	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
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طرح نگهداشت و افزایش تولید ۲۷ مخزن

HAZOP REPORT FOR COMPRESSOR STATION

نگهداشت و افزایش تولید میدان نفتی بینک



D00	JUL. 2022	IFI	A.Baghaei	M.Fakharian	M.Mehrshad	
Rev.	Date	Purpose of Issue/Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval

Class: 3

CLIENT Doc. Number: F0Z-708725

Status:



IDC: Inter-Discipline Check
 IFC: Issued For Comment
 IFA: Issued For Approval
 AFD: Approved For Design
 AFC: Approved For Construction
 AFP: Approved For Purchase
 AFQ: Approved For Quotation
 IFI: Issued For Information
 AB-R: As-Built for CLIENT Review
 AB-A: As-Built –Approved

 <p>NISOC</p>	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
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REVISION RECORD SHEET


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 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
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HAZOP REPORT FOR COMPRESSOR STATION																										
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
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HAZOP REPORT FOR COMPRESSOR STATION																										
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
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1.0 INTRODUCTION

Binak oilfield in Bushehr province is a part of the southern oilfields of Iran, is located 20 km northwest of Genaveh city.



With the aim of increasing production of oil from Binak oilfield, an EPC/EPD Project has been defined by NIOC/NISOC and awarded to Petro Iran Development Company (PEDCO). Also, PEDCO (as General Contractor) has assigned the EPC-packages of the Project to "Hirgan Energy - Design and Inspection" JV.

As a part of the Project, a New Gas Compressor Station (adjacent to existing Binak GCS) shall be constructed to gather of 15 MMSCFD (approx.) associated gases and compress & transfer them to Siahmakan GIS.

GENERAL DEFINITION

The following terms shall be used in this document.

CLIENT:	National Iranian South Oilfields Company (NISOC)
PROJECT:	Binak Oilfield Development – Surface Facilities; New Gas Compressor Station
EPD/EPC CONTRACTOR (GC):	Petro Iran Development Company (PEDCO)
EPC CONTRACTOR:	Joint Venture of: Hirgan Energy – Design & Inspection (D&I) Companies
VENDOR:	The firm or person who will fabricate the equipment or material.
EXECUTOR:	Executor is the party which carries out all or part of construction and/or commissioning for the project.
THIRD PARTY INSPECTOR (TPI):	The firm appointed by EPD/EPC CONTRACTOR (GC) and approved by CLIENT (in writing) for the inspection of goods.
SHALL:	Is used where a provision is mandatory.
SHOULD:	Is used where a provision is advisory only.
WILL:	Is normally used in connection with the action by CLIENT rather than by an EPC/EPD CONTRACTOR, supplier or VENDOR.
MAY:	Is used where a provision is completely discretionary.

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>							
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HAZOP REPORT FOR COMPRESSOR STATION							شماره صفحه : 5 از 58
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2.0 SCOPE

The scope of HAZOP study covers all P&IDs for New Gas Compressor Station. The list of P&IDs is presented in appendix B.

3.0 NORMATIVE REFERENCES

3.1 INTERNATIONAL CODES AND STANDARDS

- IEC 61882:2016 Hazard and Operability studies (HAZOP Studies) – Application guide

3.2 THE PROJECT DOCUMENTS

- BK-GNRAL-HD-000-PR-DB-0001-D05 Process Basis of Design
- BK-GCS-PEDCO-120-PR-BD-0001 ESD Block Diagram

4.0 PURPOSE

The purpose of this document is to provide the results of “HAZOP Study” for **Binak Oilfield Development – Surface Facilities; New Gas Compressor Station**.



The objective of HAZOP study is to perform and achieve the following tasks and goals as far as practicable given the latest piping and instrumentation diagrams (P&ID's) to identify any potential hazards associated with the system and its utility systems:

- To identify any potential operating difficulties,
- Examine the effectiveness of those measures already incorporated in the design to mitigate the frequency and/or consequences of such hazards;
- To raise action items for addressing those hazards that the present design does not satisfactorily address.

5.0 HAZOP STUDY OVERVIEW

Meetings were conducted in 4 sessions from June 26 to 29, 2022 held in Neyshekar Hotel main meeting hall, Ahvaz.

A team comprising of experts from different disciplines of National Iranian South Oilfields Company (NISOC), Petro Iran Development Company (PEDCO) and Hiran Energy Company conducted the study with a third-party HAZOP Chairman and Scribe. The list of team members is presented in appendix A.

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
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HAZOP REPORT FOR COMPRESSOR STATION																										
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
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6.0 PROCEDURE

The review methodology will be the "Guide Word" HAZOP technique and will be performed in accordance with the guidelines published by the Center for Chemical Process Safety (CCPS) of the American Institute of Chemical Engineers (AIChE) and also noted in IEC 61882.



The purpose of the review should not be only to resolve the action items but also to identify credible deviations from the design intent. The method identifies hazards and postulates possible accident sequences resulting from such hazards; Innovative thinking then identifies the consequences of these scenarios. The process demonstrates to the Owner/Management that prudent steps which have been taken to provide a safe installation and operation.

The scope of the HAZOP shall be therefore, on identifying potential process hazards or operability concerns, not on finding solutions to reduce or eliminate these concerns. Attempting to solve problems by the HAZOP team can result in a long and inefficient study process. At the same time, the HAZOP study cannot be intended as a review of Project Design Basis and Operating Philosophies, since these must be considered as resolved when the HAZOP study will be carried out.

Each system or equipment should be divided into subsystems by consensus of the review team. The selected system shall be identified by a study node numbers and for easy reference a color code can also be inserted on the related P&ID prior to the review and worksheet during the review.

List of possible parameters and guidewords

Deviations	Guide Word	Parameter
No/Less Flow	No/Less	Flow
More Flow	More	Flow
Reverse/Misdirected Flow	Reverse/Misdirected	Flow
High Temperature	High	Temperature
Low Temperature	Low	Temperature
High Pressure	High	Pressure
Low Pressure	Low	Pressure
High Level	High	Level
Low Level	Low	Level
Maintenance Hazards	Other than	Maintenance
Leakage	As well as	Flow
Corrosion	As well as	Operation
Composition	As well as	Composition

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>							
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Deviations	Guide Word	Parameter
Start-up/Shutdown Hazards	Other than	Start-up/Shutdown
Loss of Utilities	Other than	Operation
Miscellaneous	As well as	Operation

7.0 HAZOP OUTCOMES

In order to facilitate the study, the process was broken down into 20 nodes. The node list is presented in appendix C. A total of 131 recommendations were obtained which are shown in appendix D. The recommendations are categorized in two groups, namely OPEN and CLOSED.

Closed recommendations are those that the team have arrived at a consensus that it is required to be done. 128 closed recommendation were obtained in the meetings. Open recommendations are those that need more information from vendor for the final decision. 3 open recommendations were proposed during the meetings.



Appendix E consists of detailed HAZOP Worksheets of the study.

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			


8.0 ATTACHMENTS

8.1 APPENDIX A –TEAM MEMBERS

First Name	Last Name	Company	Expertise
S.Mehdi	Ashrafian	NISOC	Project Manager
Shamsolah	Bahadori	NISOC	Construction Manager
Fatemeh	Ghods	NISOC	Head of I&C
Mohammad	Torfi	NISOC	Process
Sahar	Saba	NISOC	Process
Niloofer	Rezaei Baba ahmadi	NISOC	Process
Mohammad Reza	Cheraghchi	NISOC	Process
Fazel	Moafi	NISOC	Instrument
Behzad	Zandian	NISOC	Instrument
Peyman	Sarvarian	NISOC	Mechanic
Hojjat	Jafarpour	NISOC	Mechanical
Faride	Parvin	NISOC	Mechanical
Mohammad	Khamisi	NISOC	HSE
Mohammad	Shirali	NISOC	Commissioning
Ali	Hamidan	NISOC	Commissioning
Naji	Hamid	NISOC	Commissioning
Khodadad	Kavosi	NISOC	Commissioning
Reza	Gholgheysari	NISOC	Process Engineer
Mobin	Saeedi	NISOC	Instrument
Mohammad	Bakhshi Mohammadi	Gachsaran NISOC	Production Engineer
Shahram	Valizadeh	Gachsaran NISOC	Production Engineer
Vahid	Mussavi	Gachsaran NISOC	Production Engineer
Mohammad	Fakoor	PEDCO	Process Engineer
Farshid	Amiri	PEDCO	Piping Lead Engineer
Hadi	Mozaffari	PEDCO	Electrical Engineer
Mahdi	Karimi	PEDCO	Head of Electrical Department
Pouria	Bavarsad	PEDCO	Piping Engineering
Sadegh	Gharacheh	PEDCO	Process
Morteza	Taherkhani	PEDCO	Head of I&C
Sepideh	Akbari	PEDCO	I&C Engineer
Sasan	Faramarzpour	PEDCO	Head of Process and Safety Department
Pouya	Maleki	PEDCO	Process Engineer



	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>							
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HAZOP REPORT FOR COMPRESSOR STATION							شماره صفحه : 9 از 58
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	
	BK	GCS	PEDCO	120	GE	RT	0004	D00

First Name	Last Name	Company	Expertise
Mehdi	Sadeghian	PEDCO	Surface Manager
Vahid	Abdeshadi	PEDCO	Project Engineer Manager
Masoud	Asgharnejad	Hirgan Energy	Engineering Manager
Mohsen	Aryafar	Hirgan Energy	Process
Saeed	Ghanbari	Hirgan Energy	Process
Parisa	Hajisadeghi	Hirgan Energy	Head of I&C
Mohammad	Fakharian	Hirgan Energy	Project Manager
Ali	Baghaei	HAZOP Consultant	Process Safety
Firoozeh	Khosravi	HAZOP Consultant	Process Safety

 <p>NISOC</p>	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
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HAZOP REPORT FOR COMPRESSOR STATION																										
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BK	GCS	PEDCO	120	GE	RT	0004	D00																			



8.2 APPENDIX B – DRAWINGS LIST

Drawing No.	Drawing Title	Place(s) Used
BK-GCS-PEDCO-120-PR-PI-0002_D03	Gas Compression Inlet Gas Pipeline (Binak)	Nodes: 1
BK-GCS-PEDCO-120-PR-PI-0003_D03	Gas Compression Inlet Gas Pipeline (Golkhari)	Nodes: 2
BK-GCS-PEDCO-120-PR-PI-0004_D03	Slug Catcher System (2 sheets)	Nodes: 3
BK-GCS-PEDCO-120-PR-PI-0005_D03	Gas Compression Inlet Knock Out Drum	Nodes: 4
BK-GCS-PEDCO-120-PR-PI-0006_D03	1st Stage Gas Compression Suction Drums (3 sheets)	Nodes: 5
BK-GCS-PEDCO-120-PR-PI-0007_D03	1st Stage Gas Compression Compressors (3 sheets)	Nodes: 5
BK-GCS-PEDCO-120-PR-PI-0008_D03	1st Stage Gas Compression Air Coolers (3 sheets)	Nodes: 5
BK-GCS-PEDCO-120-PR-PI-0009_D03	2nd Stage Gas Compression Suction Drums (3 sheets)	Nodes: 6
BK-GCS-PEDCO-120-PR-PI-0010_D03	2nd Stage Gas Compression Compressors (3 sheets)	Nodes: 6
BK-GCS-PEDCO-120-PR-PI-0011_D03	2nd Stage Gas Compression Air Coolers (3 sheets)	Nodes: 6
BK-GCS-PEDCO-120-PR-PI-0012_D03	2nd Stage Gas Compression Discharge Drum	Nodes: 7
BK-GCS-PEDCO-120-PR-PI-0013_D03	Gas Compression Dehydration Package (3 sheets)	Nodes: 8
BK-GCS-PEDCO-120-PR-PI-0014_D03	Lean Glycol Storage Tank	Nodes: 9
BK-GCS-PEDCO-120-PR-PI-0015_D03	Instrument & Plant Air System	Nodes: 10
BK-GCS-PEDCO-120-PR-PI-0016_D03	Nitrogen Generation System	Nodes: 11
BK-GCS-PEDCO-120-PR-PI-0017_D03	Closed Drain System (2 sheets)	Nodes: 12
BK-GCS-PEDCO-120-PR-PI-0018_D03	Corrosion Inhibitor Package	Nodes: 13
BK-GCS-PEDCO-120-PR-PI-0019_D03	Methanol Injection Package	Nodes: 14
BK-GCS-PEDCO-120-PR-PI-0020_D03	LP Flare System (3 sheets)	Nodes: 15
BK-GCS-PEDCO-120-PR-PI-0021_D03	Oily Water Sewer	Nodes: 16
BK-GCS-PEDCO-120-PR-PI-0022_D03	Fuel Gas System	Nodes: 17
BK-GCS-PEDCO-120-PR-PI-0023_D03	Diesel Oil System (2 sheets)	Nodes: 18
BK-GCS-PEDCO-120-PR-PI-0024_D03	Potable Water System	Nodes: 19
BK-GCS-PEDCO-120-PR-PI-0025_D03	Glycol Sump Drum	Nodes: 20



 <p>NISOC</p>	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">HAZOP REPORT FOR COMPRESSOR STATION</th></tr><tr><th>پروژه</th><th>بسته کاری</th><th>صادر کننده</th><th>تسهیلات</th><th>رشته</th><th>نوع مدرک</th><th>سریال</th><th>نسخه</th></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>GE</td><td>RT</td><td>0004</td><td>D00</td></tr></table>	HAZOP REPORT FOR COMPRESSOR STATION								پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	GE	RT	0004	D00	شماره صفحه : 11 از 58
HAZOP REPORT FOR COMPRESSOR STATION																										
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

8.3 APPENDIX C – NODES LIST

Nodes	Color	Type	Drawings	Equipment ID	Date
1. Gas Compression Inlet Gas Pipeline (Binak)	Red	Pig Receiver	BK-GCS-PEDCO-120-PR-PI-0002_D03	PR-1002	2. 06/26/2022
2. Gas Compression Inlet Gas Pipeline (Golkhari)	Violet	Pig Receiver	BK-GCS-PEDCO-120-PR-PI-0003_D03	PR-2102	2. 06/26/2022
3. Slug Catcher System	L Blue	Drum Pump	BK-GCS-PEDCO-120-PR-PI-0004_D03	V-2104 P-2101A/B	2. 06/26/2022
4. Gas Compression Inlet Knock Out Drum	Yellow	Drum	BK-GCS-PEDCO-120-PR-PI-0005_D03	V-2105	3. 06/27/2022
5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers	Blue	Drum	BK-GCS-PEDCO-120-PR-PI-0006_D03 BK-GCS-PEDCO-120-PR-PI-0007_D03 BK-GCS-PEDCO-120-PR-PI-0008_D03	V-2101A/B/C C-2101A/B/C AE-2101A/B/C	3. 06/27/2022
6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers	Green	Drum	BK-GCS-PEDCO-120-PR-PI-0009_D03 BK-GCS-PEDCO-120-PR-PI-0010_D03 BK-GCS-PEDCO-120-PR-PI-0011_D03	V-2102A/B/C C-2102A/B/C AE-2102A/B/C	3. 06/27/2022
7. 2nd Stage Gas Compression Discharge Drum	Violet	Drum	BK-GCS-PEDCO-120-PR-PI-0012_D03	V-2103	4. 06/28/2022
8. Gas Compression Dehydration Package	Yellow	Package	BK-GCS-PEDCO-120-PR-PI-0013_D03	PK-2101	4. 06/28/2022
9. Lean Glycol Storage Tank	Blue	Tank Pump	BK-GCS-PEDCO-120-PR-PI-0014_D03	TK-2102 P-2102 P-2103A/B	4. 06/28/2022
10. Instrument & Plant Air System	Red	Package	BK-GCS-PEDCO-120-PR-PI-0015_D03	PK-DR-2203A/B PK-C-2203A/B V-2203	4. 06/28/2022
11. Nitrogen Generation System	Green	Package	BK-GCS-PEDCO-120-PR-PI-0016_D03	PK-C-2204 PK-G-2204 V-2204	4. 06/28/2022
12. Closed Drain System	Pink	Drum Pump	BK-GCS-PEDCO-120-PR-PI-0017_D03	V-2202 SU-2201 P-2202A/B P-2203A/B	4. 06/28/2022
13. Corrosion Inhibitor Package	Orange	Line	BK-GCS-PEDCO-120-PR-PI-	PK-TK-2207	4. 06/28/2022



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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HAZOP REPORT FOR COMPRESSOR STATION							شماره صفحه : 12 از 58
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	
	BK	GCS	PEDCO	120	GE	RT	0004	D00

Nodes	Color	Type	Drawings	Equipment ID	Date
		Package	0018_D03	PK-2207A/B/C/D	
		Tank		P-2207E	
		Pump			
14. Methanol Injection Package	L Blue	Line	BK-GCS-PEDCO-120-PR-PI-0019_D03	-	4. 06/28/2022
15. LP Flare System	Violet	Line	BK-GCS-PEDCO-120-PR-PI-0020_D03	-	5. 06/29/2022
		Drum		SU-2201	
		Package		V-2201	
		Pump		P-2201A/B IG-2201 FST-2201	
16. Oily Water Sewer	Yellow	Sump	BK-GCS-PEDCO-120-PR-PI-0021_D03	SU-2202	5. 06/29/2022
17. Fuel Gas System	Blue	Drum	BK-GCS-PEDCO-120-PR-PI-0022_D03	V-2205	5. 06/29/2022
18. Diesel Oil System	Green	Drum	BK-GCS-PEDCO-120-PR-PI-0023_D03	V-2206A/B	5. 06/29/2022
		Pump		P-2206A/B	
19. Potable Water System	L Blue	Tank	BK-GCS-PEDCO-120-PR-PI-0024_D03	TK-2209	5. 06/29/2022
		Pump		P-2209	
20. Glycol Sump Drum	Violet	Drum	BK-GCS-PEDCO-120-PR-PI-0025_D03	V-2107	5. 06/29/2022
		Pump		P-2104	



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HAZOP REPORT FOR COMPRESSOR STATION																										
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

