSTALLATION OF FILTER COALESCER FOR SERIES OPERATION OF PRCP AND QICP**

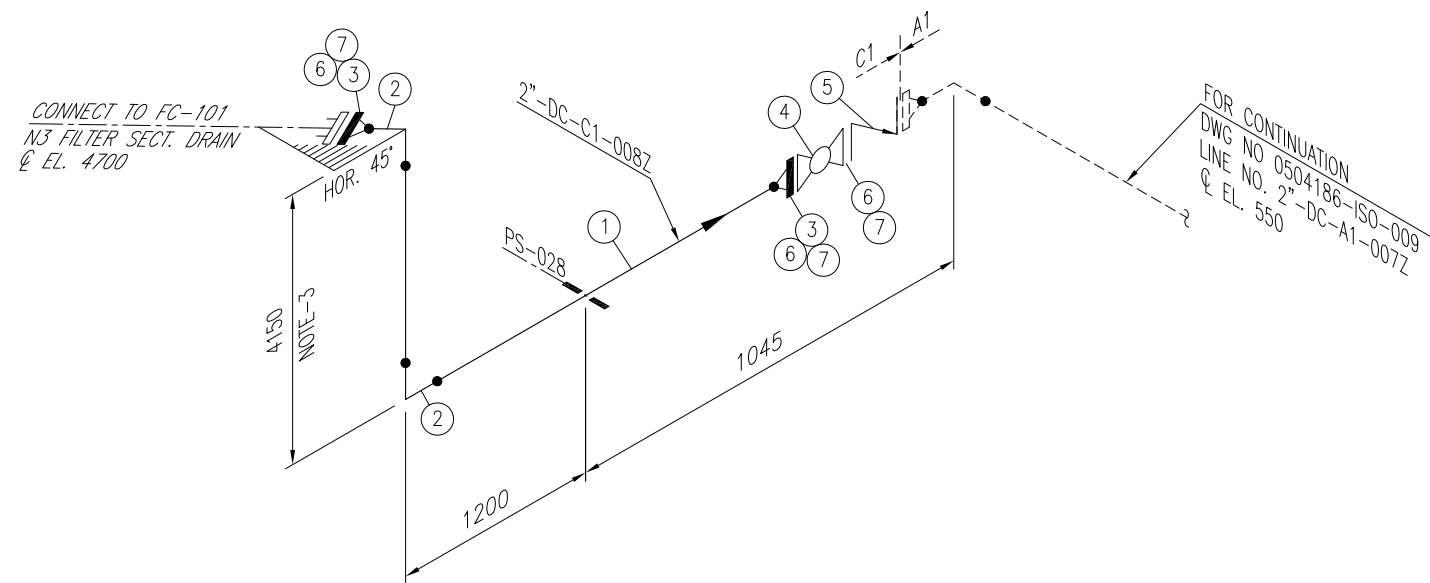
TITLE: **PIPING ISOMETRIC
LINE No. 2"-DC-A1-005Z / 2"-DC-A1-007Z**

DESIGN PRESSURE	256 PSIG	DESIGN TEMPERATURE	212°F	INSULATION	PP	PRESSURE TEST	HYDRO TEST
OPERATING PRESSURE	50 PSIG	OPERATING TEMPERATURE	100°F	FABRICATION	SHOP/FIELD	STRESS ANALYSIS	YES
TEST PRESSURE	384 PSIG	STRESS RELIEVE	NO	PAINTING	NO	DPT	10% FOR WELDOET/ WELDOFLANGE
COLOR CODE	-	X-RAY / RT	10%	COAT WRAPPING	-	SPECIFICATION CODE	A1

DRAWING NO.		SHEET	SCALE	REV.
0504186-ISO-009		NO. OF	N.T.S.	2
		1 1	A3	



Sr. NO.	SIZE	DESCRIPTION	QTY.	MATERIAL	(MAT. SPEC)	REMARKS
1	2"	PIPE SCH.160 BE SMLS	5.9M	ASTM A-106 GR.B	C1	
2	2"	ELBOW 90° LR SCH.160 BW	2	ASTM A-234 Gr. WPB	C1	
3	2"	W.N. FLANGE R.F SCH.160 BW 600#.	2	ASTM A-105	C1	
4	2"	BALL VALVE R.F 600#.	1	SEE TAG NO. VB-102	C1	
5	2"	SWING TYPE CHECK VALVE R.F 600#.	1	SEE TAG NO. VC-103	C1	
6	2"	GASKET, 600# THK. 3mm COMPRESS GRAPHIT FILLED SPIRAL WOUND, 304 S.S CENTER RING PER ASME B 16.20	3	304 S.S.	C1	
7	5/8"	LG STUD BOLTS C/W 2 NUTS 110mm LONG	24	ASTM A 193 B7M ASTM A 194 2HM	C1	



ISSUED FOR CONSTRUCTION

NOTES:

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION
3. ELEVATION TO BE ADJUSTED AS PER SITE REQUIREMENT.

REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD	APP'VD
			CONSULTANT			CLIENT
0	11-09-20	ISSUED FOR CONSTRUCTION	NU	SAR		

PG PETROCHEMICAL ENGINEERING CONSULTANTS
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.
 TEL: +92 (21) 3482780, 34961088, FAX: +92 21 34961089, E-Mail: contact@ppec.com.pk web site: www.ppec.com.pk