8.4 APPENDIX D – RECOMMENDATIONS LIST



Recommendations	Place(s) Used	Responsibility	Status
1. Define in operating procedure that operator should change capacity of compressors according to inlet flow of gas from Binak and Golkhari clusters.	Consequences: 1.1.1.1, 2.1.1.1	Contractor	Closed
2. Define low alarm on PI-2102.	Consequences: 1.1.1.1	Contractor	Closed
3. General recommendation: Proxy limit switch signal of ESDVs in BINAK compressor station should be routed directly to DCS.	Consequences: 1.1.2.1	Contractor	Closed
4. Note on P&ID (BK-GCS-PEDCO-120-PR-PI-0002) Min distance for purge connection of Binak line to barred tee.	Consequences: 1.6.1.1	Contractor	Closed
5. Relocate check valve and corrosion inhibitor injection of Binak gas to V-2105 to upstream of FCV-2101.	Consequences: 1.6.1.1	Contractor	Closed
6. Define low alarm on PI-2104.	Consequences: 2.1.1.1	Contractor	Closed
7. Increase design pressure of piping from Golkhari pipeline tie-in point to FCV-2102 for protection against over pressure due to blocked outlet.	Consequences: 2.1.2.2, 2.4.1.1	NISOC/Contractor	Closed
8. Show on P&ID (BK-GCS-PEDCO-120-PR-PI-0003) purge connection of Golkhari line at min distance to barred tee.	Consequences: 2.6.1.1	Contractor	Closed
9. Ball valve on tie-in point of 10" gas pipeline Golkhari BL should be full bore.	Consequences: 2.8.1.1	Contractor	Closed
10. Consider future connection from Golkhari pipeline to existing gas compressor station downstream of MOV-2102B.	Consequences: 2.8.1.1	Contractor	Closed
11. Remove auto start signal from LIC-2111 on P-2101A/B.	Consequences: 3.1.1.1	Contractor	Closed
12. Define in operating manual of compressor station that on high level of V-2104 operator shall start P-2101A/B and open ESDV-2112.	Consequences: 3.1.1.1	Contractor	Closed
13. Define logic that PALL-2115 should be suppressed during pump P-2101A/B start.	Consequences: 3.1.1.1	Contractor	Closed
14. Inlet isolation of V-2104 should be locked open.	Consequences: 3.1.5.1	Contractor	Closed
15. Define in operating manual of compressor station that always one of bypass valve and inlet valve of V-2104 shall be open.	Consequences: 3.1.5.1	Contractor	Closed
16. Show on P&ID (BK-GCS-PEDCO-120-PR-PI-0004) pump pit for P-2101A/B.	Consequences: 3.1.6.1	Contractor	Closed
17. Install check valve on 2" line from close drain pump P-2202A/B to V-2104.	Consequences: 3.3.1.1	Contractor	Closed
18. Install TRV on pipeline from P-2101A/B to Binak cluster downstream of isolation valve of CGS BL.	Consequences: 3.4.3.1	Contractor	Closed
19. Full vacuum should be considered for design pressure of V-2104.	Consequences: 3.5.1.1	Contractor	Closed
20. 3" drain valves on V-2104 should be connected to close drain.	Consequences: 3.8.1.1	Contractor	Closed

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	BK	GCS	PEDCO	120	GE	RT	0004	D00



Recommendations	Place(s) Used	Responsibility	Status
21. Suction and discharge flanges of P-2101A/B should be 300#.	Consequences: 3.10.1.1	Contractor	Closed
22. Bypass valve of V-2104 should be ball type.	Consequences: 3.10.1.1	Contractor	Closed
23. Show on P&ID (BK-GCS-PEDCO-120-PR-PI-0004) vent connection of P-2101.	Consequences: 3.10.1.1	Contractor	Closed
24. Inlet isolation valve of V-2105 should be locked open.	Consequences: 4.4.1.1	Contractor	Closed
25. Full vacuum should be considered for design pressure of V-2105.	Consequences: 4.5.1.1	Contractor	Closed
26. Remove bypass over XV-2110.	Consequences: 4.5.2.2	Contractor	Closed
27. LAHH-2117 should activate ESD-1.	Consequences: 4.6.1.1	Contractor	Closed
28. LCV-2114 should be FC.	Consequences: 4.7.1.1	Contractor	Closed
29. Valve arrangement on close drain connection of 1st stage gas compression manifold should be as ball valve, spectacle , check valve.	Consequences: 4.8.1.1	Contractor	Closed
30. Consider spectacle blind on 2" drain line of V-2105, nozzle D.	Consequences: 4.8.1.1	Contractor	Closed
31. Change type of 10" bypass valve over V-2105 to ball type.	Consequences: 4.10.1.1	Contractor	Closed
32. Remove TIT-2111 and TIT-2113.	Consequences: 4.10.1.1	Contractor	Closed
33. Remove LG-2115 and LIT-2116 from V-2105 and connect upper leg of LG-2116 and LIT-2119 to nozzle L1 of vessel.	Consequences: 4.10.1.1	Contractor	Closed
34. Define in operating manual of compressor station that operator should adjust compressor capacity according to station flow rate.	Consequences: 5.1.1.1	Contractor	Closed
35. Install check valve at 2nd stage discharge, downstream of spill back branch (at min distance to XV-2133A) and install check valve at inlet to each compressor train upstream of spill back branch.	Consequences: 5.2.1.1	Contractor	Closed
36. Consider limit switch for spill back valve PCV-2123A.	Consequences: 5.2.1.1	Contractor	Closed
37. Study requirement to consider over pressure protection for V-2101 due to opening of spill back valve PCV-2123A.	Consequences: 5.2.1.1	Contractor	Open
38. Correct P&ID of air coolers of compressors according to data sheet.	Consequences: 5.4.3.1, 6.4.3.1	Contractor	Closed
39. Consider block valves for N2 supply lines to compressor packages.	Consequences: 5.10.1.1	Contractor	Closed
40. Consider maintenance lock for fan of air coolers in data sheet.	Consequences: 5.10.1.1	Contractor	Closed
41. Consider drain connection on low point of line between V-2101A and compressor.	Consequences: 5.11.1.1	Contractor	Closed
42. General recommendation: All solenoids with signal in ESD system should have manual reset.	Consequences: 5.12.1.1	Contractor	Closed
43. Relocate sample connections of compressor suctions to Binak and Golkhari inlet lines and also on Inlet KO Drum outlet line.	Consequences: 5.12.1.1	Contractor	Closed

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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
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Recommendations	Place(s) Used	Responsibility	Status
44. Provide XV with remote access for depressurizing of 1st stage suction drum of compressors to give more operability during maintenance.	Consequences: 6.7.2.2	NISOC/Contractor	Closed
45. Define high level alarm on LT-2132 also define discrepancy alarm between LT-2131 and LT-2132 in DCS.	SIL determination: 6.8.1.1	Contractor	Closed
46. Consider drain connection on low point of line between V-2102A and compressor.	Consequences: 6.11.1.1	Contractor	Closed
47. Remove sample connection on suction and discharge of compressor 2nd stage.	Consequences: 6.12.1.1	Contractor	Closed
48. Correct on P&ID that outlet pipe of BDV 2141 is connected directly to flare header separated from tail pipe of PSVs	Consequences: 7.5.1.1	Contractor	Closed
49. Full vacuum should be considered for design pressure of V-2103.	Consequences: 7.5.2.1	Contractor	Closed
50. Show on P&ID stand pipe for LG-2141 and LIT-2141.	Consequences: 7.6.1.1	Contractor	Closed
51. As per drain configuration, consider gate valve, spectacle and globe valve arrangement for bypass of XV-2144.	Consequences: 7.7.1.2	Contractor	Closed
52. Consider spectacle blind on B2 nozzle of V-2103.	Consequences: 7.8.1.1	Contractor	Closed
53. Consider spectacle blind on corrosion inhibitor injection line to V-2103 after check valve.	Consequences: 7.8.1.1	Contractor	Closed
54. Show on P&ID line number and inlet reducer of XV-2143.	Consequences: 7.10.1.1	Contractor	Closed
55. Remove TG-2143.	Consequences: 7.10.1.1	Contractor	Closed
56. Define high alarm on PIC-2152.	Consequences: 8.1.1.1	Contractor	Closed
57. Show dedicated control blocks for PCV-2152 and PCV-2151.	Consequences: 8.1.1.1	Contractor	Closed
58. Failure mode of PCV-2151 should be FC and failure mode of PCV-2152 should be FO.	Consequences: 8.1.2.2	Contractor	Closed
59. Class of PCV-2151, PCV-2152 and BDV-2151 should be 600#.	Consequences: 8.1.2.2	Contractor	Closed
60. General recommendation: check size of control valves to be compatible with IPS requirements.	Consequences: 8.1.2.2	Contractor	Closed
61. Consider check valve on 2" closed drain connection from dehydration package.	Consequences: 8.3.1.1	Contractor	Closed
62. Check with vendor requirement for sizing PSV on dehydration package for blocked outlet scenario.	Consequences: 8.4.1.1	Contractor	Open
63. Define low alarm on PIC-2152.	Consequences: 8.5.1.1	Contractor	Closed
64. Show on P&ID of dehydration package detail of corrosion inhibitor injection valving.	Consequences: 8.6.1.1	Contractor	Closed
65. Equalizing valve on bypass of dehydration package should be 2" and gate valve on this bypass should be changed to ball valve.	Consequences: 8.7.1.1	Contractor	Closed
66. Consider block valve of fuel gas supply line to dehydration package.	Consequences: 8.7.1.1	Contractor	Closed

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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
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Recommendations	Place(s) Used	Responsibility	Status
67. Show on P&ID of dehydration package, BMS and min required signals to/from plant DCS and ESD.	Consequences: 8.7.1.1	Contractor	Closed
68. HAZOP study of dehydration package shall be performed with participation of package vendor.	Consequences: 8.7.1.1	Contractor	Closed
69. Correct on P&ID min flow (including RO) of P-2103A/B to be connected directly to nozzle B2 of TK-2102.	Consequences: 9.1.1.1	Contractor	Closed
70. Remove auto/manual signal from P-2103A/B.	Consequences: 9.1.1.1	Contractor	Closed
71. Consider check valve on glycol line from P-2103A/B to PK-2101.	Consequences: 9.3.1.1	Contractor	Closed
72. Blanketing of TK-2102 should be with N2.	Consequences: 9.4.1.1	Contractor	Closed
73. Consider safety hatch for TK-2102.	Consequences: 9.4.1.1	Contractor	Closed
74. Consider pressure transmitter with high and low alarm on TK-2102.	Consequences: 9.4.1.1	Contractor	Closed
75. PVS-2161/2162 should be vented to ATM.	Consequences: 9.4.1.1	Contractor	Closed
76. Show vacuum set point of PVS-2161/2162.	Consequences: 9.5.1.1	Contractor	Closed
77. LIT-2161 and LIT-2162 should be readable at grade in loading area.	Consequences: 9.6.1.1	Contractor	Closed
78. Consider spectacle blind on 2" drain nozzle D of TK-2102.	Consequences: 9.8.1.1	Contractor	Closed
79. Remove check valve on suction of P-2103A/B.	Consequences: 9.10.1.1	Contractor	Closed
80. Correct P&ID of glycol tank and show nozzle A at top of tank.	Consequences: 9.10.1.1	Contractor	Closed
81. Consider PG on discharge of P-2102.	Consequences: 9.10.1.1	Contractor	Closed
82. Number, signal and set points of PTs (PT-2203) for start/stop of standby air compressor should be according to IPS requirements.	Consequences: 10.1.1.1	Contractor	Closed
83. ESD level on PALL-2201A/B/C should be 1A.	Consequences: 10.1.1.1, 10.1.4.1	Contractor	Closed
84. PCV-2201 should be FC.	Consequences: 10.1.2.1	Contractor	Closed
85. Remove ESDV-2231 and consider solenoid on PCV-2201 to close valve by ESD-3.	Consequences: 10.1.3.1	Contractor	Closed
86. Remove mechanical trap from V-2203 and consider mechanical trap for wet air KO drum.	Consequences: 10.7.1.1	Contractor	Closed
87. PCV-2211 should be FO.	Consequences: 11.1.2.1	Contractor	Closed
88. Consider check valve on nitrogen branches to gas compressors.	Consequences: 11.3.1.1	Contractor	Closed
89. Remove mechanical trap from V-2204 and consider mechanical trap for wet air KO drum inside compressor package.	Consequences: 11.7.1.1	Contractor	Closed
90. Remove HC analyzer from nitrogen package.	Consequences: 11.8.1.1	Contractor	Closed
91. Consider check valve on 2" line from P-2201A/B to existing burn pit.	Consequences: 12.1.1.1	Contractor	Closed
92. Remove 2" line connection from closed drain drum to oily	Consequences: 12.1.1.1	Contractor	Closed

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">HAZOP REPORT FOR COMPRESSOR STATION</th></tr><tr><th>پروژه</th><th>بسته کاری</th><th>صادر کننده</th><th>تسهیلات</th><th>رشته</th><th>نوع مدرک</th><th>سریال</th><th>نسخه</th></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>GE</td><td>RT</td><td>0004</td><td>D00</td></tr></table>	HAZOP REPORT FOR COMPRESSOR STATION								پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	GE	RT	0004	D00	شماره صفحه : 17 از 58
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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

Recommendations	Place(s) Used	Responsibility	Status
water sump.			
93. Globe valve on flare nozzle of V-2202 should be changed to ball type.	Consequences: 12.2.1.1	Contractor	Closed
94. Full vacuum should be considered for design pressure of V-2202.	Consequences: 12.3.1.1	Contractor	Closed
95. LIT-2223A/B should be float type and consider only one common LT for P-2203A/B.	Consequences: 12.4.2.1	Contractor	Closed
96. Relocate PALL-2222A/B to between pumps P-2202A/B and suction strainers.	Consequences: 12.5.1.1	Contractor	Closed
97. Consider spectacle blind on inlet and outlet of P-2201A/B.	Consequences: 12.6.1.1	Contractor	Closed
98. Relocate PIT-2252 (currently PIT-2222A) from closed drain drum to flare KO drum.	Consequences: 12.7.1.1	Contractor	Closed
99. valves down stream of P-2202A/B to V-2104 should be LO.	Consequences: 12.7.1.1	Contractor	Closed
100. Consider PG at discharge of P-2202A/B.	Consequences: 12.7.1.1	Contractor	Closed
101. Consider remote stop for corrosion inhibitor package (XSP corrected to HSP).	Consequences: 13.1.1.1	Contractor	Closed
102. Check coverage of CCTV and if required consider CCTV for flare monitoring in control room.	Consequences: 15.1.1.1	Contractor	Closed
103. Relocate PALL-2251A/B to between pumps P-2201A/B and suction strainers.	Consequences: 15.7.1.1	Contractor	Closed
104. Consider spectacle blinds on suction and discharge isolation valves of P-2201A/B.	Consequences: 15.8.1.1	Contractor	Closed
105. Define in operating manual that operator should ensure that always one discharge route of P-2201A/B is open.	Consequences: 15.8.1.1	Contractor	Closed
106. LIT-2273 should be float type with cage.	Consequences: 16.1.1.1	Contractor	Closed
107. Define low alarm on PI-2271.	Consequences: 17.1.2.1, 17.1.4.1	Contractor	Closed
108. Replace PRV-2272 with local flow gauge, ball valve, check valve and globe valve.	Consequences: 17.1.3.1	Contractor	Closed
109. PSV on V-2205 should be sized for fire case.	Consequences: 17.4.1.1	Contractor	Closed
110. Full vacuum should be considered for design pressure of V-2205.	Consequences: 17.5.1.1	Contractor	Closed
111. Note in duty spec of dehydration package that requirement for fuel gas filter should be checked by vendor.	Consequences: 17.9.1.1	Contractor	Closed
112. Remove fuel gas lines used for blanketing of TK-2102 and V-2107.	Consequences: 17.10.1.1	Contractor	Closed
113. Remove PT-2281A/B from suction of P-2206A/B and consider local pressure gauge.	Consequences: 18.1.3.1	Contractor	Closed
114. Define high high and low low trip interlock on LI-2281A/B to trip P-2206A/B.	Consequences: 18.1.3.1	Contractor	Closed
115. Any surface contamination on diesel oil drum area	Consequences: 18.6.1.1	Contractor	Closed

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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

Recommendations	Place(s) Used	Responsibility	Status
should be directed to oily water header.			
116. Remove steam out connection for V-2206A/B.	Consequences: 18.8.1.1	Contractor	Closed
117. Relocate globe valve at discharge of P-2206A/B to downstream of tank filling branch.	Consequences: 18.8.1.1	Contractor	Closed
118. Consider drain connection at suction and discharge of P-2206A/B.	Consequences: 18.8.1.1	Contractor	Closed
119. Remove ESD-1 signal from P-2209.	Consequences: 19.1.1.1	Contractor	Closed
120. Remove start signal from LT-2293 on P-2104.	Consequences: 20.1.1.1	Contractor	Closed
121. Consider proper type for LIT-2293.	Consequences: 20.1.1.1	Contractor	Open
122. Consider PSV on V-2207 sized for regulator failure and fire case scenario.	Consequences: 20.3.1.1, 20.3.2.1	Contractor	Closed
123. Consider PT with high alarm on V-2107.	Consequences: 20.3.3.1	Contractor	Closed
124. Full vacuum should be considered for design pressure of V-2107.	Consequences: 20.4.1.1	Contractor	Closed
125. Consider isolation valve downstream of PRV-2291.	Consequences: 20.7.1.1	Contractor	Closed
126. Consider spectacle on inlet and outlet lines (nozzle A, nozzle B and pump outlet) of V-2107.	Consequences: 20.7.1.1	Contractor	Closed
127. Consider drain connection under V-2107.	Consequences: 20.7.1.1	Contractor	Closed
128. Consider slop for V-2107 towards pump side.	Consequences: 20.7.1.1	Contractor	Closed
129. Consider connection from P-2104 to oily water system.	Consequences: 20.8.1.1	Contractor	Closed
130. ESD level on P-2104 should be ESD-1A.	Consequences: 20.9.1.1	Contractor	Closed
131. Consider connection for loading spent glycol to truck downstream of P-2104.	Consequences: 20.9.1.1	Contractor	Closed



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	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	
	BK	GCS	PEDCO	120	GE	RT	0004	D00

8.5 APPENDIX E – HAZOP WORKSHEETS

Node: 1. Gas Compression Inlet Gas Pipeline (Binak)

Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
1. No/less flow from upstream due to any reason	1. Low suction pressure for station and waste of energy	1. Low suction pressure protection of compressor	1. Define in operating procedure that operator should change capacity of compressors according to inlet flow of gas from Binak and Golkhari clusters.
		2. Low pressure alarm on compressor 1st stage and spill back control	2. Define low alarm on PI-2102.
		3. FAL-2101	
2. ESDV-2101 closed by failure or error	1. Low suction pressure for station and decreased production	1. Low suction pressure protection of compressor	3. General recommendation: Proxy limit switch signal of ESDVs in BINAK compressor station should be routed directly to DCS.
		2. Low pressure alarm on compressor 1st stage and spill back control	
		3. Limit switch on valve	
		4. FAL-2101	
	2. Increased pressure upstream of valve with possibility of damage to pipeline	1. High pressure protection in Binak Cluster	
3. FCV-2101 closed more by a failure in any elements of its control loop	1. Same as above	3. High pressure at inlet of existing station	
		1. High pressure protection (flare) in existing Binak gas station inlet K.O drum	
		1. Low suction pressure protection of compressor	
		2. Low pressure alarm on compressor 1st stage and spill back control	
		3. FAL-2101 (dependent)	
		4. High pressure protection in Binak Cluster	
		5. High pressure protection (flare) in existing Binak gas station inlet K.O drum	

 <p>NISOC</p>	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

Node: 1. Gas Compression Inlet Gas Pipeline (Binak)

Deviation: 2. More Flow

Causes	Consequences	Safeguards	Recommendations
1. FCV-2101 open more by a failure in any elements of its control loop	1. Increased pressure in compressor suction with no hazardous consequence for compressors but decreased efficiency of dehydration package	1. See Dehydration package node for safeguard 2. FAH-2101 (dependent)	

Node: 1. Gas Compression Inlet Gas Pipeline (Binak)

Deviation: 3. Reverse/Misdirected Flow

Causes	Consequences	Safeguards	Recommendations
1. Check valves are considered where required			

Node: 1. Gas Compression Inlet Gas Pipeline (Binak)

Deviation: 4. High Pressure

Causes	Consequences	Safeguards	Recommendations
1. High pressure from Binak cluster due to any reason	1. No hazardous consequence due to design pressure		
2. Shutdown of downstream compressor station	1. Increased pressure up to Binak cluster max pressure with possibility of damage to inlet K.O drum	1. PAHH-2116 that will activate ESD-1 2. PSV-2113/2114 on V-2105	

Node: 1. Gas Compression Inlet Gas Pipeline (Binak)



Deviation: 5. Low Pressure

Causes	Consequences	Safeguards	Recommendations
1. No new issue was identified			

Node: 1. Gas Compression Inlet Gas Pipeline (Binak)

Deviation: 6. Maintenance Hazards

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			4. Note on P&ID (BK-GCS-PEDCO-120-PR-PI-0002) Min distance for purge connection of Binak line to barred tee. 5. Relocate check valve and corrosion inhibitor injection of Binak gas to V-2105 to upstream of FCV-2101.

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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

Node: 1. Gas Compression Inlet Gas Pipeline (Binak)



Deviation: 7. Corrosion

Causes	Consequences	Safeguards	Recommendations
1. Moisture and sulphur content in gas	1. Damage to equipment and piping	1. Corrosion monitoring (CP/CC)	
		2. Corrosion inhibitor injection	

Node: 2. Gas Compression Inlet Gas Pipeline (Golkhari)

Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
1. No/less flow from upstream due to any reason	1. Low suction pressure for station and waste of energy	1. Low suction pressure protection of compressor	1. Define in operating procedure that operator should change capacity of compressors according to inlet flow of gas from Binak and Golkhari clusters.
		2. Low pressure alarm on compressor 1st stage and spill back control	6. Define low alarm on PI-2104.
		3. FAL-2102	
2. MOV-2102B closed by error	1. Low suction pressure for station and decreased production	1. Low suction pressure protection of compressor	
		2. Low pressure alarm on compressor 1st stage and spill back control	
		3. Limit switch on valve	
		4. FAL-2102	
3. ESDV-2102 closed by failure or error	1. Low suction pressure for station and decreased production		7. Increase design pressure of piping from Golkhari pipeline tie-in point to FCV-2102 for protection against over pressure due to blocked outlet.
		1. Low suction pressure protection of compressor	
		2. Low pressure alarm on compressor 1st stage and spill back control	
		3. Limit switch on valve	
	2. Increased pressure upstream		

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	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	
	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 2. Gas Compression Inlet Gas Pipeline (Golghari)

Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
	of valve with possibility of damage to piping upstream of valve		
4. FCV-2102 closed more by a failure in any elements of its control loop	1. Same as above	1. Low suction pressure protection of compressor	
		2. Low pressure alarm on compressor 1st stage and spill back control	
		3. FAL-2102 (dependent)	

Node: 2. Gas Compression Inlet Gas Pipeline (Golghari)

Deviation: 2. More Flow

Causes	Consequences	Safeguards	Recommendations
1. FCV-2102 open more by a failure in any elements of its control loop	1. Increased pressure in compressor suction with no hazardous consequence for compressors but decreased efficiency of dehydration package	1. See Dehydration package node for safeguard	
		2. FAH-2102 (dependent)	

Node: 2. Gas Compression Inlet Gas Pipeline (Golghari)



Deviation: 3. Reverse/Misdirected Flow

Causes	Consequences	Safeguards	Recommendations
1. Check valves are considered where required			

Node: 2. Gas Compression Inlet Gas Pipeline (Golghari)

Deviation: 4. High Pressure

Causes	Consequences	Safeguards	Recommendations
1. High pressure from Golghari cluster due to any reason	1. Possibility of damage to piping due to over pressure and fire and personnel injury		7. Increase design pressure of piping from Golghari pipeline tie-in point to FCV-2102 for protection against over pressure due to blocked outlet.
2. Shutdown of downstream compressor station	1. Increased pressure up to Golghari cluster max pressure with possibility of damage to slug catcher	1. PAHH-2111 that will activate ESD-1	
		2. PSV-2111/2112 on V-2104	

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	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 2. Gas Compression Inlet Gas Pipeline (Golkhari)

Deviation: 5. Low Pressure

Causes	Consequences	Safeguards	Recommendations
1. No new issue was identified			

Node: 2. Gas Compression Inlet Gas Pipeline (Golkhari)

Deviation: 6. Maintenance Hazards

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			8. Show on P&ID (BK-GCS-PEDCO-120-PR-PI-0003) purge connection of Golkhari line at min distance to barred tee.

Node: 2. Gas Compression Inlet Gas Pipeline (Golkhari)

Deviation: 7. Corrosion

Causes	Consequences	Safeguards	Recommendations
1. Moisture and sulphur content in gas	1. Damage to equipment and piping	1. Corrosion monitoring (CP/CC)	
		2. Corrosion inhibitor injection	

Node: 2. Gas Compression Inlet Gas Pipeline (Golkhari)



Deviation: 8. Miscellaneous

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			9. Ball valve on tie-in point of 10" gas pipeline Golkhari BL should be full bore.
			10. Consider future connection from Golkhari pipeline to existing gas compressor station downstream of MOV-2102B.

Node: 3. Slug Catcher System

Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
1. P-2101A/B fail to start when required	1. Accumulation of liquid in slug catcher with no hazardous consequence	1. LAH-2111	11. Remove auto start signal from LIC-2111 on P-2101A/B.
		2. Standby pump	12. Define in operating manual of compressor station that on high level of V-2104 operator shall start P-2101A/B and

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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

Node: 3. Slug Catcher System

Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
			open ESDV-2112.
			13. Define logic that PALL-2115 should be suppressed during pump P-2101A/B start.
2. Plugging of pump strainer	1. Possibility of damage to pump	1. PALL-2114A/B that will activate ESD-3 and stop pump P-2101A/B 2. Local PDG-2114A/B	
3. FCV-2111 closed more by a failure in any elements of its control loop	1. Possibility of damage to pump due to high pressure	1. PAHH-2116A/B that will activate ESD-3	
4. ESDV-2112 closed by failure or error	1. Same as above	1. Limit switch on valve	
5. Downstream compressor shutdown	1. High pressure of V-2104 up to Golkhari cluster pressure with possibility of damage, fire and injury	1. PAHH-2111 that will activate ESD-1 2. PAH-2112 3. PSV-2111/2112 on V-2104	14. Inlet isolation of V-2104 should be locked open. 15. Define in operating manual of compressor station that always one of bypass valve and inlet valve of V-2104 shall be open.
6. Plugging of demister pad in V-2104	1. Low suction pressure for compressors and also possibility of damage to demister	1. PDAH-2111	16. Show on P&ID (BK-GCS-PEDCO-120-PR-PI-0004) pump pit for P-2101A/B.

Node: 3. Slug Catcher System



Deviation: 2. More Flow

Causes	Consequences	Safeguards	Recommendations
1. FCV-2111 open more by a failure in any elements of its control loop	1. Possibility of over current for P-2101A/B	1. Over current protection in MCC	

Node: 3. Slug Catcher System

Deviation: 3. Reverse/Misdirected Flow

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			17. Install check valve on 2" line from close drain pump P-2202A/B to V-2104.
2. Check valves are considered where required for other streams			

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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

Node: 3. Slug Catcher System

Deviation: 4. High Pressure

Causes	Consequences	Safeguards	Recommendations
1. External fire case for V-2104	1. Damage to equipment	1. PSV-2111/2112 on V-2104	
2. Blocked outlet at gas line from V-2104	1. Damage to equipment	1. PSV-2111/2112 on V-2104	
3. Line box-in and thermal expansion for pipeline from P-2101A/B to Binak cluster	1. Damage to pipeline		18. Install TRV on pipeline from P-2101A/B to Binak cluster downstream of isolation valve of CGS BL.

Node: 3. Slug Catcher System

Deviation: 5. Low Pressure

Causes	Consequences	Safeguards	Recommendations
1. Maloperation during steam out at startup	1. Vacuum formation and V-2104 collapse		19. Full vacuum should be considered for design pressure of V-2104.

Node: 3. Slug Catcher System



Deviation: 6. High Level

Causes	Consequences	Safeguards	Recommendations
1. Entrance of large amount of liquid to V-2104 due to upset in Golkhari cluster	1. Carry over of liquid to inlet KO drum and compressors with possibility of damage to compressor	1. LAHH-2112 that will activate ESD-1	
		2. LAHH-2117 that will activate ESD-3 on inlet KO drum	
		3. LAHH-2122A/B/C that will activate ESD-2 and trip compressor	

Node: 3. Slug Catcher System

Deviation: 7. Low Level

Causes	Consequences	Safeguards	Recommendations
1. P-2101A/B remain in service when not required	1. Damage to pump	1. LAL-2111 that will stop pump	
		2. LALL-2112 that will activate ESD-3 and stop pumps	
		3. PALL-2114A/B that will activate ESD-3 and stop pumps	

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>							
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HAZOP REPORT FOR COMPRESSOR STATION							شماره صفحه : 26 از 58
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	
	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 3. Slug Catcher System

Deviation: 8. Maintenance Hazards

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			20. 3" drain valves on V-2104 should be connected to close drain.

Node: 3. Slug Catcher System

Deviation: 9. Corrosion

Causes	Consequences	Safeguards	Recommendations
1. Corrosion due to sulphur and moisture content	1. Damage to equipment and piping in long term	1. Corrosion monitoring (CP/CC) 2. Liquid line from V-2104 to P-2101A/B is Stainless Steel	

Node: 3. Slug Catcher System



Deviation: 10. Miscellaneous

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			21. Suction and discharge flanges of P-2101A/B should be 300#. 22. Bypass valve of V-2104 should be ball type. 23. Show on P&ID (BK-GCS-PEDCO-120-PR-PI-0004) vent connection of P-2101.

Node: 4. Gas Compression Inlet Knock Out Drum

Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
1. Compressors shutdown due to any reason	1. Blocked outlet for V-2105 and possibility of damage, fire and personnel injury	1. PAH-2117 2. PAHH-2116 that will activate ESD-1 3. PSV-2113/2114 on V-2105	
2. Plugging of demister pad in V-2105	1. Low suction pressure for compressors and also possibility of damage to demister	1. PDAH-2112	

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>							
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	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	
	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 4. Gas Compression Inlet Knock Out Drum

Deviation: 2. More Flow

Causes	Consequences	Safeguards	Recommendations
1. No issue was identified			

Node: 4. Gas Compression Inlet Knock Out Drum

Deviation: 3. Reverse/Misdirected Flow

Causes	Consequences	Safeguards	Recommendations
1. Check valves are considered where required			

Node: 4. Gas Compression Inlet Knock Out Drum

Deviation: 4. High Pressure

Causes	Consequences	Safeguards	Recommendations
1. External fire case for V-2105	1. Damage to equipment	1. PSV-2113/2114 on V-2105	24. Inlet isolation valve of V-2105 should be locked open.

Node: 4. Gas Compression Inlet Knock Out Drum



Deviation: 5. Low Pressure

Causes	Consequences	Safeguards	Recommendations
1. Maloperation during steam out at startup	1. Vacuum formation and V-2105 collapse		25. Full vacuum should be considered for design pressure of V-2105.
2. XV-2110 open by failure or error	1. Waste of gas to flare with environmental effect	1. Limit switch on valve 2. PAL-2117	26. Remove bypass over XV-2110.
	2. Loss of suction pressure for compressors	1. Low suction pressure protection of compressor	

Node: 4. Gas Compression Inlet Knock Out Drum

Deviation: 6. High Level

Causes	Consequences	Safeguards	Recommendations
1. LCV-2114 remained closed for long time	1. Accumulation of liquid in inlet KO drum and carry over to compressors suction drums and fuel gas KO drum	1. LAH-2119 (dependent) 2. LAHH-2117 that will activate ESD-3 3. High level alarm protection on compressor suction drum and fuel gas KO drum	27. LAHH-2117 should activate ESD-1.

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	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 4. Gas Compression Inlet Knock Out Drum

Deviation: 6. High Level

Causes	Consequences	Safeguards	Recommendations
2. ESDV-2113 remained closed by failure or error for long time	1. Same as above		

Node: 4. Gas Compression Inlet Knock Out Drum

Deviation: 7. Low Level

Causes	Consequences	Safeguards	Recommendations
1. LCV-2114 remained open when not required	1. Low level in V-2105 and gas blowby via closed drain to flare	1. LAL-2119 (dependent) 2. LALL-2118 that will activate ESD-3 and close ESDV-2113	28. LCV-2114 should be FC.

Node: 4. Gas Compression Inlet Knock Out Drum

Deviation: 8. Maintenance Hazards

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			29. Valve arrangement on close drain connection of 1st stage gas compression manifold should be as ball valve, spectacle , check valve. 30. Consider spectacle blind on 2" drain line of V-2105, nozzle D.

Node: 4. Gas Compression Inlet Knock Out Drum

Deviation: 9. Corrosion

Causes	Consequences	Safeguards	Recommendations
1. Corrosion due to sulphur and moisture content	1. Damage to equipment and piping in long term	1. Corrosion monitoring (CP/CC) 2. Corrosion inhibitor injection is considered 3. Liquid line from V-2105 to LCV-2104 is Stainless Steel	

Node: 4. Gas Compression Inlet Knock Out Drum

Deviation: 10. Miscellaneous

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			31. Change type of 10" bypass valve over V-2105 to ball type.

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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

Node: 4. Gas Compression Inlet Knock Out Drum



Deviation: 10. Miscellaneous

Causes	Consequences	Safeguards	Recommendations
			32. Remove TIT-2111 and TIT-2113.
			33. Remove LG-2115 and LIT-2116 from V-2105 and connect upper leg of LG-2116 and LIT-2119 to nozzle L1 of vessel.

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
1. Decreased flow from upstream due to any reason	1. Low suction pressure with possibility of damage to compressors due to over heating	1. PAL-2121A	34. Define in operating manual of compressor station that operator should adjust compressor capacity according to station flow rate.
		2. PALL-2122A that will activate ESD-2	
		3. PAL-2123A/PAL-2124A/PAL-2132A/FAL-2121A/FAL-2131A inside compressor package	
		4. Spill back valve will open by PIC-2121A	
		5. Internal high temperature protection in compressor package	
2. XV-2121A closed by failure or error (any failure out of UCP)	1. Loss of suction pressure for one compressor with possibility of damage to compressor due to over heating	1. PAL-2121A	
		2. PALL-2122A that will activate ESD-2	
		3. PAL-2123A/PAL-2124A/PAL-2132A/FAL-2121A/FAL-2131A inside compressor package	
		4. Limit switch on valve	
		5. Spill back valve will open by PIC-2121A	
		6. Internal high temperature protection in compressor package	
3. XV-2121A closed by failure	1. Loss of suction pressure for	1. PAL-2121A	

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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers



Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
or error (any failure inside UCP)	one compressor with possibility of damage to compressor due to over heating	2. PALL-2122A that will activate ESD-2	
4. PCV-2123A closed more when required to be open	1. Low suction pressure in compressor with possibility of vacuum formation	1. V-2101A is designed for full vacuum 2. PAL-2121A (dependent) 3. PALL-2122A that will activate ESD-2 4. PAL-2123A/PAL-2124A/PAL-2132A/FAL-2121A/FAL-2131A inside compressor package	
5. Plugging of demister pad	1. Same as above 2. Possibility of damage to demister pad	1. PDAH-2121A	
6. Plugging of compressor suction strainer	1. Low suction pressure in compressor and damage to strainer	1. PDIT-2122A inside compressor package	
7. Compressor failure or trip	1. Decreased capacity of station 2. Increased pressure upstream of compressor with possibility of damage due to over pressure, leakage and fire	1. Spare compression train is considered 2. PSVs on V-2104 and V-2105 are designed for blocked outlet 2. PAHH-2122 that will activate ESD-2	

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 2. More Flow

Causes	Consequences	Safeguards	Recommendations
1. PCV-2123A open more when required to be closed	1. High suction pressure with possibility of damage to suction, leakage and fire	1. PAH-2124A/PAH-2123A/PAH-2132A inside compressor package 2. PAHH-2122A that will activate ESD-2	35. Install check valve at 2nd stage discharge, downstream of spill back branch (at min distance to XV-2133A) and install check valve at inlet to each compressor train upstream of spill back branch. 36. Consider limit switch for spill back valve PCV-2123A. 37. Study requirement to consider over pressure protection for V-

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	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 2. More Flow

Causes	Consequences	Safeguards	Recommendations
			2101 due to opening of spill back valve PCV-2123A.
	2. High suction temperature with possibility of damage to compressor	1. TAH-2121A	
		2. TAH-2122A inside compressor package	
		3. TAHH-2124A that will activate ESD-2	
		4. High temperature protection inside compressor package	
	3. Low 2nd stage discharge pressure and decreased capacity of train	1. PAL-2132A	

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 3. Reverse/Misdirected Flow


Causes	Consequences	Safeguards	Recommendations
1. Check valves are considered where required			

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 4. High Temperature

Causes	Consequences	Safeguards	Recommendations
1. Mechanical failure in compressor package	1. Damage to compressor or discharge piping	1. TAH-2123A inside compressor package 2. TAHH-2124A that will activate ESD-2	
2. Decreased flow through compressor	1. Same as above	1. FAL-2121A 2. TAH-2123A inside compressor package 3. TAHH-2124A that will activate ESD-2	
3. Air cooler fan failure or trip	1. High temperature of 2nd stage with possibility of damage to it	1. TAH-2126A 2. TAHH-2125A that will activate ESD-2 3. Two pairs of air coolers are considered	38. Correct P&ID of air coolers of compressors according to data sheet.