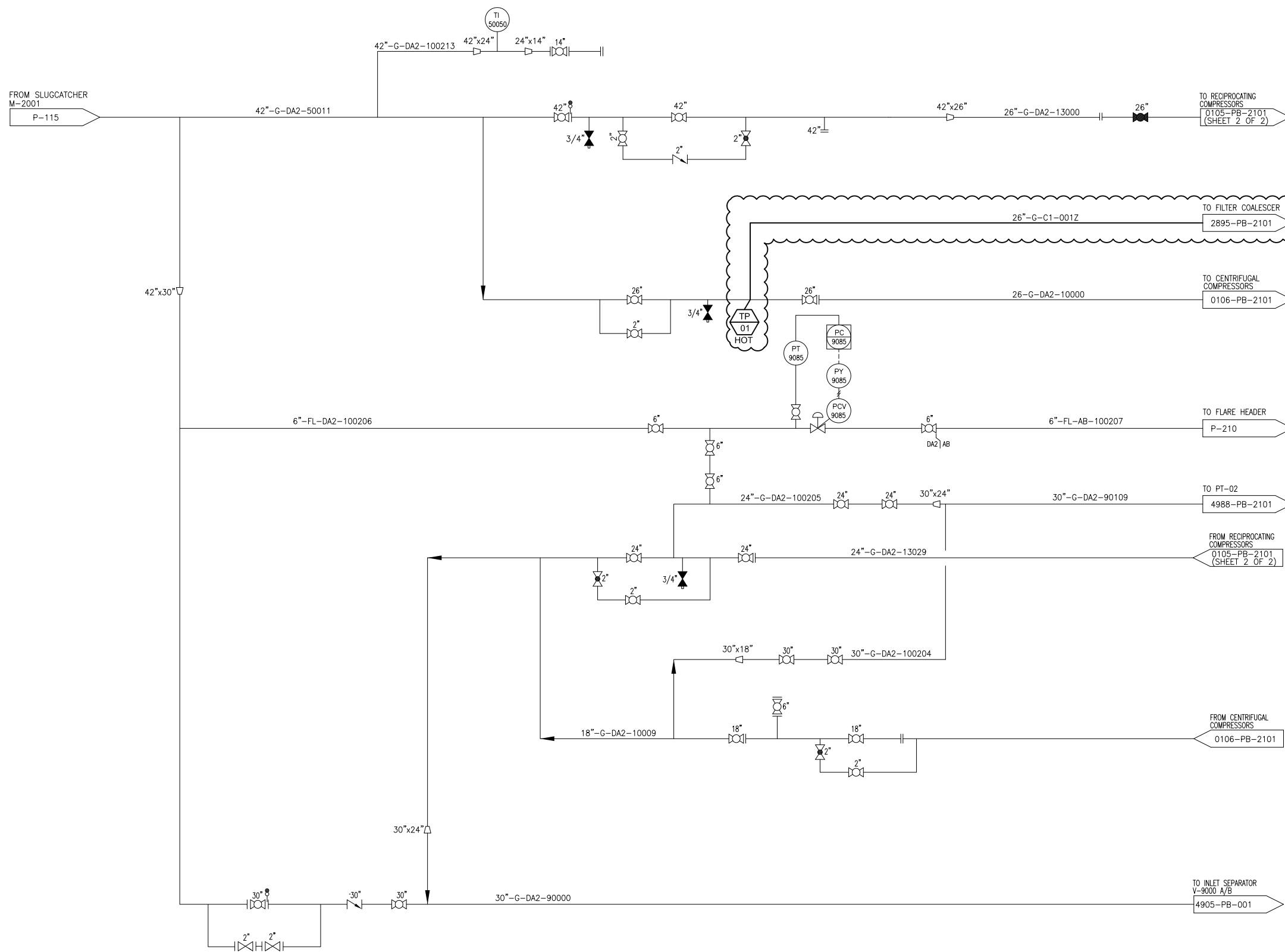
CLIENT: **OIL & GAS DEVELOPMENT COMPANY LTD.**

PROJECT: **INSTALLATION OF FILTER COALESCER FOR SERIES OPERATION OF PRCP AND QICP**

TITLE: **PIPING ISOMETRIC
LINE No. 2"-DC-C1-008Z**

DESIGN PRESSURE	1100 PSIG	DESIGN TEMPERATURE	212°F	INSULATION	PP	PRESSURE TEST	HYDRO TEST
OPERATING PRESSURE	240 PSIG	OPERATING TEMPERATURE	100°F	FABRICATION	SHOP/FIELD	STRESS ANALYSIS	YES
TEST PRESSURE	1650 PSIG	STRESS RELIEVE	NO	PAINTING	NO	DPT	100% FOR WELDOET/ WELDOFLANGE
COLOR CODE	-	X-RAY / RT	10%	COAT WRAPPING	-	SPECIFICATION CODE	C1

DRAWING NO.	SHEET	SCALE	REV.
0504186-ISO-010	NO. OF	N.T.S.	
	1 1	A3	0



ISSUED FOR CONSTRUCTION

LEGEND:-
 PROPOSED WORK

REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD
1	11-09-20	ISSUED FOR CONSTRUCTION	NU	MT	
0	07-04-18	ISSUED FOR REVIEW	NU	MT	

PC PETROCHEMICAL ENGINEERING CONSULTANTS
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

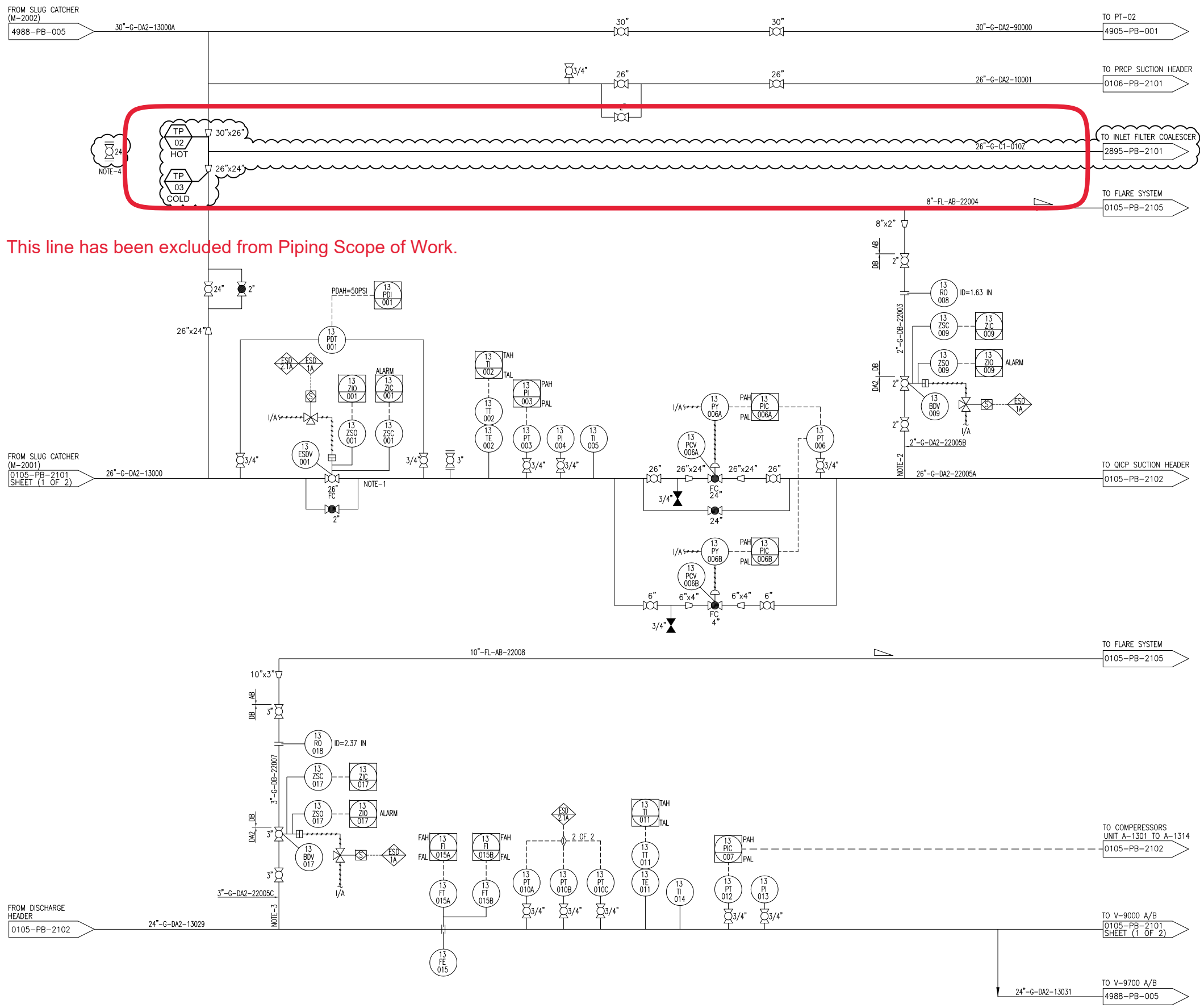
CLIENT

OIL & GAS DEVELOPMENT COMPANY LIMITED

PROJECT: **INSTALLATION OF FILTER COALESCER FOR SERIES OPERATION OF PRCP AND QICP**

TITLE: **PIPING & INSTRUMENTATION DIAGRAM FOR FRONT END COMPRESSORS (PRCP) SLUG CATCHER M-2001/M-2002**

JOB No.	DRAWING NO.	SHEET NO.	SCALE	REV.
0504186	0105-PB-2101	1 OF 2	N.T.S	1



This line has been excluded from Piping Scope of Work.