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

Deviation: 5. Low Temperature

Causes	Consequences	Safeguards	Recommendations
1. More cooling in air coolers due to wrong adjustment of pitch	1. Waste of energy with no hazardous consequence	1. TAL-2126A	

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 6. High Pressure

Causes	Consequences	Safeguards	Recommendations
1. External fire case for V-2101A	1. Damage to equipment	1. PSV-2121A	
2. Blocked outlet for compressor 1st stage discharge	1. Damage to equipment	1. PSV-2122A/2123A	

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 7. Low Pressure

Causes	Consequences	Safeguards	Recommendations
1. No new issue was identified			

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers



Deviation: 8. High Level

Causes	Consequences	Safeguards	Recommendations
1. XV-2122A remained closed when required to be open	1. Accumulation of liquid in V-2101A and carry over to compressor with possibility of damage	1. LAH-2121A (dependent)	
		2. LAHH-2122A that will activate ESD-2 and trip compressor	
		3. LAHH-2117 that will activate ESD-3 on inlet KO drum	

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 9. Low Level

Causes	Consequences	Safeguards	Recommendations
1. XV-2122A remained open	1. Gas blowby via closed drain header to flare and waste of gas	1. LAL-2121A (dependent)	
		2. LALL-2122A that will activate ESD-3 and close XV-2122A	
	2. Slight decreased suction pressure of compressor	1. PAL-2121A 2. PAL-2123A/PAL-	

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	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 9. Low Level

Causes	Consequences	Safeguards	Recommendations
		2124A/PAL- 2132A/FAL- 2121A/FAL-2131A inside compressor package 3. Spill back valve will open by PIC-2121A	

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 10. Maintenance Hazards

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			39. Consider block valves for N2 supply lines to compressor packages. 40. Consider maintenance lock for fan of air coolers in data sheet.

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers



Deviation: 11. Loss of Utilities

Causes	Consequences	Safeguards	Recommendations
1. failure of electrical tracing at compressor suction	1. Possibility of condensation in cold season	1. Inspection & maintenance procedures	41. Consider drain connection on low point of line between V- 2101A and compressor.

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 12. Miscellaneous

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			42. General recommendation: All solenoids with signal in ESD system should have manual reset. 43. Relocate sample connections of compressor suction to Binak and Golkhari inlet lines and also on Inlet KO Drum outlet line.

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	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
1. Decreased flow from upstream due to any reason	1. Low suction pressure with possibility of damage to compressors due to over heating	1. PALL-2131A that will activate ESD-2 2. PAL-2123A/PAL-2124A/PAL-2132A/FAL-2121A/FAL-2131A inside compressor package 3. Spill back valve will open by PIC-2121A 4. Internal high temperature protection in compressor package	
2. Plugging of demister pad	1. Same as above 2. Possibility of damage to demister pad	1. PDAH-2131A	
3. Plugging of compressor suction strainer	1. Low suction pressure in compressor and damage to strainer	1. PDIT-2132A inside compressor package	
4. Compressor failure or trip	1. Decreased capacity of station 2. Increased pressure upstream of compressor with possibility of damage due to over pressure	1. Spare compression train is considered 1. PSVs on V-2104 and V-2105 are designed for blocked outlet 2. PAHH-2122 that will activate ESD-2	
5. XV-2133A closed by failure or error	1. Blocked outlet for compressor and damage to it	1. PSV-2132A/2133A	

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers



Deviation: 2. More Flow

Causes	Consequences	Safeguards	Recommendations
1. No issue was identified			

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 3. Reverse/Misdirected Flow

Causes	Consequences	Safeguards	Recommendations
1. Check valves are considered where required			

 <p>NISOC</p>	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 4. High Temperature

Causes	Consequences	Safeguards	Recommendations
1. Mechanical failure in compressor package	1. Damage to compressor or discharge piping	1. TAH-2133A inside compressor package 2. TAAH-2134A that will activate ESD-2	
2. Decreased flow through compressor	1. Same as above	1. FAL-2131A 2. TAH-2133A inside compressor package 3. TAAH-2134A that will activate ESD-2	
3. Air cooler fan failure or trip	1. High temperature of 2nd stage discharge with possibility of damage to downstream piping	1. TAH-2135A 2. TAAH-2136A that will activate ESD-2 3. Two pairs of air coolers are considered	38. Correct P&ID of air coolers of compressors according to data sheet.

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 5. Low Temperature

Causes	Consequences	Safeguards	Recommendations
1. More cooling in air coolers due to wrong adjustment of pitch	1. Waste of energy with no hazardous consequence	1. TAL-2135A	

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers



Deviation: 6. High Pressure

Causes	Consequences	Safeguards	Recommendations
1. External fire case for V-2102A	1. Damage to equipment	1. PSV-2131A	
2. Blocked outlet for compressor 2nd stage discharge	1. Damage to equipment, leakage and fire	1. PSV-2132A/2133A 2. PAHH-2134 that will activate ESD-2	

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 7. Low Pressure

Causes	Consequences	Safeguards	Recommendations
1. BDV-2134A open by failure or error	1. Waste of gas to flare with environmental effect 2. Low suction pressure for 2nd stage and possibility of	1. Limit switch on valve 1. PALL-2131A that will activate ESD-2	

	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>							
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HAZOP REPORT FOR COMPRESSOR STATION							شماره صفحه : 36 از 58
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	
	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 7. Low Pressure

Causes	Consequences	Safeguards	Recommendations
	damage to compressor due to over heating	2. Internal high temperature protection in compressor package	
	3. Low temperature after BDV with no hazardous consequence		
2. BDV-2132A open by failure or error	1. Waste of gas to flare with environmental effect	1. Limit switch on valve	
	2. Low temperature after BDV with possibility of freezing	1. Methanol injection is considered	44. Provide XV with remote access for depressurizing of 1st stage suction drum of compressors to give more operability during maintenance.
3. PCV-2135A open more when required to be closed	1. Waste of gas to flare with environmental effect	1. PAL-2135A (dependent)	

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers



Deviation: 8. High Level

Causes	Consequences	Safeguards	Recommendations
1. XV-2131A remained closed when required to be open	1. Accumulation of liquid in V-2102A and carry over to compressor with possibility of damage	1. LAH-2131A (dependent)	
		2. LAHH-2132A that will activate ESD-2 and trip compressor	
		3. Operator will be alerted by high level alarm (recommendation)	

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 9. Low Level

Causes	Consequences	Safeguards	Recommendations
1. XV-2131A remained open	1. Gas blowby via closed drain header to flare and waste of gas	1. LAL-2131A (dependent)	
		2. LALL-2132A that will activate ESD-3 and close XV-2131A	
	2. Possibility of high pressure in closed drain drum	1. Closed drain in connected to flare header with locked open valve	

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>							
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HAZOP REPORT FOR COMPRESSOR STATION							شماره صفحه : 37 از 58
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	
	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 9. Low Level

Causes	Consequences	Safeguards	Recommendations
	3. Slight decreased suction pressure of compressor	1. FAL-2131A/PAL-2132A inside compressor package	

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 10. Maintenance Hazards

Causes	Consequences	Safeguards	Recommendations
1. No new issue was identified			

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 11. Loss of Utilities

Causes	Consequences	Safeguards	Recommendations
1. failure of electrical tracing at compressor suction	1. Possibility of condensation in cold season	1. Inspection & maintenance procedures	46. Consider drain connection on low point of line between V-2102A and compressor.

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

Deviation: 12. Miscellaneous

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			47. Remove sample connection on suction and discharge of compressor 2nd stage.

Node: 7. 2nd Stage Gas Compression Discharge Drum



Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
1. XV-2142 closed by failure or error	1. Blocked outlet for compressor station and damage to equipment, fire and personnel injury	1. PSV-2141/2142 2. High pressure safeguards on compressor discharge	
2. XV-2143 closed by failure or error during startup	1. Delay in startup		

Node: 7. 2nd Stage Gas Compression Discharge Drum

Deviation: 2. More Flow

Causes	Consequences	Safeguards	Recommendations
1. No issue was identified			

	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>							
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	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	
	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 7. 2nd Stage Gas Compression Discharge Drum

Deviation: 3. Reverse/Misdirected Flow

Causes	Consequences	Safeguards	Recommendations
1. Check valves are considered where required			

Node: 7. 2nd Stage Gas Compression Discharge Drum

Deviation: 4. High Pressure

Causes	Consequences	Safeguards	Recommendations
1. External fire case for V-2103	1. Damage to equipment	1. PSV-2141	

Node: 7. 2nd Stage Gas Compression Discharge Drum

Deviation: 5. Low Pressure

Causes	Consequences	Safeguards	Recommendations
1. BDV-2141 open by failure or error	1. Waste of gas to flare with environmental effect	1. Limit switch on valve	48. Correct on P&ID that outlet pipe of BDV 2141 is connected directly to flare header separated from tail pipe of PSVs
	2. Possibility of freezing of line	1. Methanol injection is considered	
2. Maloperation during steam out at startup	1. Vacuum formation and V-2103 collapse		49. Full vacuum should be considered for design pressure of V-2103.

Node: 7. 2nd Stage Gas Compression Discharge Drum



Deviation: 6. High Level

Causes	Consequences	Safeguards	Recommendations
1. XV-2144 closed by failure or error	1. High level in V-2103 and carry over to dehydration package and degradation of glycol	1. LAH-2141 (dependent)	50. Show on P&ID stand pipe for LG-2141 and LIT-2141.
		2. LAHH-2142 that will activate ESD-1	

Node: 7. 2nd Stage Gas Compression Discharge Drum

Deviation: 7. Low Level

Causes	Consequences	Safeguards	Recommendations
1. XV-2144 remained open by failure or error	1. Gas blowby via closed drain header to flare and waste of gas	1. LAL-2141 (dependent)	51. As per drain configuration, consider gate valve, spectacle
	2. Possibility of high pressure in closed drain drum	2. LALL-2142 that will activate ESD-3 and close XV-2144 1. Closed drain in connected to flare	

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>							
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HAZOP REPORT FOR COMPRESSOR STATION							شماره صفحه : 39 از 58
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	
	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 7. 2nd Stage Gas Compression Discharge Drum

Deviation: 7. Low Level

Causes	Consequences	Safeguards	Recommendations
		header with locked open valve	and globe valve arrangement for bypass of XV-2144.

Node: 7. 2nd Stage Gas Compression Discharge Drum

Deviation: 8. Maintenance Hazards

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			52. Consider spectacle blind on B2 nozzle of V-2103. 53. Consider spectacle blind on corrosion inhibitor injection line to V-2103 after check valve.

Node: 7. 2nd Stage Gas Compression Discharge Drum

Deviation: 9. Corrosion

Causes	Consequences	Safeguards	Recommendations
1. Corrosion due to sulphur and moisture content	1. Damage to equipment and piping in long term	1. Corrosion monitoring (CP/CC) 2. Corrosion inhibitor injection is considered 3. Liquid line from V-2103 to XV-2144 is Stainless Steel	

Node: 7. 2nd Stage Gas Compression Discharge Drum



Deviation: 10. Miscellaneous

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			54. Show on P&ID line number and inlet reducer of XV-2143. 55. Remove TG-2143.

Node: 8. Gas Compression Dehydration Package

Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
1. Decreased flow to downstream due to any blockage in pipeline or Siahmakan facilities	1. Increased pressure for dehydration package and change in operating condition of it that will lead to more tail gas to flare	1. PIC-2152 will open PCV-2152 to flare	56. Define high alarm on PIC-2152. 57. Show dedicated control blocks for PCV-2152 and PCV-2151.

 <p>NISOC</p>	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

Node: 8. Gas Compression Dehydration Package

Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
2. PCV-2151 closed more by a failure in any elements of its control loop	1. Same as above	1. PIC-2152 will open PCV-2152 to flare (dependent)	
	2. Blocked outlet for compressor station and damage to equipment, fire and personnel injury	1. Upstream PSVs are designed for blocked outlet	58. Failure mode of PCV-2151 should be FC and failure mode of PCV-2152 should be FO.
			59. Class of PCV-2151, PCV-2152 and BDV-2151 should be 600#.
			60. General recommendation: check size of control valves to be compatible with IPS requirements.

Node: 8. Gas Compression Dehydration Package

Deviation: 2. More Flow

Causes	Consequences	Safeguards	Recommendations
1. PCV-2151 open more by a failure in any elements of its control loop	1. Decreased pressure and more flow through dehydration package and increased moisture in gas to pipeline	1. Moisture analyzer inside package with high alarm	

Node: 8. Gas Compression Dehydration Package



Deviation: 3. Reverse/Misdirected Flow

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			61. Consider check valve on 2" closed drain connection from dehydration package.

Node: 8. Gas Compression Dehydration Package

Deviation: 4. High Pressure

Causes	Consequences	Safeguards	Recommendations
1. Blocked outlet	1. Damage to equipment		62. Check with vendor requirement for sizing PSV on dehydration package for blocked outlet scenario.

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>								
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	BK	GCS	PEDCO	120	GE	RT	0004	D00	

Node: 8. Gas Compression Dehydration Package

Deviation: 5. Low Pressure

Causes	Consequences	Safeguards	Recommendations
1. BDV-2151 open by failure or error	1. Waste of gas to flare with environmental effect	1. Limit switch on valve	63. Define low alarm on PIC-2152.
2. PCV-2152 open more by a failure in any elements of its control loop	1. Waste of gas to flare with environmental effect		

Node: 8. Gas Compression Dehydration Package

Deviation: 6. Corrosion

Causes	Consequences	Safeguards	Recommendations
1. Corrosion due to sulphur and moisture content	1. Damage to equipment and piping in long term	1. Corrosion monitoring (CP/CC) 2. Corrosion inhibitor injection is considered	64. Show on P&ID of dehydration package detail of corrosion inhibitor injection valving.

Node: 8. Gas Compression Dehydration Package



Deviation: 7. Miscellaneous

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			65. Equalizing valve on bypass of dehydration package should be 2" and gate valve on this bypass should be changed to ball valve. 66. Consider block valve of fuel gas supply line to dehydration package. 67. Show on P&ID of dehydration package, BMS and min required signals to/from plant DCS and ESD. 68. HAZOP study of dehydration package shall be performed with participation of package vendor.

Node: 9. Lean Glycol Storage Tank

Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
1. P-2103A/B failure or trip	1. Delay in makeup glycol flow to dehydration	1. Standby pump is considered	69. Correct on P&ID min flow (including RO) of P-2103A/B to be connected directly to nozzle B2 of TK-2102.

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>								
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	BK	GCS	PEDCO	120	GE	RT	0004	D00	

Node: 9. Lean Glycol Storage Tank

Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
		2. Intermittent operation	70. Remove auto/manual signal from P-2103A/B.

Node: 9. Lean Glycol Storage Tank

Deviation: 2. More Flow

Causes	Consequences	Safeguards	Recommendations
1. No issue was identified			

Node: 9. Lean Glycol Storage Tank

Deviation: 3. Reverse/Misdirected Flow

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			71. Consider check valve on glycol line from P-2103A/B to PK-2101.

Node: 9. Lean Glycol Storage Tank



Deviation: 4. High Pressure

Causes	Consequences	Safeguards	Recommendations
1. PRV-2162 open more by failure	1. Possibility of damage to tank	1. PVSV-2161/PVSV-2162	72. Blanketing of TK-2102 should be with N2. 73. Consider safety hatch for TK-2102. 74. Consider pressure transmitter with high and low alarm on TK-2102. 75. PVSV-2161/2162 should be vented to ATM.
2. PRV-2161 closed more by failure during tank filling	1. Same as above	1. PVSV-2161/PVSV-2162	
3. External fire case for TK-2101	1. Damage to tank	1. PVSV-2161/PVSV-2162	
4. Blocked outlet for P-2103A/B	1. High pressure of pump discharge	1. Min flow is considered	

Node: 9. Lean Glycol Storage Tank

Deviation: 5. Low Pressure

Causes	Consequences	Safeguards	Recommendations
1. PRV-2161 closed more by failure during tank level	1. Vacuum formation and TK-	1. PVSV-2161/PVSV-	76. Show vacuum set point of

 <p>NISOC</p>	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

Node: 9. Lean Glycol Storage Tank

Deviation: 5. Low Pressure

Causes	Consequences	Safeguards	Recommendations
decreasing	2102 collapse	2162	PVSV-2161/2162.

Node: 9. Lean Glycol Storage Tank

Deviation: 6. High Level

Causes	Consequences	Safeguards	Recommendations
1. Operator error and over filling of tank	1. Over flow from tank and waste of material	1. LAH-2162 2. Dike	77. LIT-2161 and LIT-2162 should be readable at grade in loading area.

Node: 9. Lean Glycol Storage Tank

Deviation: 7. Low Level

Causes	Consequences	Safeguards	Recommendations
1. TK-2102 not refilled at proper time due to error	1. Loss of fresh glycol to dehydration package	1. LAL-2162	
	2. Possibility of damage to P-2103A/B	1. LALL-2161 that will activate ESD-3 and stop P-2103A/B	

Node: 9. Lean Glycol Storage Tank

Deviation: 8. Maintenance Hazards

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			78. Consider spectacle blind on 2" drain nozzle D of TK-2102.