NOTES

1. TO BE LOCATED JUST AFTER BOTH LINES COMBINE.
2. TO BE LOCATED NEAR END OF THE HEADER.
3. TO BE LOCATED NEAR START OF THE HEADER.
4. EXISTING 24" BALL VALVE TO BE REMOVED FOR NEW CONNECTION TO FILTER COALESCER FROM M-2002.

ISSUED FOR CONSTRUCTION

LEGEND:-

PROPOSED WORK

REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD
2	11-09-19	ISSUED FOR CONSTRUCTION	NU	MT	
1	15-02-19	RE-ISSUED FOR REVIEW	NU	MT	
0	07-04-18	ISSUED FOR REVIEW	NU	MT	

PC PETROCHEMICAL ENGINEERING CONSULTANTS
 C-2, BLOCK NO. 17, GULSHAN-E-IGBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT **OIL & GAS DEVELOPMENT COMPANY LIMITED**

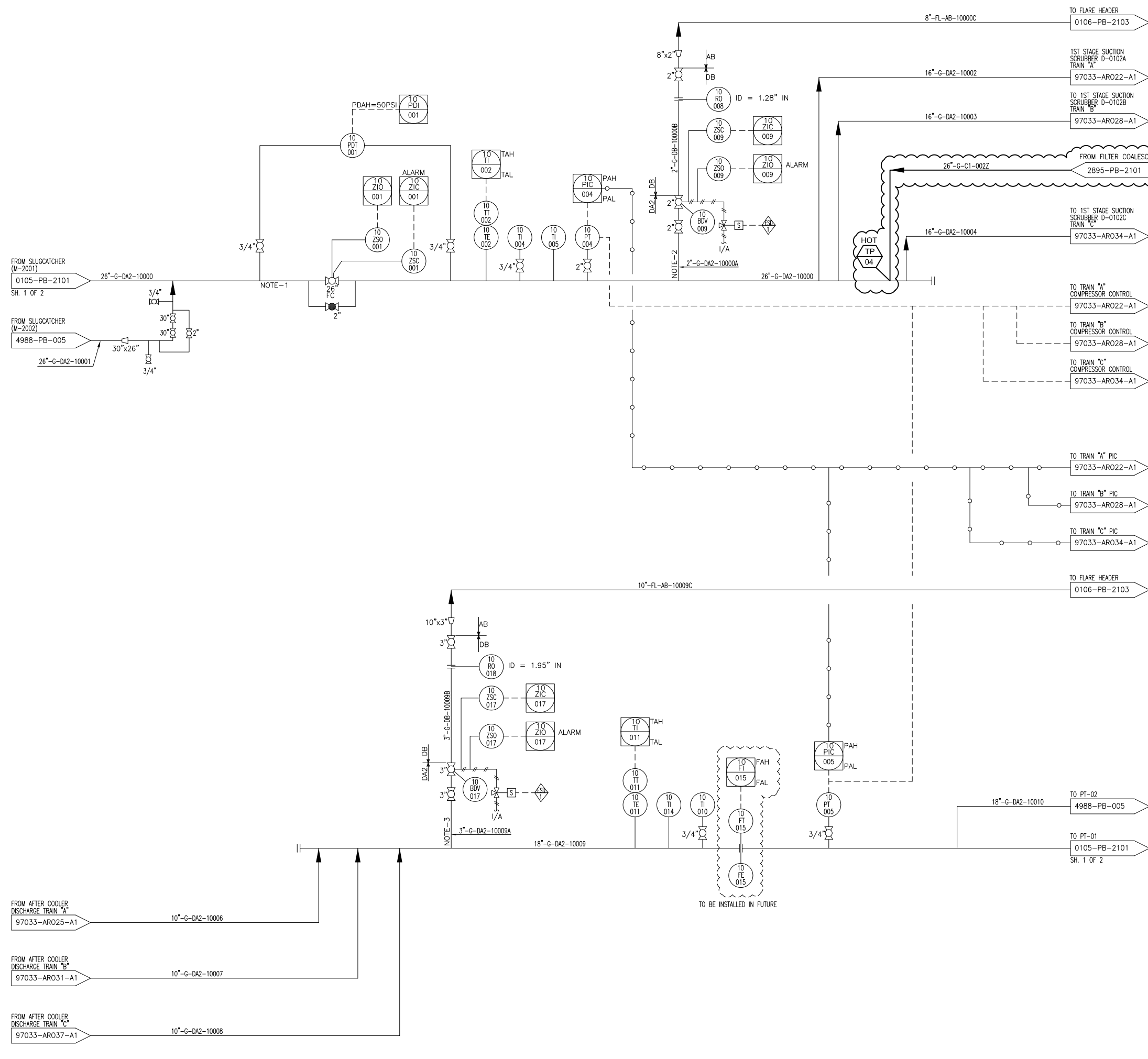
PROJECT: **INSTALLATION OF FILTER COALESCER FOR SERIES OPERATION OF PRCP AND QICP**

TITLE: **PIPING & INSTRUMENTATION DIAGRAM FOR SUCTION/ DISCHARGE HEADER FOR QICP COMPRESSOR**

JOB No.	DRAWING NO.	SHEET NO.	SCALE	REV.
0504186	0105-PB-2101	2 OF 2	A3	2

NOTES



1. TO BE LOCATED JUST AFTER BOTH LINES COMBINE.
2. TO BE LOCATED NEAR END OF THE HEADER.
2. TO BE LOCATED NEAR START OF THE HEADER.



ISSUED FOR CONSTRUCTION

LEGEND:-

PROPOSED WORK 

REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD
1	11-09-18	ISSUED FOR CONSTRUCTION	NU	MT	
0	07-04-18	ISSUED FOR REVIEW	NU	MT	

PC PETROCHEMICAL ENGINEERING CONSULTANTS
 C-2, BLOCK NO. 17, GULSHAN-E-IOQBAL, NEAR NATIONAL STADIUM, KARACHI-75300. PAKISTAN.
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT  **OIL & GAS DEVELOPMENT COMPANY LIMITED**

PROJECT: **INSTALLATION OF FILTER COALESCER FOR SERIES OPERATION OF PRCP AND QICP**

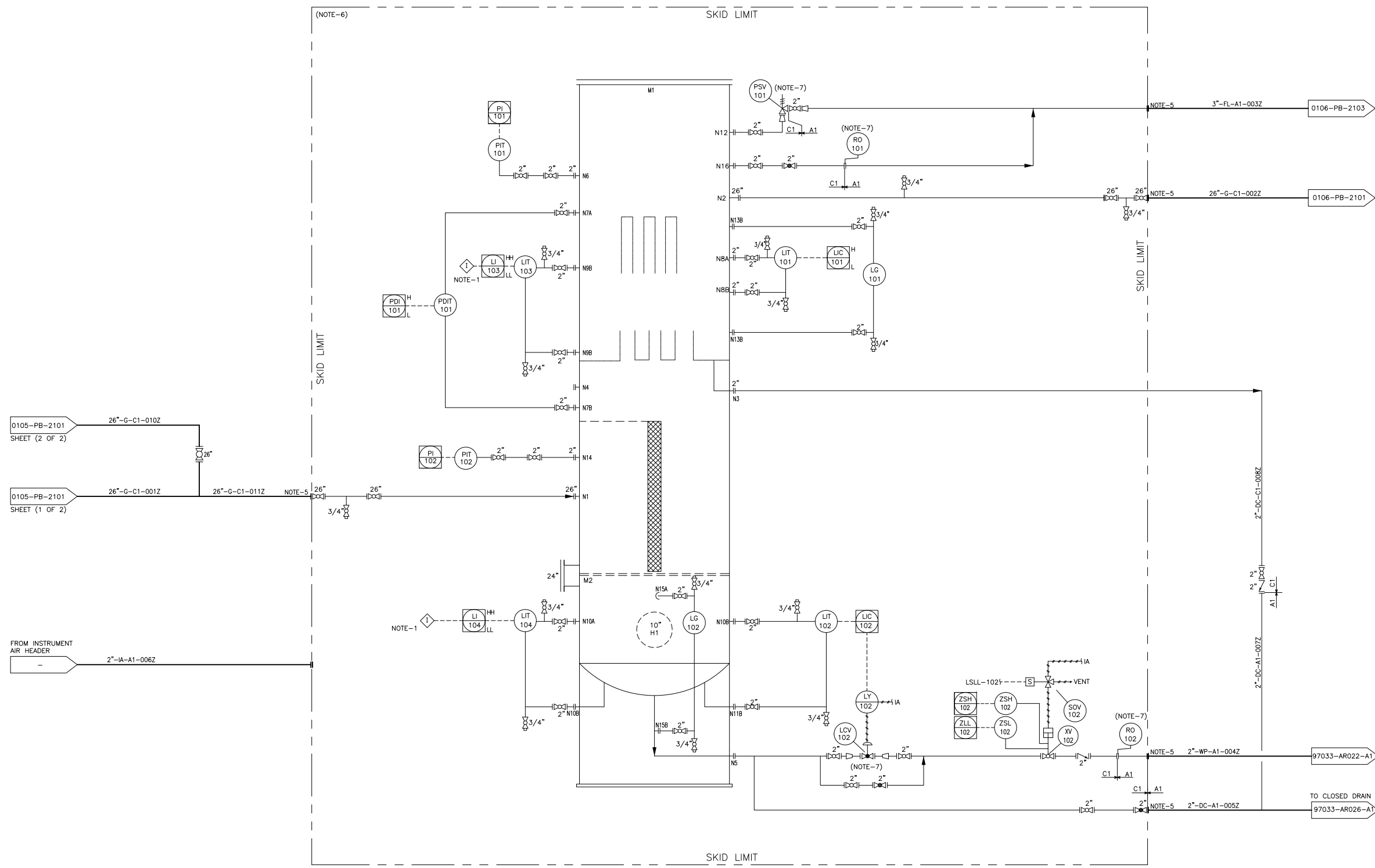
TITLE: **PIPING & INSTRUMENTATION DIAGRAM FOR FRONT END COMPRESSORS (PRCP) SUCTION AND DISCHARGE HEADER**

JOB No.	DRAWING NO.	SHEET	SCALE	REV.
0504186	0106-PB-2101	NO. OF	N.T.S	
		1 1	A3	1

FC-101
 PRCP INLET FEED GAS FILTER COALESCER
 DIMENSIONS: 5925mm T/T x 1400mm I.D.
 DESIGN CONDITIONS: 1100psig / 180F
 OPERATING CONDITIONS: 240psig / 100F

NOTE:

1. DELETED
2. DELETED
3. DELETED
4. DELETED
5. ALL INLET OUTLET CONNECTIONS SHALL BE TERMINATED AT SKID EDGE WITH MATTING FLANGE.
6. REFER VENDOR DOCUMENT # 190375 OM-11 & 190375 SY-01.
7. TO BE SIZED AND SUPPLIED BY FILTER COALESCER VENDOR.



ISSUED FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD
3	11-09-20	ISSUED FOR CONSTRUCTION	M.J	SA	
2	10-08-20	RE-ISSUED FOR REVIEW	M.J	SA	
1	15-02-19	RE-ISSUED FOR REVIEW	NU	MT	
0	07-04-18	ISSUED FOR REVIEW	NU	MT	

PC PETROCHEMICAL ENGINEERING CONSULTANTS
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300. PAKISTAN.
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