Node: 9. Lean Glycol Storage Tank



Deviation: 9. Corrosion

Causes	Consequences	Safeguards	Recommendations
1. Corrosion	1. Damage to equipment and piping in long term	1. Corrosion monitoring (CC)	

Node: 9. Lean Glycol Storage Tank

Deviation: 10. Miscellaneous

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			79. Remove check valve on suction of P-2103A/B.
			80. Correct P&ID of glycol tank and show nozzle A at top of tank.

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>								
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	BK	GCS	PEDCO	120	GE	RT	0004	D00	

Node: 9. Lean Glycol Storage Tank

Deviation: 10. Miscellaneous

Causes	Consequences	Safeguards	Recommendations
			81. Consider PG on discharge of P-2102.

Node: 10. Instrument & Plant Air System



Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
1. Any failure inside instrument air package and compressors	1. Low pressure of instrument air and loss of plant control	1. Instrument air receiver V-2203 with 15 min holdup	82. Number, signal and set points of PTs (PT-2203) for start/stop of standby air compressor should be according to IPS requirements.
		2. Fault alarm on package	83. ESD level on PALL-2201A/B/C should be 1A.
		3. PAL-2201	
		4. PALL-2202 that will activate ESD-3 and closed ESDV-2231	
		5. PAL-2203	
		6. PALL-2201A/B/C with 2oo3 voting that will activate ESD-1A	
	2. Low pressure of plant air with no hazardous consequence		
2. PCV-2201 closed more by a failure in any elements of its control loop	1. Low pressure of plant air with no hazardous consequence		84. PCV-2201 should be FC.
3. ESDV-2231 closed by failure or error	1. Same as above		85. Remove ESDV-2231 and consider solenoid on PCV-2201 to close valve by ESD-3.
4. PRV-2201 closed by failure	1. Low pressure of instrument air and loss of plant control	1. PALL-2201A/B/C with 2oo3 voting that will activate ESD-1	83. ESD level on PALL-2201A/B/C should be 1A.

Node: 10. Instrument & Plant Air System

Deviation: 2. More Flow

Causes	Consequences	Safeguards	Recommendations
1. No issue was identified			

 <p>NISOC</p>	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

Node: 10. Instrument & Plant Air System

Deviation: 3. Reverse/Misdirected Flow

Causes	Consequences	Safeguards	Recommendations
1. No issue was identified			

Node: 10. Instrument & Plant Air System

Deviation: 4. High Pressure

Causes	Consequences	Safeguards	Recommendations
1. external fire case for V-2203	1. Damage to equipment	1. PSV-2201A/B	
2. PRV-2201 open by failure	1. No hazardous consequence		
3. PCV-2201 open more by a failure in any elements of its control loop	1. High pressure of plant air header and possible low pressure of instrument air header	1. PAL-2201 (dependent) 2. PALL-2202 that will activate ESD-3 and closed ESDV-2231	

Node: 10. Instrument & Plant Air System



Deviation: 5. Low Pressure

Causes	Consequences	Safeguards	Recommendations
1. High consumption rate of plant air	1. Low pressure of instrument air and loss of plant control	1. Instrument air receiver V-2203 with 15 min holdup 2. Fault alarm on package 3. PAL-2201 4. PALL-2202 that will activate ESD-3 and closed ESDV-2231 5. PAL-2203 6. PIC-2201 will control PCV-2201	

Node: 10. Instrument & Plant Air System

Deviation: 6. High Level

Causes	Consequences	Safeguards	Recommendations
1. Accumulation of liquid in V-2203	1. Possibility of damage to instrumentation	1. Local LG-2201 may be checked by operator	

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>							
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	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 10. Instrument & Plant Air System

Deviation: 7. Low Level

Causes	Consequences	Safeguards	Recommendations
1. Failure of mechanical trap	1. Waste of instrument air		86. Remove mechanical trap from V-2203 and consider mechanical trap for wet air KO drum.

Node: 10. Instrument & Plant Air System

Deviation: 8. Composition

Causes	Consequences	Safeguards	Recommendations
1. Loss of performance of dryers	1. Increased moisture content of instrument air and damage to instrumentation	1. Moisture analyzer inside package with high alarm	

Node: 11. Nitrogen Generation System



Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
1. Any failure inside Nitrogen package and compressors	1. Low pressure of nitrogen and loss of seal gas for compressor and also leakage of gas to ATM with possible personnel injury	1. Nitrogen receiver V-2204 with 15 min holdup	
		2. Fault alarm on package	
		3. PAL-2213	
		4. PAL-2211 inside package	
		5. PALL-2211 that will activate ESD-1	
		6. Low seal pressure protection inside compressor package	
	2. Low pressure of nitrogen for utility with no hazardous consequence		
2. PCV-2211 closed more by a failure in any elements of its control loop	1. Same as above		87. PCV-2211 should be FO.

Node: 11. Nitrogen Generation System

Deviation: 2. More Flow

Causes	Consequences	Safeguards	Recommendations
1. PCV-2211 open more by a failure in any elements of its control loop	1. Slightly high pressure of nitrogen header with no hazardous consequence		

	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>								
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	BK	GCS	PEDCO	120	GE	RT	0004	D00	

Node: 11. Nitrogen Generation System

Deviation: 3. Reverse/Misdirected Flow

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			88. Consider check valve on nitrogen branches to gas compressors.

Node: 11. Nitrogen Generation System

Deviation: 4. High Pressure

Causes	Consequences	Safeguards	Recommendations
1. external fire case for V-2204	1. Damage to equipment	1. PSV-2211A/B	

Node: 11. Nitrogen Generation System

Deviation: 5. Low Pressure

Causes	Consequences	Safeguards	Recommendations
1. No new issue was identified			

Node: 11. Nitrogen Generation System

Deviation: 6. High Level

Causes	Consequences	Safeguards	Recommendations
1. Accumulation of liquid in V-2204	1. Possibility of damage to compressor seal	1. Local LG-2211 may be checked by operator	

Node: 11. Nitrogen Generation System



Deviation: 7. Low Level

Causes	Consequences	Safeguards	Recommendations
1. Failure of mechanical trap	1. Waste of nitrogen		89. Remove mechanical trap from V-2204 and consider mechanical trap for wet air KO drum inside compressor package.

Node: 11. Nitrogen Generation System

Deviation: 8. Composition

Causes	Consequences	Safeguards	Recommendations
1. Loss of performance of PSA	1. Increased moisture/oxygen content of nitrogen and damage to compressor seal	1. Moisture analyzer inside package with high alarm	90. Remove HC analyzer from nitrogen package.
		2. oxygen analyzer	

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>								
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	BK	GCS	PEDCO	120	GE	RT	0004	D00	

Node: 11. Nitrogen Generation System

Deviation: 8. Composition

Causes	Consequences	Safeguards	Recommendations
		inside package with high alarm	

Node: 12. Closed Drain System

Deviation: 1. Reverse/Misdirected Flow

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			91. Consider check valve on 2" line from P-2201A/B to existing burn pit. 92. Remove 2" line connection from closed drain drum to oily water sump.

Node: 12. Closed Drain System

Deviation: 2. High Pressure

Causes	Consequences	Safeguards	Recommendations
1. No issue since V-2202 is connected to flare header with LO valve			93. Globe valve on flare nozzle of V-2202 should be changed to ball type.

Node: 12. Closed Drain System



Deviation: 3. Low Pressure

Causes	Consequences	Safeguards	Recommendations
1. Maloperation during steam out at startup	1. Vacuum formation and V-2202 collapse		94. Full vacuum should be considered for design pressure of V-2202.

Node: 12. Closed Drain System

Deviation: 4. High Level

Causes	Consequences	Safeguards	Recommendations
1. Accumulation of liquid in V-2202	1. Carry over of liquid to flare KO drum	1. LIC-2221 will start 1st pump on H1 setpoint and 2nd pump on H2 2. LAH-2221	
2. Accumulation of surface water/rain in closed drain sump	1. Damage to equipment in sump	1. LIC-2222A/B will start sump pump	95. LIT-2223A/B should be float type and consider only one common LT for P-2203A/B.

 <p>NISOC</p>	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

Node: 12. Closed Drain System

Deviation: 5. Low Level

Causes	Consequences	Safeguards	Recommendations
1. Pump remained in service when not required	1. Damage to pump	1. PALL-2222A/B that will activate ESD-3 and stop pump	96. Relocate PALL-2222A/B to between pumps P-2202A/B and suction strainers.
		2. LAL-2221	

Node: 12. Closed Drain System

Deviation: 6. Maintenance Hazards

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			97. Consider spectacle blind on inlet and outlet of P-2201A/B.

Node: 12. Closed Drain System

Deviation: 7. Miscellaneous

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			98. Relocate PIT-2252 (currently PIT-2222A) from closed drain drum to flare KO drum.
			99. valves down stream of P-2202A/B to V-2104 should be LO.
			100. Consider PG at discharge of P-2202A/B.

Node: 13. Corrosion Inhibitor Package



Deviation: 1. Loss of Performance

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			101. Consider remote stop for corrosion inhibitor package (XSP corrected to HSP).

Node: 14. Methanol Injection Package

Deviation: 1. Loss of Performance

Causes	Consequences	Safeguards	Recommendations
1. No HAZOP issue was identified			

	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>							
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	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 15. LP Flare System

Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
1. No/less flow of fuel gas for pilots due to any reason	1. Pilot flame-off and possibility of dispersion of flammable/toxic gas at flare tip	1. Pilot status indication 2. LPG bottle 3. Auto ignition for pilots	102. Check coverage of CCTV and if required consider CCTV for flare monitoring in control room.

Node: 15. LP Flare System

Deviation: 2. More Flow

Causes	Consequences	Safeguards	Recommendations
1. Flare system is designed for Max flare scenario			
2. More flow of fuel gas for pilots due to any reason	1. Pilot flame-out and possibility of dispersion of flammable/toxic gas at flare tip	1. Pilot status indication 2. LPG bottle 3. Auto ignition for pilots	

Node: 15. LP Flare System

Deviation: 3. Reverse/Misdirected Flow

Causes	Consequences	Safeguards	Recommendations
1. Check valves are considered where required			

Node: 15. LP Flare System

Deviation: 4. High Pressure

Causes	Consequences	Safeguards	Recommendations
1. Emergency flaring	1. Pressurizing of flare header and problem for operation of PSVs due to back pressure	1. flare system is designed for max back pressure	

Node: 15. LP Flare System






Deviation: 5. Low Pressure

Causes	Consequences	Safeguards	Recommendations
1. No issue was identified			

Node: 15. LP Flare System

Deviation: 6. High Level

Causes	Consequences	Safeguards	Recommendations
1. Accumulation of liquids in flare KO drum due to	1. Carry over of liquid to stack and damage to it and also	1. LIC-2251 will start 1st pump on H1 setpoint	

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>							 شرکت توسعه و ترابری گاز  Déca Monde Process Safety  HIRGAN ENERGY  TE
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	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 15. LP Flare System

Deviation: 6. High Level

Causes	Consequences	Safeguards	Recommendations
process upset	possibility of personnel injury	and 2nd pump on H2 2. LAHH-2252A/B/C that will activate ESD-1 on 2oo3 voting	

Node: 15. LP Flare System

Deviation: 7. Low Level

Causes	Consequences	Safeguards	Recommendations
1. P-2201A/B remain in service when not required	1. Damage to pump	1. LAL-2251 will stop pump (dependent) 2. LALL-2253 that will activate ESD-3 and stop pumps 3. PALL-2251A/B that will activate ESD-3 and stop pumps	103. Relocate PALL-2251A/B to between pumps P-2201A/B and suction strainers.

Node: 15. LP Flare System

Deviation: 8. Maintenance Hazards

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			104. Consider spectacle blinds on suction and discharge isolation valves of P-2201A/B. 105. Define in operating manual that operator should ensure that always one discharge route of P-2201A/B is open.

Node: 16. Oily Water Sewer



Deviation: 1. High Level

Causes	Consequences	Safeguards	Recommendations
1. Accumulation of water in sumo	1. Over flow from sump to open ditch with environmental effect	1. LAH-2273	106. LIT-2273 should be float type with cage.

Node: 17. Fuel Gas System

Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
1. ESDV-2272 closed by	1. Loss of fuel gas and loss of	1. PAL-2272	

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>							
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	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 17. Fuel Gas System

Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
failure or error	operating glycol regeneration	2. Limit switch on valve	
	2. Loss of fuel gas to flare pilots	1. LPG bottle	
	3. Loss of flare sweep gas and possibility of flame back to flare stack	1. Molecular seal is considered for flare	
2. PCV-2272 closed more by a failure in any elements of its control loop	1. Same as above	1. PAL-2272 (dependent)	107. Define low alarm on PI-2271.
3. PRV-2272 closed by failure	1. Loss of flare sweep gas and possibility of flame back to flare stack	1. Molecular seal is considered for flare	108. Replace PRV-2272 with local flow gauge, ball valve, check valve and globe valve.
4. Plugging of demister	1. Low pressure of fuel gas system		107. Define low alarm on PI-2271.

Node: 17. Fuel Gas System

Deviation: 2. More Flow

Causes	Consequences	Safeguards	Recommendations
1. PCV-2272 open more by a failure in any elements of its control loop	1. No hazardous consequence	1. PAH-2272	

Node: 17. Fuel Gas System

Deviation: 3. Reverse/Misdirected Flow

Causes	Consequences	Safeguards	Recommendations
1. Check valves are considered where required			

Node: 17. Fuel Gas System



Deviation: 4. High Pressure

Causes	Consequences	Safeguards	Recommendations
1. external fire case for V-2205	1. Damage to equipment	1. PSV-2271A/B	109. PSV on V-2205 should be sized for fire case.

Node: 17. Fuel Gas System

Deviation: 5. Low Pressure

Causes	Consequences	Safeguards	Recommendations
1. Maloperation during steam out at startup	1. Vacuum formation and V-2205 collapse		110. Full vacuum should be considered for design pressure of V-2205.

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>							
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	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 17. Fuel Gas System

Deviation: 6. High Level

Causes	Consequences	Safeguards	Recommendations
1. Accumulation of liquid in V-2205 due to carry over from inlet KO drum	1. Carry over of liquid to fuel gas header and disturbance for users	1. LAH-2271	
		2. LIC-2271 will open XV-2271	
		3. LAHH-2272 that will activate ESD-3 and close ESDV-2272	

Node: 17. Fuel Gas System

Deviation: 7. Low Level

Causes	Consequences	Safeguards	Recommendations
1. XV-2271 remained open	1. Gas blowby via closed drain header to flare and waste of gas	1. LAL-2271 (dependent)	
		2. LIC-2271 will close XV-2271 (dependent)	
		3. LALL-2272 that will activate ESD-3 and close XV-2271	

Node: 17. Fuel Gas System



Deviation: 8. Corrosion

Causes	Consequences	Safeguards	Recommendations
1. Corrosion due to sulphur and moisture content	1. Damage to equipment and piping in long term	1. Corrosion monitoring (CP/CC)	
		2. Corrosion inhibitor injection is considered	

Node: 17. Fuel Gas System

Deviation: 9. Composition

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			111. Note in duty spec of dehydration package that requirement for fuel gas filter should be checked by vendor.

 <p>NISOC</p>	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

Node: 17. Fuel Gas System

Deviation: 10. Miscellaneous

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			112. Remove fuel gas lines used for blanketing of TK-2102 and V-2107.

Node: 18. Diesel Oil System

Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
1. P-2206A failure or trip	1. No flow to PK-2207 or fire water pump	1. Intermittent operation	
2. P-2206B failure or trip	1. No flow to diesel generator	1. Intermittent operation	
3. Plugging of strainer	1. Possibility of damage to pump	1. Intermittent operation	113. Remove PT-2281A/B from suction of P-2206A/B and consider local pressure gauge. 114. Define high high and low low trip interlock on LI-2281A/B to trip P-2206A/B.

Node: 18. Diesel Oil System

Deviation: 2. More Flow

Causes	Consequences	Safeguards	Recommendations
1. No issue was identified			

Node: 18. Diesel Oil System



Deviation: 3. Reverse/Misdirected Flow

Causes	Consequences	Safeguards	Recommendations
1. Check valves are considered where required			

Node: 18. Diesel Oil System

Deviation: 4. Low Temperature

Causes	Consequences	Safeguards	Recommendations
1. No issue was identified			

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>							
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	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 18. Diesel Oil System

Deviation: 5. High Pressure

Causes	Consequences	Safeguards	Recommendations
1. Blocked in and thermal expansion	1. Damage to piping	1. TSV-2281A/B	

Node: 18. Diesel Oil System

Deviation: 6. High Level

Causes	Consequences	Safeguards	Recommendations
1. Over filling of vessel by operator error	1. Over flow from vent and waste of material	1. LAH-2281A/B	115. Any surface contamination on diesel oil drum area should be directed to oily water header.

Node: 18. Diesel Oil System

Deviation: 7. Low Level

Causes	Consequences	Safeguards	Recommendations
1. Tank not refilled at proper time by error	1. Delay in filling daily tank	1. Intermittent operation	
		2. LAL-2281A/B	

Node: 18. Diesel Oil System



Deviation: 8. Miscellaneous

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			116. Remove steam out connection for V-2206A/B.
			117. Relocate globe valve at discharge of P-2206A/B to downstream of tank filling branch.
			118. Consider drain connection at suction and discharge of P-2206A/B.

Node: 19. Potable Water System

Deviation: 1. Loss of Performance

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			119. Remove ESD-1 signal from P-2209.

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>							
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	BK	GCS	PEDCO	120	GE	RT	0004	D00

Node: 20. Glycol Sump Drum

Deviation: 1. No/Less Flow

Causes	Consequences	Safeguards	Recommendations
1. P-2104 failure or trip	1. Delay in transferring glycol from V-2107	1. Intermittent operation	120. Remove start signal from LT-2293 on P-2104.
		2. LAH-2293	121. Consider proper type for LIT-2293.

Node: 20. Glycol Sump Drum

Deviation: 2. Reverse/Misdirected Flow

Causes	Consequences	Safeguards	Recommendations
1. Check valves are considered where required			

Node: 20. Glycol Sump Drum

Deviation: 3. High Pressure

Causes	Consequences	Safeguards	Recommendations
1. PRV-2291 open by failure	1. Damage to V-2107		122. Consider PSV on V-2207 sized for regulator failure and fire case scenario.
2. External fire case for V-2107	1. Damage to equipment		122. Consider PSV on V-2207 sized for regulator failure and fire case scenario.
3. PRV-2292 closed by failure when level in V-2107 is increasing	1. Damage to V-2107		123. Consider PT with high alarm on V-2107.