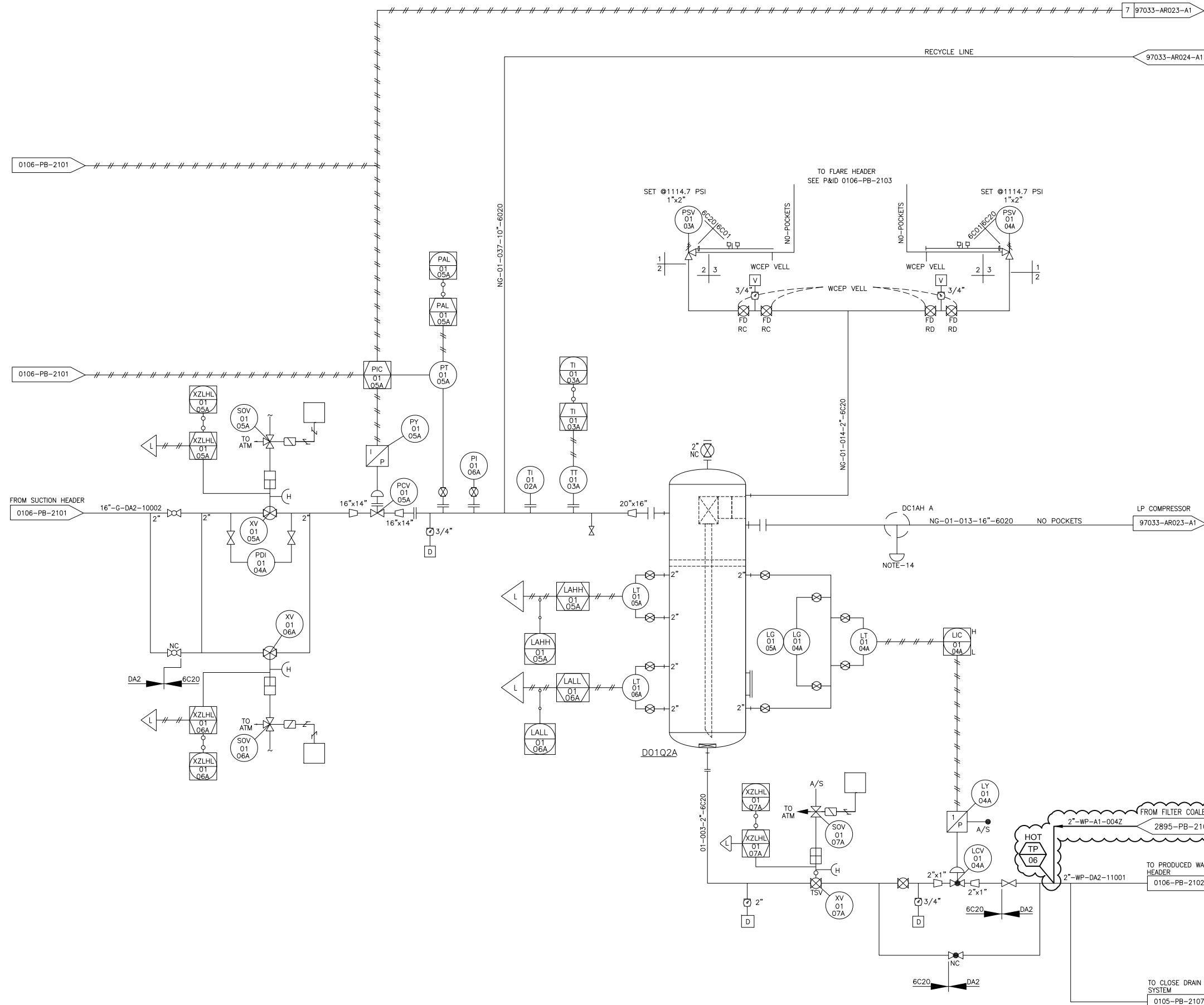
CLIENT
OIL & GAS DEVELOPMENT COMPANY LIMITED

PROJECT: INSTALLATION OF FILTER COALESCER FOR SERIES OPERATION OF PRCP AND QICP

TITLE: PIPING & INSTRUMENTATION DIAGRAM FOR FRONT END COMPRESSORS (PRCP) INLET FILTER COALESCER

JOB No.	DRAWING NO.	SHEET	SCALE	REV.
0504186	2895-PB-2101	NO. OF 1 1	N.T.S A3	3

D0102A
1st STAGE SUCTION SCRUBBER
DIMENSIONS 54" OD X 343" T/T
DISCH PRESS 1100 PSIG
DESIGN TEMP. -20/175 °F



NOTES:

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.
5. ALL PIPE SIZES ARE IMPERIAL.
6. DELETED.
7. DELETED.
8. TEMPERATURE TRANSMITTER COMPRISES RTD ELEMENT COMPLETE HEAD MOUNTED TRANSMITTER.
9. DELETED.
10. DELETED.
11. SPOOL PIECE TO BE INSTALLED WHEN SUCTION THROTTLING VALVE IS NO LONGER REQUIRED
12. TRACING WILL BE APPLIES FROM LEVEL OF BOTTOM OF SCRUBBER.

ISSUED FOR CONSTRUCTION

LEGEND:-

PROPOSED WORK

REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD
2	11-09-20	ISSUED FOR CONSTRUCTION	M.J	MT	
1	10-08-20	ISSUED FOR REVIEW	M.J	MT	
0	07-04-18	ISSUED FOR REVIEW	NU	MT	

PC PETROCHEMICAL ENGINEERING CONSULTANTS
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300. PAKISTAN.
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

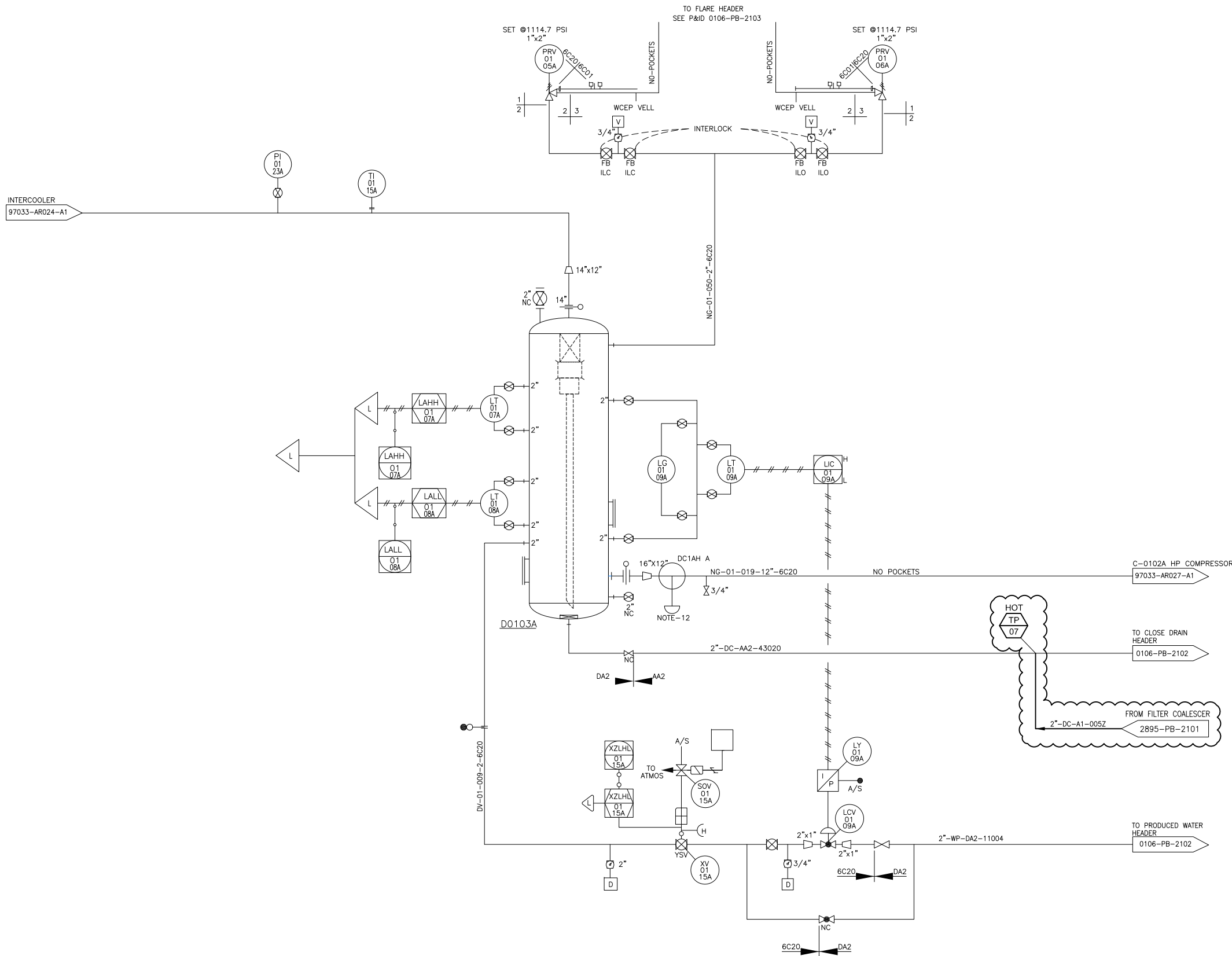
CLIENT **OIL & GAS DEVELOPMENT COMPANY LIMITED**

PROJECT: **INSTALLATION OF FILTER COALESCER FOR SERIES OPERATION OF PRCP AND QICP**

TITLE **PIPING & INSTRUMENTATION DIAGRAM FOR FRONT END COMPRESSORS (PRCP) 1ST STAGE TRAIN A SCRUBBER**

JOB No.	DRAWING NO.	SHEET NO.	SCALE	REV.
0504186	97033-AR022-A1	1 OF 1	N.T.S. A3	2

D0103A
 2nd STAGE SUCTION SCRUBBER
 DIMENSIONS 32" OD X 120" [T/T]
 DESIGN PRESS 1100 PSIG
 DESIGN TEMP. -20/175 °F



NOTES:

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.
5. ALL PIPE SIZES ARE IMPERIAL.
6. DELETED.
7. TEMPRATURE COMPRISES(TT) COMPRISES RTD ELEMENT COMPLETE HEAD MOUNTED TRANSMITTER.
8. DELETED.
9. DELETED.
10. DELETED.
- ENAR NOTES:
11. NEW ELECTRICAL SIGNALS SHALL BE PROVIDED EVERY WHERE.
12. CORROSION INHIBITOR CONNECTION TO BE CAPPED SEAL.

ISSUED FOR CONSTRUCTION

LEGEND:-

PROPOSED WORK

REV.	DATE	DESCRIPTION	DRAWN	CHK'D	APP'VD
1	11-09-18	ISSUED FOR CONSTRUCTION	NU	MT	
0	07-04-18	ISSUED FOR REVIEW	NU	MT	

PC PETROCHEMICAL ENGINEERING CONSULTANTS
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300. PAKISTAN.
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT **OIL & GAS DEVELOPMENT COMPANY LIMITED**

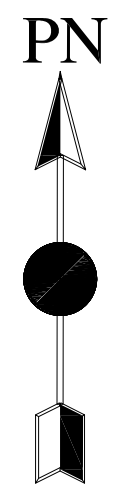
PROJECT: **INSTALLATION OF FILTER COALESCER FOR SERIES OPERATION OF PRCP AND QICP**

TITLE **PIPING & INSTRUMENTATION DIAGRAM FOR FRONT END COMPRESSORS (PRCP) 2nd STAGE SCRUBBER**

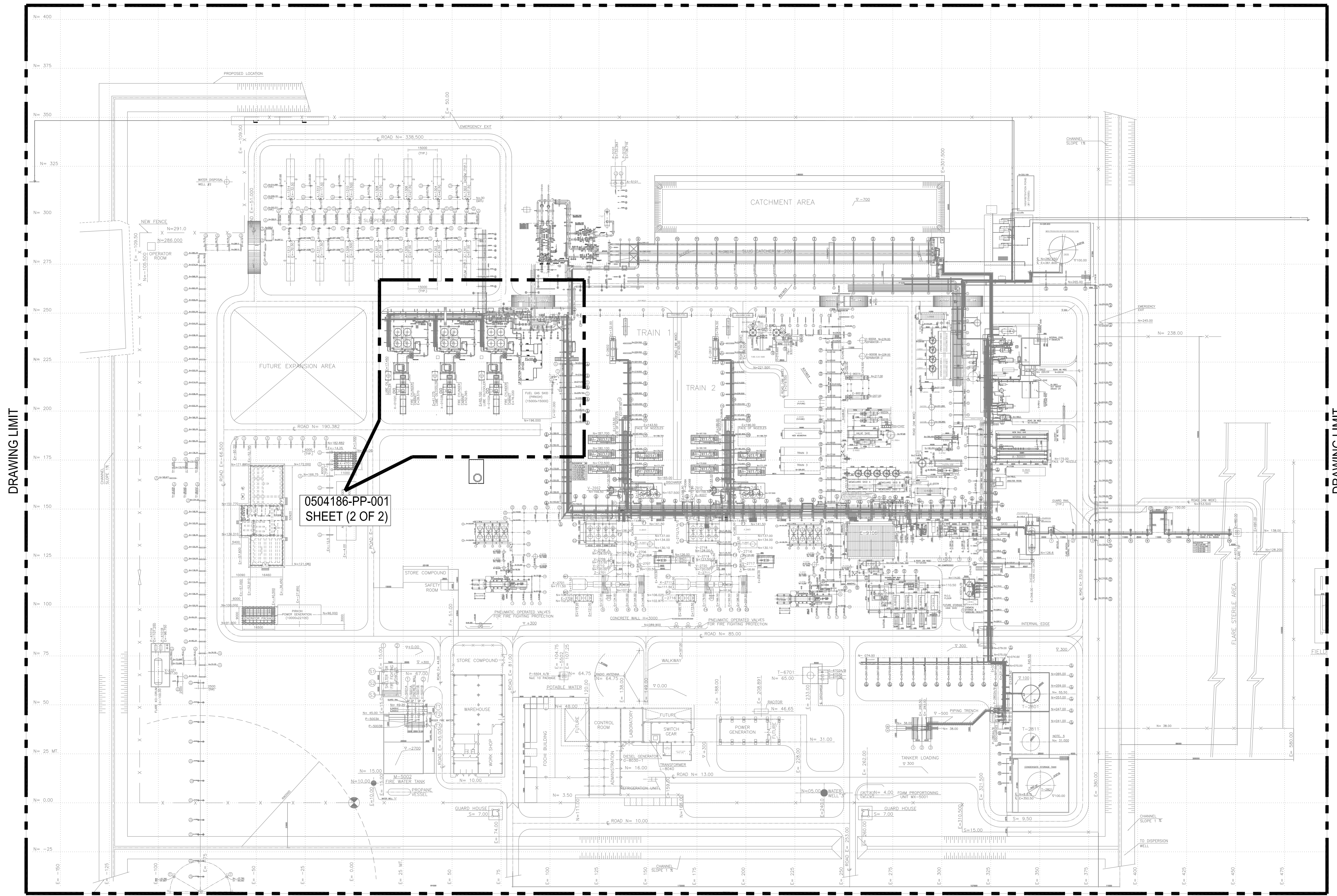
JOB No.	DRAWING NO.	SHEET	SCALE	REV.
0504186	97033-AR026-A1	NO. OF	N.T.S	
		1 1	A3	1



PLOT PLAN



DRAWING LIMIT



DRAWING LIMIT

ISSUED FOR CONSTRUCTION

LEGEND:-



NOTE:
1. ALL DIMENSION ARE IN mm UNLESS STATED OTHERWISE.

REV.	DATE	DESCRIPTION OF REVISION	PREP'D	CHECK	APPR.
2	11-09-2020	ISSUED FOR CONSTRUCTION	NU	SAR	
1	04-08-2020	RE-ISSUED FOR REVIEW	NU	SAR	
0	19-02-2019	ISSUED FOR REVIEW	AHK	SAR	

PC PETROCHEMICAL ENGINEERING CONSULTANTS
C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.
TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

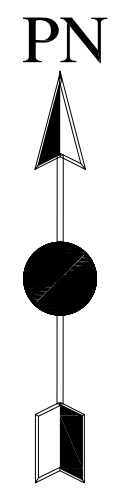
CLIENT : OIL & GAS DEVELOPMENT COMPANY LIMITED

PROJECT : **INSTALLATION OF FILTER COALESCER FOR SERIES OPERATION OF PRCP AND QICP**

TITLE : **PLOT PLAN**

JOB NO	DRAWING NO	SHEET NO	SCALE	SHEET SIZE	REV
0504186	0504186-PP-001	1 OF 2	1:1650	A2	2

THIS DRAWING AND DESIGN IS THE PROPERTY OF PETROCHEMICAL AND MUST NOT BE COPIED OR PASSED TO ANY THIRD PARTY WITHOUT WRITTEN CONSENT FROM THE PETROCHEMICAL ENGINEERING CONSULTANTS.



DRAWING LIMIT

15000
(TYP.)

DRAWING LIMIT

DRAWING LIMIT

DRAWING LIMIT

LUBE OIL COOLER
E=17.450

X-0102C

FIRE CYLINDER CABINET
E=28.570

LUBE OIL COOLER
E=41.275

X-0102B

FIRE CYLINDER CABINET
E=52.395

LUBE OIL COOLER
E=65.100

X-0102A

FIRE CYLINDER CABINET
E=76.220

LP SUCTION SCRUBBER
D0102A

FUEL GAS SKID (PIRKOH)
(15000x15000)

N=196.000

E=101.000

K 22

K 23

N=188.00

N=182.00

E=106.000

N=21.000

N=21.000

N=20.000

N=20.000

N=20.000

N=20.000

N=20.000

N=20.000

N=20.000

N=20.000

N=20.000

N=20.000

N=20.000

N=20.000

ISSUED FOR CONSTRUCTION

LEGEND:-

PROPOSED WORK

NOTE:
1. ALL DIMENSION ARE IN mm UNLESS STATED OTHERWISE.

2	11-09-2020	RE-ISSUED FOR REVIEW	AHK	SAR	
1	04-08-2020	RE-ISSUED FOR REVIEW	AHK	SAR	
0	19-02-2019	ISSUED FOR REVIEW	AHK	SAR	
REV.	DATE	DESCRIPTION OF REVISION	PREP'D	CHECK	APPR.

PC PETROCHEMICAL ENGINEERING CONSULTANTS
C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.
TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT : OIL & GAS DEVELOPMENT COMPANY LIMITED

PROJECT : INSTALLATION OF FILTER COALESCER FOR SERIES OPERATION OF PRCP AND QICP

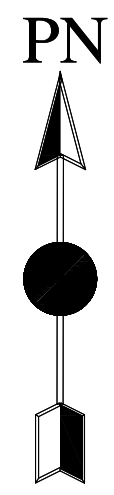
TITLE : PLOT PLAN

JOB NO	DRAWING NO	SHEET NO	SCALE	SHEET SIZE	REV
0504186	0504186-PP-001	2 OF 2	1:250	A2	2

THIS DRAWING AND DESIGN IS THE PROPERTY OF PETROCHEMICAL AND MUST NOT BE COPIED OR PASSED TO ANY THIRD PARTY WITHOUT WRITTEN CONSENT FROM THE PETROCHEMICAL ENGINEERING CONSULTANTS.



KEY PLAN



DRAWING LIMIT

0504186-PL-001
(SHEET 2 OF 2)

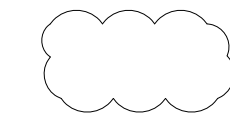
DRAWING LIMIT

DRAWING LIMIT

ISSUED FOR
CONSTRUCTION

LEGEND:-

PROPOSED WORK



NOTES:

1. ALL DIMENSION ARE IN mm UNLESS STATED OTHERWISE.
2. ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.

REV.	DATE	DESCRIPTION OF REVISION	PREP'D:	CHECK	APPR.
2	11-09-2020	ISSUED FOR CONSTRUCTION	NU	SAR	
1	04-08-2020	RE-ISSUED FOR REVIEW	NU	SAR	
0	19-02-2019	ISSUED FOR REVIEW	AHK	SAR	

PC PETROCHEMICAL ENGINEERING CONSULTANTS
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT :  **OIL & GAS DEVELOPMENT COMPANY LIMITED**

PROJECT : **INSTALLATION OF FILTER COALESCER FOR SERIES OPERATION OF PRCP AND QICP**

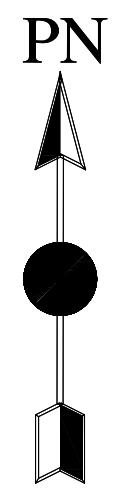
TITLE : **KEY PLAN**

JOB NO	DRAWING NO	SHEET NO	SCALE	SHEET SIZE	REV
0504186	0504186-PL-001	1 OF 2	1:1600	A2	2

THIS DRAWING AND DESIGN IS THE PROPERTY OF PETROCHEMICAL AND MUST NOT BE COPIED OR PASSED TO ANY THIRD PARTY WITHOUT WRITTEN CONSENT FROM THE PETROCHEMICAL ENGINEERING CONSULTANTS.