Node: 20. Glycol Sump Drum



Deviation: 4. Low Pressure

Causes	Consequences	Safeguards	Recommendations
1. Maloperation during steam out at startup	1. Vacuum formation and V-2107 collapse		124. Full vacuum should be considered for design pressure of V-2107.
2. PRV-2291 closed by failure when level in V-2107 is decreasing	1. Possibility of vacuum formation and damage to equipment		

Node: 20. Glycol Sump Drum

Deviation: 5. High Level

Causes	Consequences	Safeguards	Recommendations
1. Accumulation of liquid in V-2107	1. Over filling of vessel and carry over of glycol to vent	1. LAH-2293	

	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">HAZOP REPORT FOR COMPRESSOR STATION</th></tr><tr><td>پروژه</td><td>بسته کاری</td><td>صادر کننده</td><td>تسهیلات</td><td>رشته</td><td>نوع مدرک</td><td>سریال</td><td>نسخه</td></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>GE</td><td>RT</td><td>0004</td><td>D00</td></tr></table>	HAZOP REPORT FOR COMPRESSOR STATION								پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	GE	RT	0004	D00	شماره صفحه : 57 از 58
HAZOP REPORT FOR COMPRESSOR STATION																										
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0004	D00																			

Node: 20. Glycol Sump Drum

Deviation: 6. Low Level

Causes	Consequences	Safeguards	Recommendations
1. P-2104 remain in service when not required	1. Damage to pump	1. LAL-2293 that will stop pump	

Node: 20. Glycol Sump Drum

Deviation: 7. Maintenance Hazards

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			125. Consider isolation valve downstream of PRV-2291.
			126. Consider spectacle on inlet and outlet lines (nozzle A, nozzle B and pump outlet) of V-2107.
			127. Consider drain connection under V-2107.
			128. Consider slop for V-2107 towards pump side.

Node: 20. Glycol Sump Drum


Deviation: 8. Composition

Causes	Consequences	Safeguards	Recommendations
1. Off spec spent glycol	1. Contamination of glycol in dehydration package		129. Consider connection from P-2104 to oily water system.

Node: 20. Glycol Sump Drum

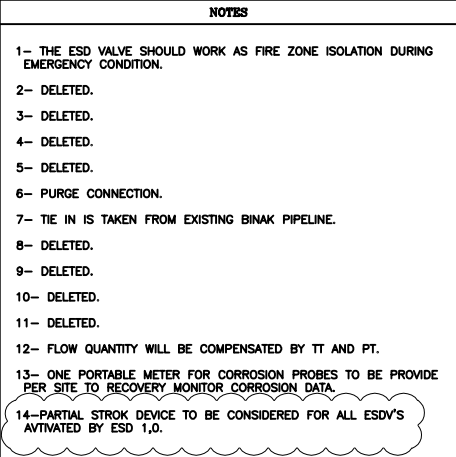
Deviation: 9. Miscellaneous

Causes	Consequences	Safeguards	Recommendations
1. See Recommendation			130. ESD level on P-2104 should be ESD-1A.
			131. Consider connection for loading spent glycol to truck downstream of P-2104.

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">HAZOP REPORT FOR COMPRESSOR STATION</th></tr><tr><td>نسخه</td><td>سریال</td><td>نوع مدرک</td><td>رشته</td><td>تسهیلات</td><td>صادر کننده</td><td>بسته کاری</td><td>پروژه</td></tr><tr><td>D00</td><td>0004</td><td>RT</td><td>GE</td><td>120</td><td>PEDCO</td><td>GCS</td><td>BK</td></tr></table>	HAZOP REPORT FOR COMPRESSOR STATION								نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه	D00	0004	RT	GE	120	PEDCO	GCS	BK	شماره صفحه : 58 از 58
HAZOP REPORT FOR COMPRESSOR STATION																										
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه																			
D00	0004	RT	GE	120	PEDCO	GCS	BK																			

8.6 APPENDIX F – MARKED-UP P&IDS

Node 1

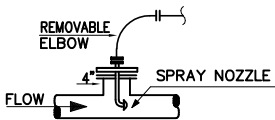


LEGEND


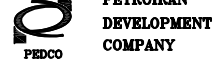
REFERENCE DRAWING	DRG. No.
Process Flow Diagram	EK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	EK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

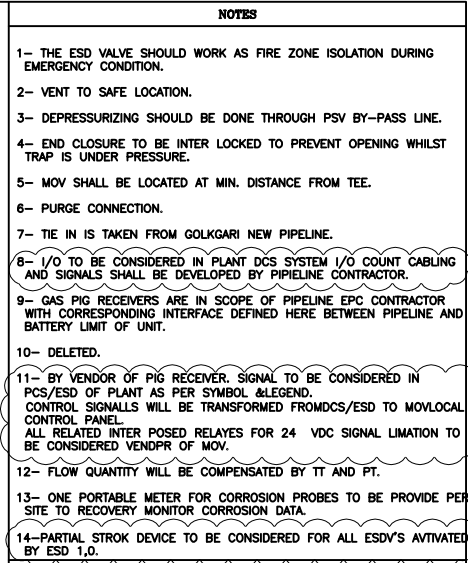
TYPE 1



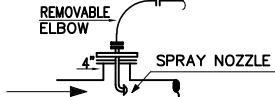
INJECTION DEVICE PERMANENTLY CONNECTED
(GAS SERVICE)

D03	JUN.2022	IPA	MARTAPUR	M.PANDEJARAN	M.MHERRSHAD	00.00
D02	MAR.2022	IPA	MARTAPUR	M.PANDEJARAN	M.MHERRSHAD	00.00
D01	JAN.2022	IPA	MARTAPUR	M.PANDEJARAN	M.HERRSHAD	00.00
D00	SEP.2021	IPC	MARTAPUR	M.PANDEJARAN	S.GHALALI	00.00
REV.	DATE	P.O.I.S	PREP.	CHEK.	APP.	AUT.
PROJECT NAME: BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION						
PROJECT NO.: 971020						
EPC CONTRACTOR:			E/PD/EPC CONTRACTOR (GC):			
						
DRAWING TITLE: PA&ID – Gas Compression Inlet Gas Pipeline (Binak)						
NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED						
APPROVED FOR CONSTRUCTION BY:					DATE:	
SCALE	SIZE	DRAWING NO.	SHEET NO.	REV.	BUDGET REF.	LOCATION SIZE CLASS SERIAL NO. SHEET REVISION
NS	A3	BK-GCS-PEDCO-120-PR-PI-0002	1 OF 1	D03	033-073-9184	F 2 A 706780 1 OF 1 D03

PR-2102
GAS PIG RECEIVER
BY OTHERS

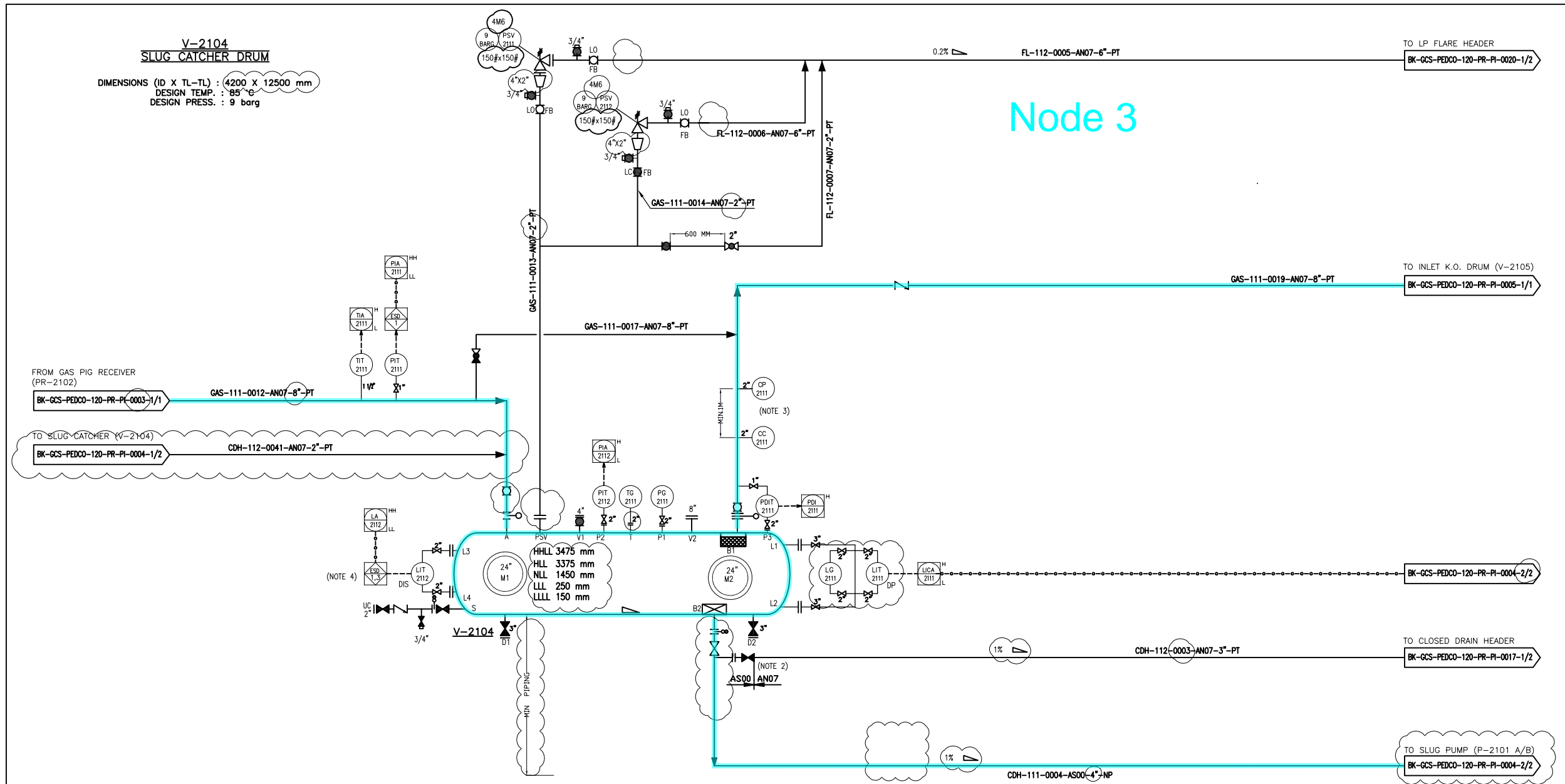


TYPE 1

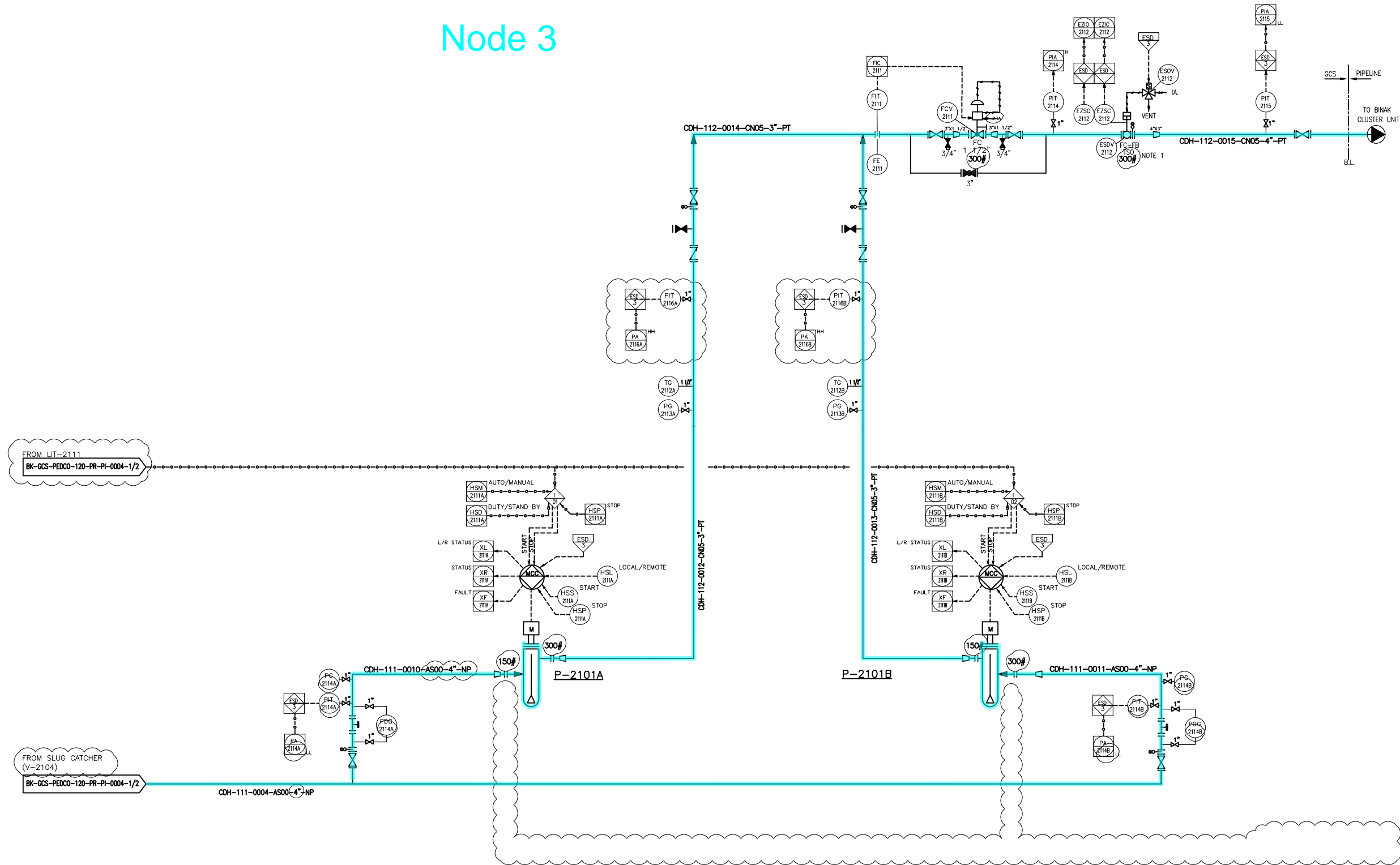


The diagram illustrates a gas service injection device. A horizontal line with an arrow pointing right represents the gas supply. This line connects to a vertical assembly. At the top of this assembly is a 'REMOVABLE ELBOW' connected to a curved pipe that leads to a spray nozzle. The main vertical assembly has a '4" SPRAY NOZZLE' at its base, which is also connected to a horizontal line with an arrow pointing right. The entire device is labeled 'INJECTION DEVICE PERMANENTLY CONNECTED (GAS SERVICE)'.

D03	JUN-2022	IPA	MARTAPUR	M.PAKHMANIAN	M.MOHSENIAD	00_00
D02	MAR-2022	IFA	MARTAPUR	M.PAKHMANIAN	M.MOHSENIAD	00_00
D01	JAN-2022	IFA	MARTAPUR	M.PAKHMANIAN	M.MOHSENIAD	00_00
D00	SEP-2021	IFC	MARTAPUR	M.PAKHMANIAN	M.MOHSENIAD	00_00
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.
PROJECT NAME:						
BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION						
PROJECT NO.:			971020			
EPC CONTRACTOR:			EPD/EPC CONTRACTOR (GC):			
HIRGAN ENERGY - DESIGN & INSPECTION COMPANIES			PETROIRAN DEVELOPMENT COMPANY			
DRAWING TITLE:						
P&ID – Gas Compression Inlet Gas Pipeline (Golghari)						
NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED						
APPROVED FOR CONSTRUCTION BY:						DATE:
SCALE	SIZE	DRAWING NO.		SHEET NO.	REV.	BUDGET REF.
NS	A3	BK-GCS-PEDCO-180-PR-FI-0003		1 OF 1	DOS	053-073-9184
F	2	A	708781	1 OF 1	DESIGN	REVISION



Node 3



P-2101 A/B
SLUG PUMPS
RATED CAPACITY : 11 m³/hr
DEFF. PRESS. : 19 bar



NOTES

1- THE ESD VALVE SHOULD WORK AS FIRE ZONE ISOLATION DURING EMERGENCY CONDITION.