PIPING LAYOUT

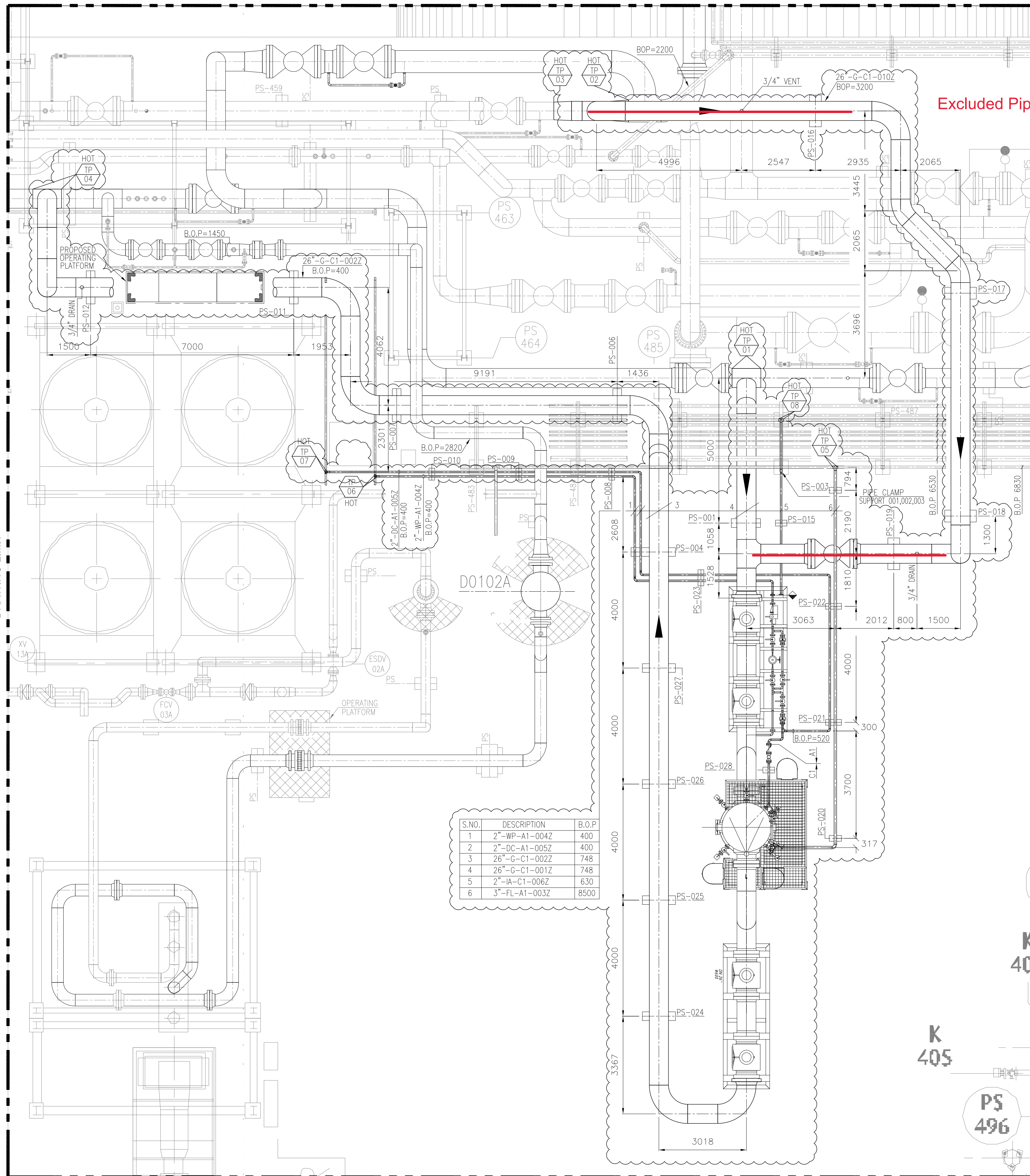


DRAWING LIMIT

DRAWING LIMIT

DRAWING LIMIT

DRAWING LIMIT



Excluded Pipeline.

S.NO.	DESCRIPTION	B.O.P
1	2"-WP-A1-004Z	400
2	2"-DC-A1-005Z	400
3	26"-G-C1-002Z	748
4	26"-G-C1-001Z	748
5	2"-IA-C1-006Z	630
6	3"-FL-A1-003Z	8500

ISSUED FOR CONSTRUCTION

LEGEND:-

PROPOSED WORK

NOTES:

- ALL DIMENSION ARE IN mm UNLESS STATED OTHERWISE.
- ALL DIMENSIONS, ELEVATIONS AND ORIENTATIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE UNDERTAKING ANY KIND OF FABRICATION, CONSTRUCTION AND INSTALLATION WORK AT SITE.

REV.	DATE	DESCRIPTION OF REVISION	PREP'D:	CHECK:	APPR.
2	11-09-2020	ISSUED FOR CONSTRUCTION	NU	SAR	
1	04-08-2020	RE-ISSUED FOR REVIEW	NU	SAR	
0	19-02-2019	ISSUED FOR REVIEW	AHK	SAR	

PC PETROCHEMICAL ENGINEERING CONSULTANTS
 C-2, BLOCK NO. 17, GULSHAN-E-IOBAL, NEAR NATIONAL STADIUM, KARACHI-75300, PAKISTAN.
 TEL: +92 (21) 34827780, 34961088, FAX: +92 21 34961089, E-Mail: contact@pcec.com.pk web site: www.pcec.com.pk

CLIENT : OIL & GAS DEVELOPMENT COMPANY LIMITED

PROJECT : INSTALLATION OF FILTER COALESCER FOR SERIES OPERATION OF PRCP AND QICP

TITLE : PIPING LAYOUT

JOB NO	DRAWING NO	SHEET NO	SCALE	SHEET SIZE	REV
0504186	0504186-PL-001	2 OF 2	1:110	A2	2

THIS DRAWING AND DESIGN IS THE PROPERTY OF PETROCHEMICAL AND MUST NOT BE COPIED OR PASSED TO ANY THIRD PARTY WITHOUT WRITTEN CONSENT FROM THE PETROCHEMICAL ENGINEERING CONSULTANTS.

- ⌘ Ground colors shall be provided on the full pipe section; whereas color band width to be 25 mm up to 50 mm.
- ⌘ When double color bands exist on the pipeline, then a proportional width of 4:1 to the next band is provided.
- ⌘ These color bands are provided at suitable locations as:
 - ▣ At the beginning and termination points
 - ▣ At 25m intervals (up to 50m in case of headers)
 - ▣ At change in flow direction points and flow diversion locations.
 - ▣ At locations where the pipe enters the plant or exits from the boundary.
- ⌘ Color Code Identification Band System (CCIB) is given below:

Type of Fluid	Identification Band Color
Water (Raw;Potable;Storm;Treated;Produced)	Green
Steam	Crimson Red
Firefighting	Signal Red
Oils (Combustible Liquids)	Dark Brown
Chemicals	Orange
Gases (Gaseous or Liquefied)	Yellow
Acids & Alkalies	Purple
Air (Utility; Service, Instrument)	Light Blue
Process Effluents (Drain; Vent; Flare)	Black

- ⌘ The additional use of Colored Labels giving the full or abbreviated product description, temperature, pressure, and other details necessary to identify any potential hazard, together with the appropriate visual aids and hazard pictorial symbols, shall be applied where deem appropriate.
- ⌘ In addition to being Color Coded, each process sub-system, pipeline and valve shall be individually identified by marking them in accordance with the Equipment Identification and Tag Numbering System.
- ⌘ The line number and the flow direction shall be stenciled on each pipe section and pipeline together with the CCIB, to provide the pipe work with unique traceability.

The Labeling System

- ⌘ The labels shall be placed on pipes:
 - ▣ Adjacent to all valves and flanges
 - ▣ Adjacent to all changes in pipe direction
 - ▣ On both sides of wall, floor or ceiling penetrations
 - ▣ Every 50 feet on straight runs of pipe (or every 25 feet in congested areas)
- ⌘ A color code based on the type of hazard posed by a pipe's contents. The labeling color code shall be:
 - ▣ Water: **White** text on green text box
 - ▣ Steam: **White** text on crimson text box
 - ▣ Fire quenching fluids: **White** text on red text box
 - ▣ Combustible fluids: **White** text on brown text box
 - ▣ Toxic and corrosive fluids: **Black** text on orange text box
 - ▣ Flammable fluids: **Black** text on yellow text box
 - ▣ Acidic fluids: **White** text on purple text box
 - ▣ Compressed air: **White** text on blue text box
 - ▣ Process effluents: **White** text on black text box

6.2.1.4.2 Color Coding for Maintenance of Lifting Gears

- ⌘ Lifting equipment comprises lifting appliances (equipment performing the lifting), lifting accessories (devices that connect the load to the lifting appliance 'GEARS') and lifted equipment (e.g. containers, baskets, etc). All shall be marked with the Working Load Limit (WLL) and Safe Working Load (SWL).
- ⌘ An equipment register, including maintenance records and evidence of certification to be available with Operator.
- ⌘ Following are some of the items used as gears in lifting activities;