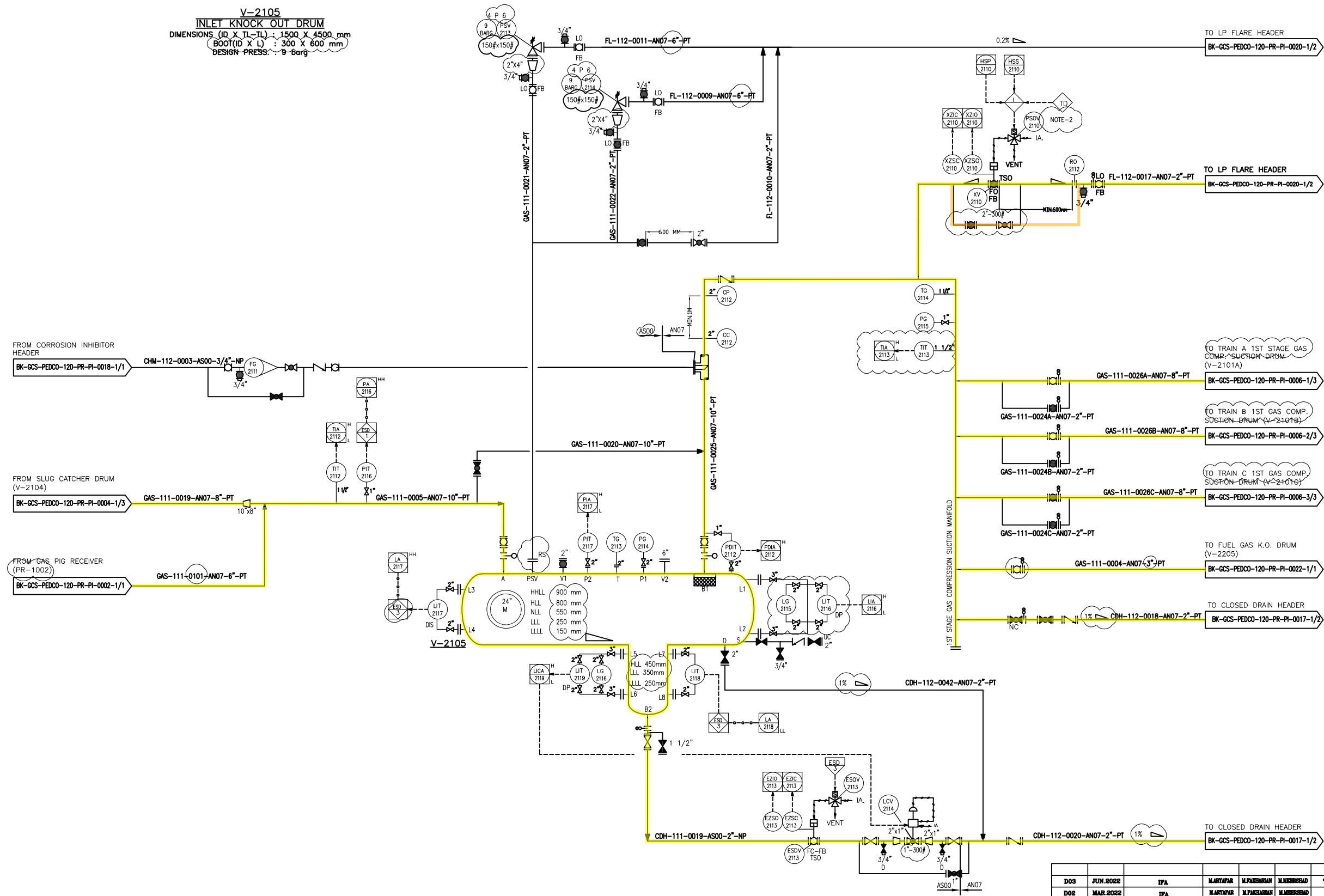
LEGEND

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

D03	JUN.2022	IPA	M.ARTAPAR	M.PAKHMAN	M.MOHSEAD	00.00														
D02	MAR.2022	IPA	M.ARTAPAR	M.PAKHMAN	M.MOHSEAD	00.00	000	0000000000	00.00	000.0000	00.00	000.0000								
D01	JAN.2022	IPA	M.ARTAPAR	M.PAKHMAN	M.MOHSEAD	00.00														
D00	SEP.2021	IPC	M.ARTAPAR	M.PAKHMAN	M.MOHSEAD	00.00														
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.	REV.	DESCRIPTION	CHECKED	BY	DATE	BY	DATE	REV.	APPR.					
							اصل و کاپیه نسخ این نقشه و حق اقبالی متعلق به شرکت ملی مناطق نفت خیز جنوب می باشد													
PROJECT NAME:							THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH THE COPYRIGHT THEREIN ARE THE SOLE PROPERTY OF N.I.S.O.C./ FIELDS													
PROJECT NO.:							BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION													
EPC CONTRACTOR:							PETROIRAN DEVELOPMENT COMPANY													
 HIRGAN ENERGY - DESIGN & INSPECTION COMPANIES							 PEDCO													
DRAWING TITLE:							NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED													
P&ID - Slug Catcher System							APPROVED FOR CONSTRUCTION BY: DATE:													
SCALE	SIZE	DRAWING NO.			SHEET NO.	REV.	BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET	REVISION							
NS	A3	BK-GCS-PEDCO-120-PR-PI-0004			2 OF 2	D03	053-073-9184	F	2	A	708782	3 OF 3	D03							

Node 4



NOTES

1- DELETED.

2- ACTIVATION BY DCS FOR DEPRESSURIZING OF LINE, BY ATOMIC LOGIC WITH 15 MIN TIME DELAY OF ESD OR WITH OPERATOR COMMAND.

LEGEND

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

TYPE 1

INJECTION DEVICE PERMANENTLY CONNECTED (GAS SERVICE)

D03	JUN.2022	IPA	MARYAPAR	M.PAKHMAN	M.MOHSEAD	00.00
D02	MAR.2022	IPA	MARYAPAR	M.PAKHMAN	M.MOHSEAD	00.00
D01	JAN.2022	IPA	MARYAPAR	M.PAKHMAN	M.MOHSEAD	00.00
D00	SEP.2021	IPC	MARYAPAR	M.PAKHMAN	M.MOHSEAD	00.00
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.

PROJECT NAME: BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION

PROJECT NO.: 971020

EPC CONTRACTOR: HIRGAN ENERGY - DESIGN & INSPECTION COMPANIES

EPC CONTRACTOR (GC): PETROIRAN DEVELOPMENT COMPANY

DRAWING TITLE: P&ID - Gas Compression Inlet Knock Out Drum

(VENDOR TITLE BLOCK)**

THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH THE COPYRIGHT THEREIN ARE THE SOLE PROPERTY OF N.I.S.O.C./ FIELDS

BINAK OILFIELD DEVELOPMENT SURFACE FACILITIES GAS COMPRESSOR STATION

DATE	SCALE	DRAWING BY	CHECKED BY	PROJECT ENG.

NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED

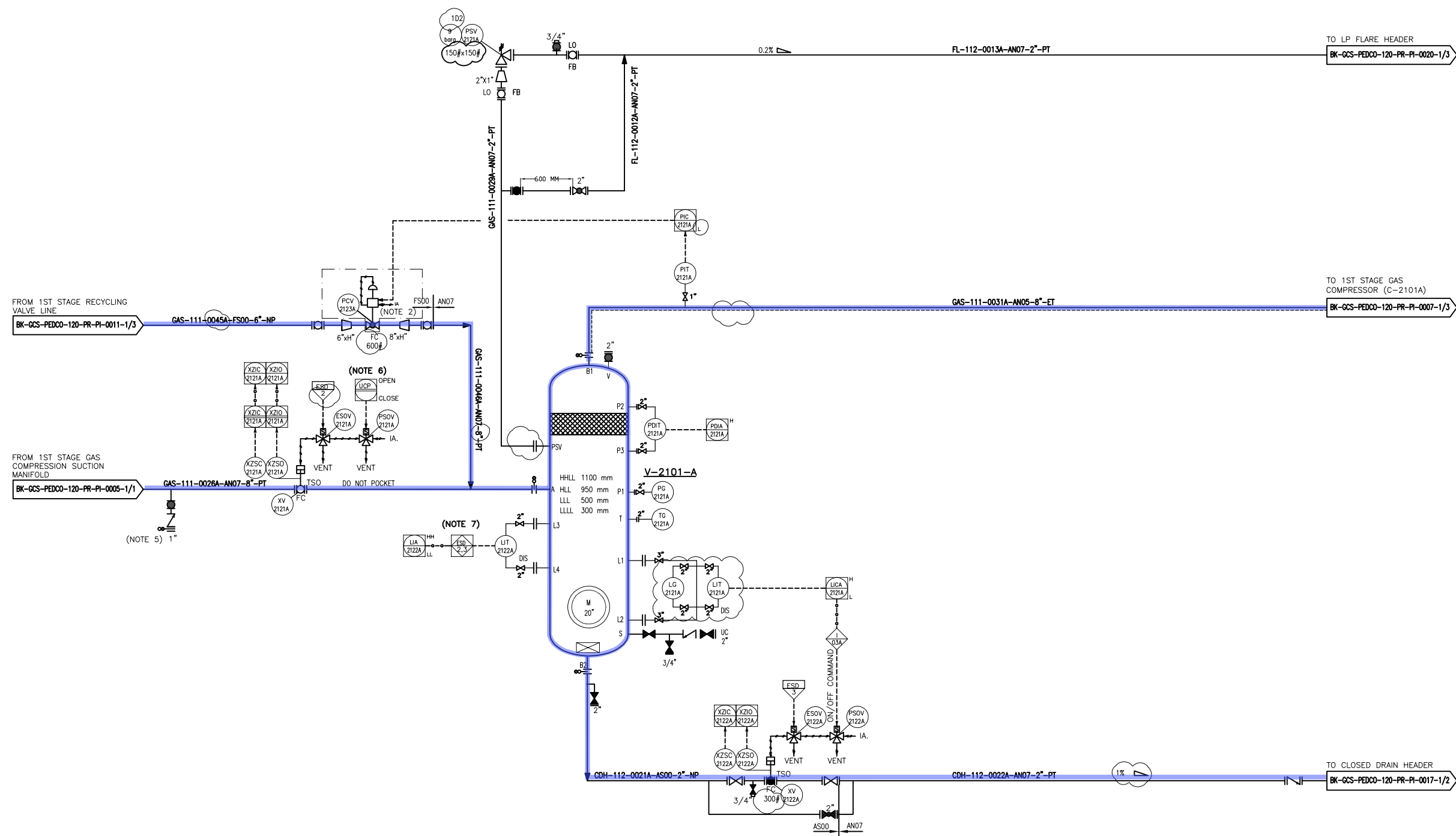
APPROVED FOR CONSTRUCTION	BY:	DATE:

SCALE	SIZE	DRAWING NO.	SHEET NO.	REV.	BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET	REVISION
NS	A3	BK-GCS-PEDCO-120-PR-PI-0006	1 OF 1	D03	353-073-9184	F	2	A	708783	1 OF 1	D03

Node 5

V-2101A
1ST STAGE GAS COMPRESSION SUCTION
DRUM TRAIN #A

DIMENSIONS (ID X TL-TL) : 900 X 2840 mm
DESIGN TEMP. : 85 °C
DESIGN PRESS. : FV/9 barg



NOTES

- 1- LOAD SHARING CONTROL SYSTEM WILL BE FINALIZED BY VENDOR.
- 2- SPILL BACK VALVE TO BE SUPPLIED BY COMPRESSOR VENDOR.
- 3- DELETED.
- 4- THE LAG OUT OF SPILL BACK VALVE WILL BE FINALIZED BY VENDOR.
- 5- PURGE CONNECTION.
- 6-START/STOP SEQUENC IN STARTUP STAGE TO BE IMPLIMENT BY COMPRESSOR VENDOR.
- 7-ESD LEVEL 2 FOR HH AND ESD LEVEL 3 FOR LL TO BE CONSIDERED AS PER PROJECT ESD LEVEL

LEGEND

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001

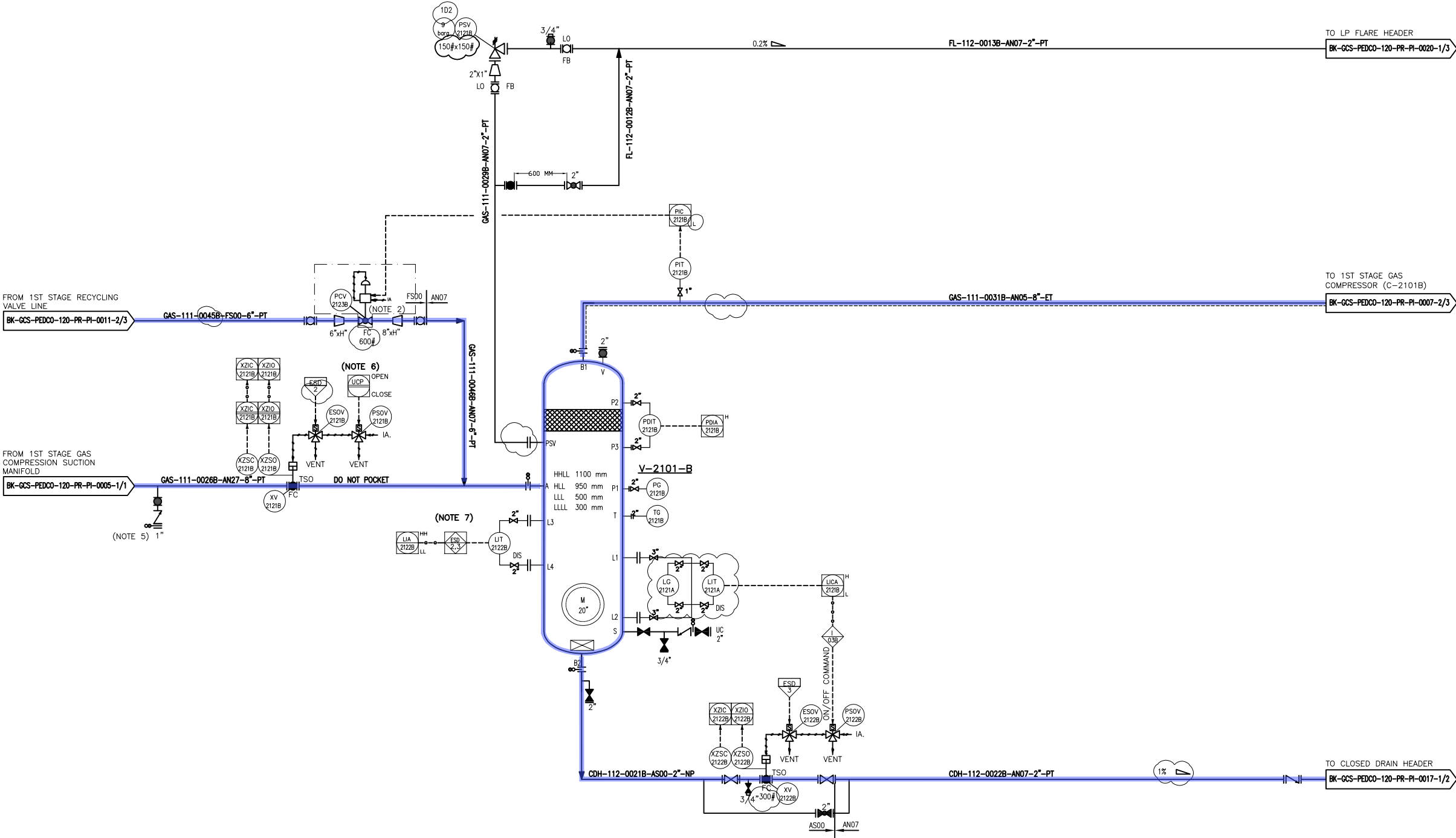
KEY PLAN

[illegible]

(VENDOR TITLE BLOCK)**

Node 5

V-2101B
1ST STAGE GAS COMPRESSION SUCTION
DRUM TRAIN #B
DIMENSIONS (ID X TL-TL) : 900 X 2840 mm
DESIGN TEMP. : 85 °C
DESIGN PRESS. : FV/9 barg





- NOTES
- 1- LOAD SHARING CONTROL SYSTEM WILL BE FINALIZED BY VENDOR.
 - 2- SPILL BACK VALVE TO BE SUPPLIED BY COMPRESSOR VENDOR.
 - 3- DELETED.
 - 4- THE LAG OUT OF SPILL BACK VALVE WILL BE FINALIZED BY VENDOR.
 - 5- PURGE CONNECTION.
 - 6-START/STOP SEQUENC IN STARTUP STAGE TO BE IMPLIMENT BY COMPRESSOR VENDOR.
 - 7-ESD LEVEL 2 FOR HH AND ESD LEVEL 3 FOR LL TO BE CONSIDERED AS PER PROJECT ESD LEVEL

LEGEND

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001

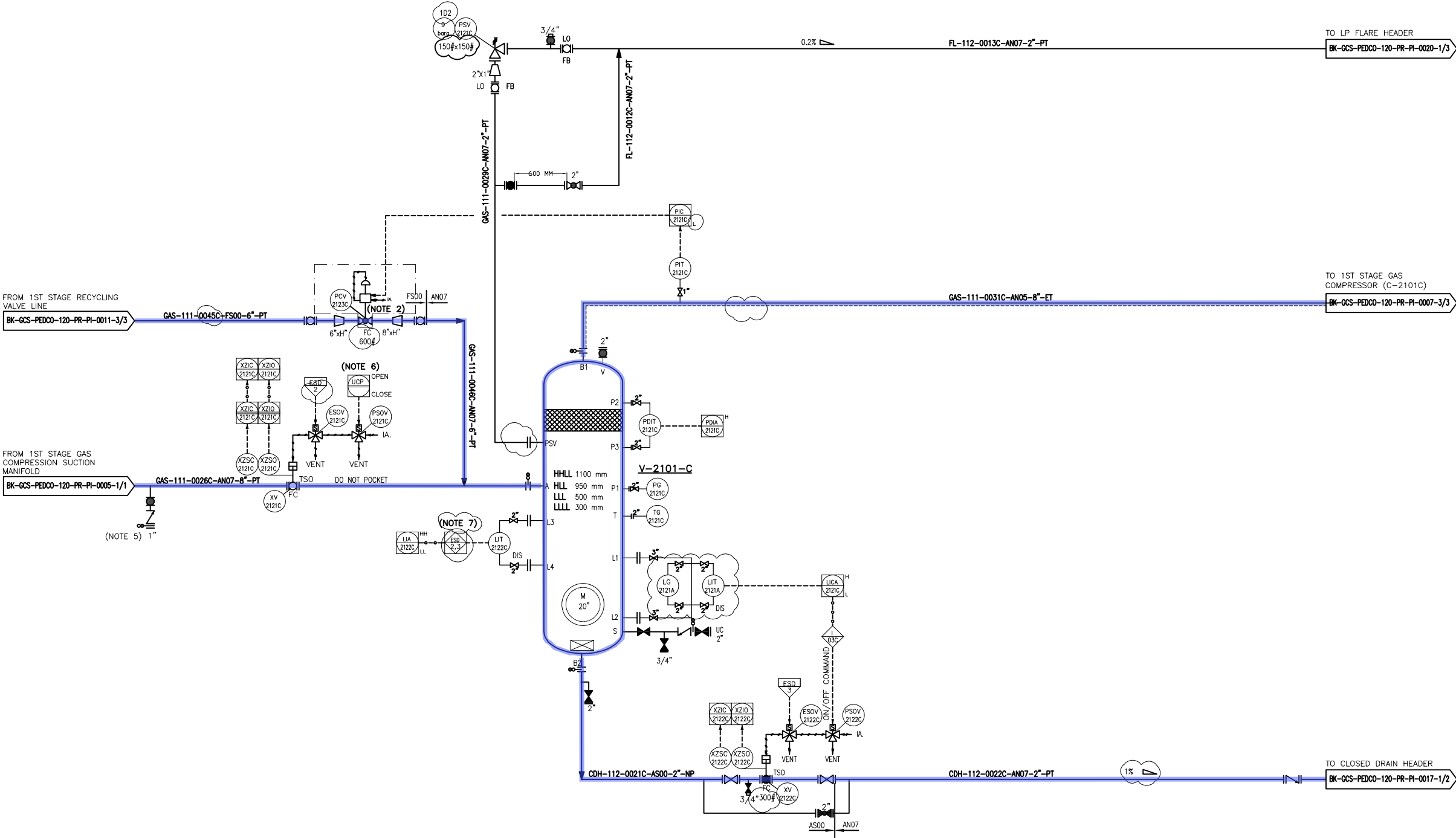
KEY PLAN

D03	JUN.2022	IPA	MARYAM	MPAKHMAN	M.MOHSEAD	00.00											
D02	MAR.2022	IPA	MARYAM	MPAKHMAN	M.MOHSEAD	00.00	000	0000000000	00.00	000.0000	00.00	000.0000					
D01	JAN.2022	IPA	MARYAM	MPAKHMAN	M.MOHSEAD	00.00											
D00	SEP.2021	IPC	MARYAM	MPAKHMAN	M.MOHSEAD	00.00	REV.	DESCRIPTION	BY	DATE	BY	DATE					
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.		CHECKED				REV. APPR.					
PROJECT NAME: BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION							<div>اړل و ځايه ښځه اړين ښه و حق اقباس ښايي به څرک څي ملاقاتي ښه څير جنوب ميباند</div> <div>THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH THE COPYRIGHT THEREIN ARE THE SOLE PROPERTY OF N.I.S.O.C./ FIELDS</div>										
EPC CONTRACTOR:			EPD/EPC CONTRACTOR (GC):				BINAK OILFIELD DEVELOPMENT SURFACE FACILITIES GAS COMPRESSOR STATION										
<div><div>BIRGAN ENERGY - DESIGN & INSPECTION COMPANIES</div></div>			<div><div>PETROIRAN DEVELOPMENT COMPANY</div></div>														
							DATE			SCALE		DRAWING BY		CHECKED BY		PROJECT ENG.	
DRAWING TITLE:							NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED										
1st STAGE GAS COMPRESSION SUCTION DRUMS							APPROVED FOR CONSTRUCTION			BY:		DATE:					
SCALE	SIZE	DRAWING NO.			SHEET NO.	REV.	BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET	REVISION				
NS	A3	BK-GCS-PEDCO-120-PR-PI-0006			2 OF 3	D03	053-073-9184	F	2	A	708784	2 OF 3	D03				

(VENDOR TITLE BLOCK)**

Node 5

V-2101C
1ST STAGE GAS COMPRESSION SUCTION
DRUM TRAIN #C
DIMENSIONS (ID X TL-TL) : 900 X 2840 mm
DESIGN TEMP. : 85 °C
DESIGN PRESS. : FV/9 barg






- NOTES
- 1- LOAD SHARING CONTROL SYSTEM WILL BE FINALIZED BY VENDOR.
 - 2- SPILL BACK VALVE TO BE SUPPLIED BY COMPRESSOR VENDOR.
 - 3- DELETED.
 - 4- THE LAG OUT OF SPILL BACK VALVE WILL BE FINALIZED BY VENDOR.
 - 5- PURGE CONNECTION.
 - 6-START/STOP SEQUENC IN STARTUP STAGE TO BE IMPLIMENT BY COMPRESSOR VENDOR.
 - 7-ESD LEVEL 2 FOR HH AND ESD LEVEL 3 FOR LL TO BE CONSIDERED AS PER PROJECT ESD LEVEL

LEGEND

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001

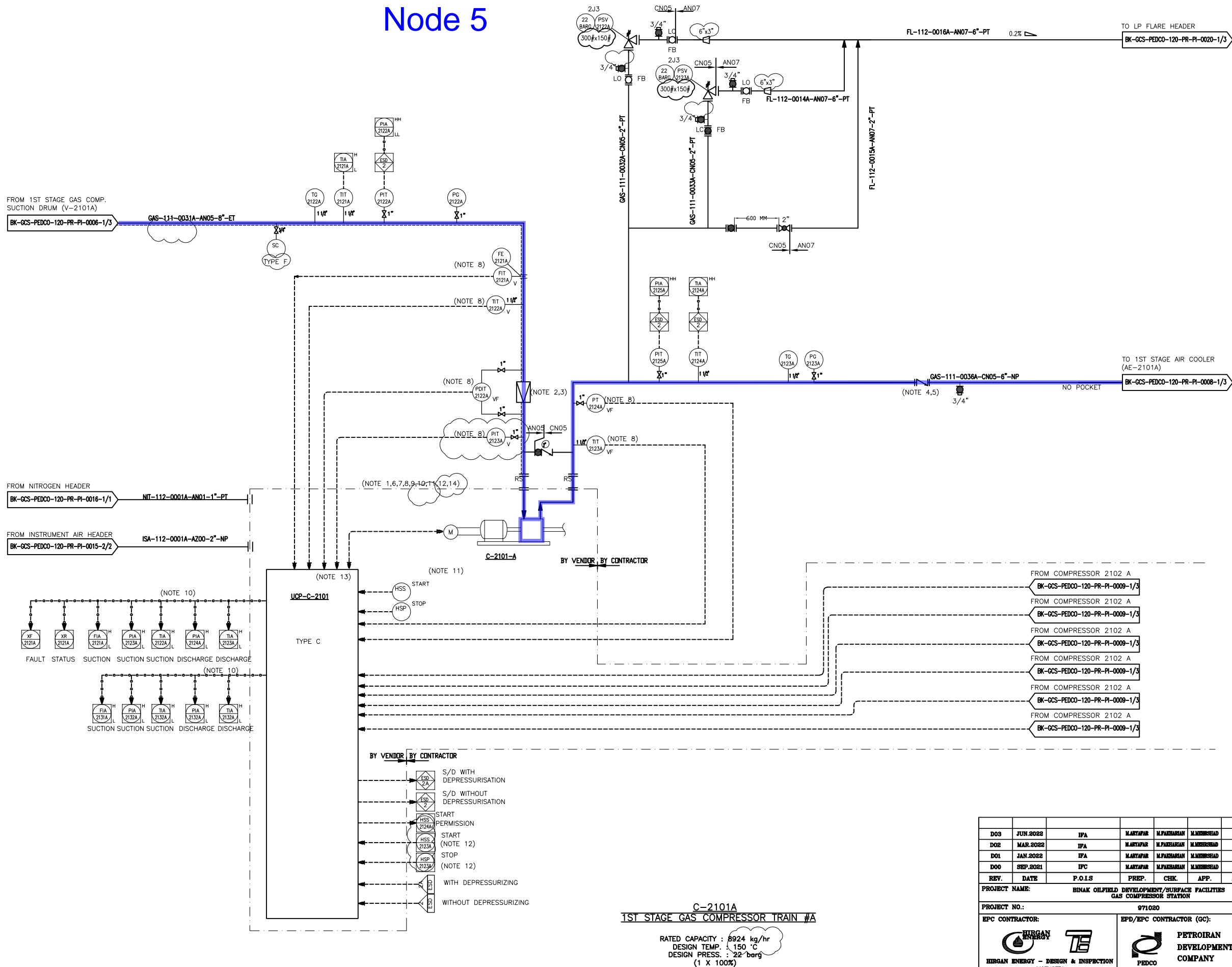
KEY PLAN

REV.	DESCRIPTION	BY	DATE	BY	DATE
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D03	JUN 2022	IPA	MARYAM	M.PAKHMAN	M.MOHSHAD	00.00									
D02	MAR 2022	IPA	MARYAM	M.PAKHMAN	M.MOHSHAD	00.00	000	0000000000	00.00	000.0000	00.00	000.0000			
D01	JAN 2022	IPA	MARYAM	M.PAKHMAN	M.MOHSHAD	00.00									
D00	SEP.2021	IPC	MARYAM	M.PAKHMAN	M.MOHSHAD	00.00	REV.	DESCRIPTION	BY	DATE	BY	DATE			
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.					CHECKED	REV. APPR.			
PROJECT NAME: BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION							امل و کلیه نسخ این نقشه و حق اقبالی متعلق به شرکت حق ملاحظاتی نفت جنوب میباشد								
PROJECT NO.: 971080							 THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH THE COPYRIGHT THEREIN ARE THE SOLE PROPERTY OF N.I.S.O.C./ FIELDS								
EPC CONTRACTOR:			EPD/EPC CONTRACTOR (GC):				BINAK OILFIELD DEVELOPMENT SURFACE FACILITIES GAS COMPRESSOR STATION								
 HIRGAN ENERGY - DESIGN & INSPECTION COMPANIES			 PETROIRAN DEVELOPMENT COMPANY				DATE SCALE DRAWING BY CHECKED BY PROJECT ENG.								
DRAWING TITLE:							NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED								
1st STAGE GAS COMPRESSION SUCTION DRUMS							APPROVED FOR CONSTRUCTION BY: DATE:								
SCALE	SIZE	DRAWING NO.			SHEET NO.	REV.	BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET	REVISION		
NS	A3	BK-GCS-PEDCO-120-PR-PI-0006			3 OF 3	D03	063-073-9184	F	2	A	708784	3 OF 3	D03		

(VENDOR TITLE BLOCK)**

Node 5



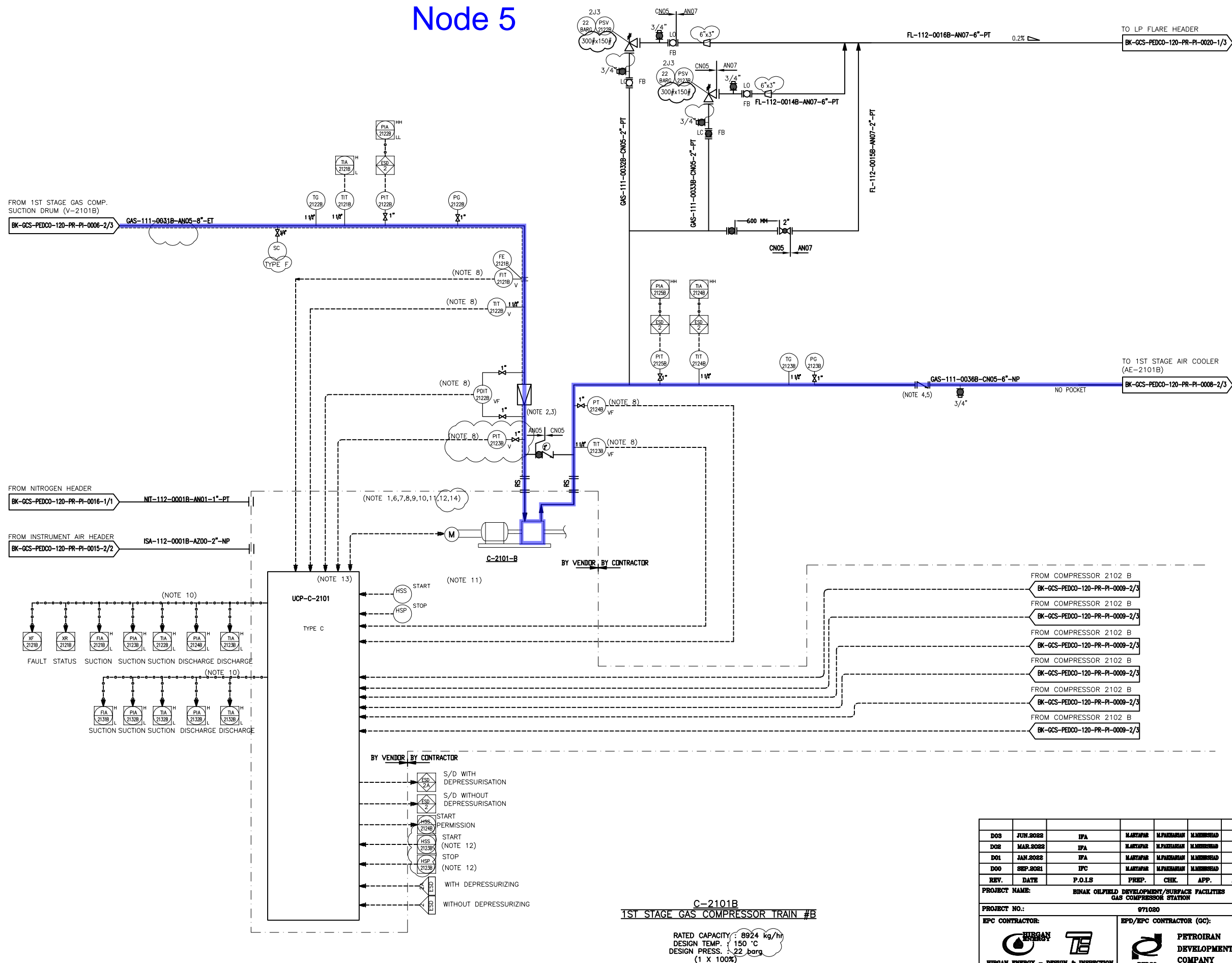
- NOTES**
- 1- COMPRESSOR PACKAGE WILL BE FINALIZED BY VENDOR.
 - 2- STRAINER TO BE MIN. DISTANCE FROM COMPRESSOR INLET NOZZLE.
 - 3- STRAINER TO BE REMOVABLE WITHOUT BREAKING PIPING ALIGNMENT.
 - 4- NON SLAM TYPE SUITABLE FOR COMPRESSOR SERVICE.
 - 5- LOCATE AS CLOSE TO C-2101A OUTLET FLANGE AS POSSIBLE.
 - 6- CONTROL OF COMPRESSOR PACKAGE WILL BE FINALIZED BY VENDOR.
 - 7- COMPRESSOR VENDOR TO CONFIRM REQUIREMENT FOR HOT GAS BY-PASS.
 - 8- SHALL BE PROVIDED BY COMPRESSOR VENDOR.
 - 9- PULSATION DAMPERS ARE REQUIRED ON DISCHARGE OF EACH STAGE.
 - 10- REDUNDANT SERIAL LINK SHALL BE CONSIDERED BETWEEN UCP AND DCS. QUANTITIES OF SIGNALS WILL BE FINALIZED LATER. UCP WILL BE CONNECTED TO ESD VIA HARD WIRE.
 - 11- LCP SHALL BE PROVIDED AS PER COMPRESSOR DATA SHEET BY VENDOR.
 - 12- STOP/START SEQUENCE LOGIC SHALL BE IMPLEMENTED BY COMMON COMPRESSOR UCP LOCATED ON CONTROL BUILDING.
 - 13- COMMON UCP FOR ALL TRAIN TO BE PROVIDED BY VENDOR FOR CONTROL SAFETY PURPOSE.
 - 14- SIL 3 REQUIREMENT TO BE CONSIDERED FOR SAFETY LOOP. BY COMPRESSOR VENDOR.
- MCC BY CONTRACTOR DURING DESIGN (SIL STUDY OF PACKAGE IS BY VENDOR)

LEGEND	
V : PROVIDE BY COMPRESSOR VENDOR	
REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PF-0001

KEY PLAN

D03	JUN.2022	IPA	MARTAPAR	M.PAKHMAN	M.MOHSESHAD	00.00	00.00	00.00	00.00	00.00	00.00
D02	MAR.2022	IPA	MARTAPAR	M.PAKHMAN	M.MOHSESHAD	00.00	00.00	00.00	00.00	00.00	00.00
D01	JAN.2022	IPA	MARTAPAR	M.PAKHMAN	M.MOHSESHAD	00.00	00.00	00.00	00.00	00.00	00.00
D00	SEP.2021	IPC	MARTAPAR	M.PAKHMAN	M.MOHSESHAD	00.00	00.00	00.00	00.00	00.00	00.00
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.	BY DATE BY DATE				
PROJECT NAME: BINAQ OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION							CHECKED REV. APPR.				
PROJECT NO.: 971020							THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH THE COPYRIGHT THEREIN ARE THE SOLE PROPERTY OF N.I.S.O.C./ FIELDS				
EPC CONTRACTOR: HIRGAN ENERGY - DESIGN & INSPECTION COMPANIES			EPD/EPC CONTRACTOR (GC): PETROIRAN DEVELOPMENT COMPANY				BINAQ OILFIELD DEVELOPMENT SURFACE FACILITIES GAS COMPRESSOR STATION				
DRAWING TITLE: P&ID - 1st Stage Gas Compression Compressors			DATE SCALE DRAWING BY CHECKED BY PROJECT ENG.				NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED				
SCALE SIZE			APPROVED FOR CONSTRUCTION BY: DATE:				BUDGET REF. LOCATION SIZE CLASS SERIAL NO. SHEET REVISION				
NS A3			BK-GCS-PEDCO-120-PR-PI-0007 1 OF 3 D03				653-073-9184 F 2 A 708785 1 OF 3 D03				

Node 5



- NOTES**
- 1- COMPRESSOR PACKAGE WILL BE FINALIZED BY VENDOR.
 - 2- STRAINER WILL BE MIN. DISTANCE FROM COMPRESSOR INLET NOZZLE.
 - 3- STRAINER TO BE REMOVABLE WITHOUT BREAKING PIPING ALIGNMENT.
 - 4- NON SLAM TYPE SUITABLE FOR COMPRESSOR SERVICE.
 - 5- LOCATE AS CLOSE TO C-2101A OUTLET FLANGE AS POSSIBLE.
 - 6- CONTROL OF COMPRESSOR PACKAGE WILL BE FINALIZED BY VENDOR.
 - 7- COMPRESSOR VENDOR TO CONFIRM REQUIREMENT FOR HOT GAS BY-PASS.
 - 8- SHALL BE PROVIDED BY COMPRESSOR VENDOR.
 - 9- PULSATION DAMPERS ARE REQUIRED ON DISCHARGE OF EACH STAGE.
 - 10- REDUNDANT SERIAL LINK SHALL BE CONSIDERED BETWEEN UCP AND DCS. QUANTITIES OF SIGNALS WILL BE FINALIZED LATER. UCP WILL BE CONNECTED TO ESD VIA HARD WIRE
 - 11- UCP SHALL BE PROVIDED AS PER COMPRESSOR DATA SHEET BY VENDOR.
 - 12- STOP/START SEQUENCE LOGIC SHALL BE IMPLEMENTED BY COMMON COMPRESSOR UCP LOCATED ON CONTROL BUILDING.
 - 13- COMMON UCP FOR ALL TRAIN TO BE PROVIDED BY VENDOR FOR CONTROL SAFETY PURPOSE.
 - 14- SIL 3 REQUIREMENT TO BE CONSIDERED FOR SAFETY LOOP. BY COMPRESSOR VENDOR.
- MCC BY CONTRACTOR DURING DESIGN (SIL STUDY OF PACKAGE IS BY VENDOR)
- 12/20/2017**

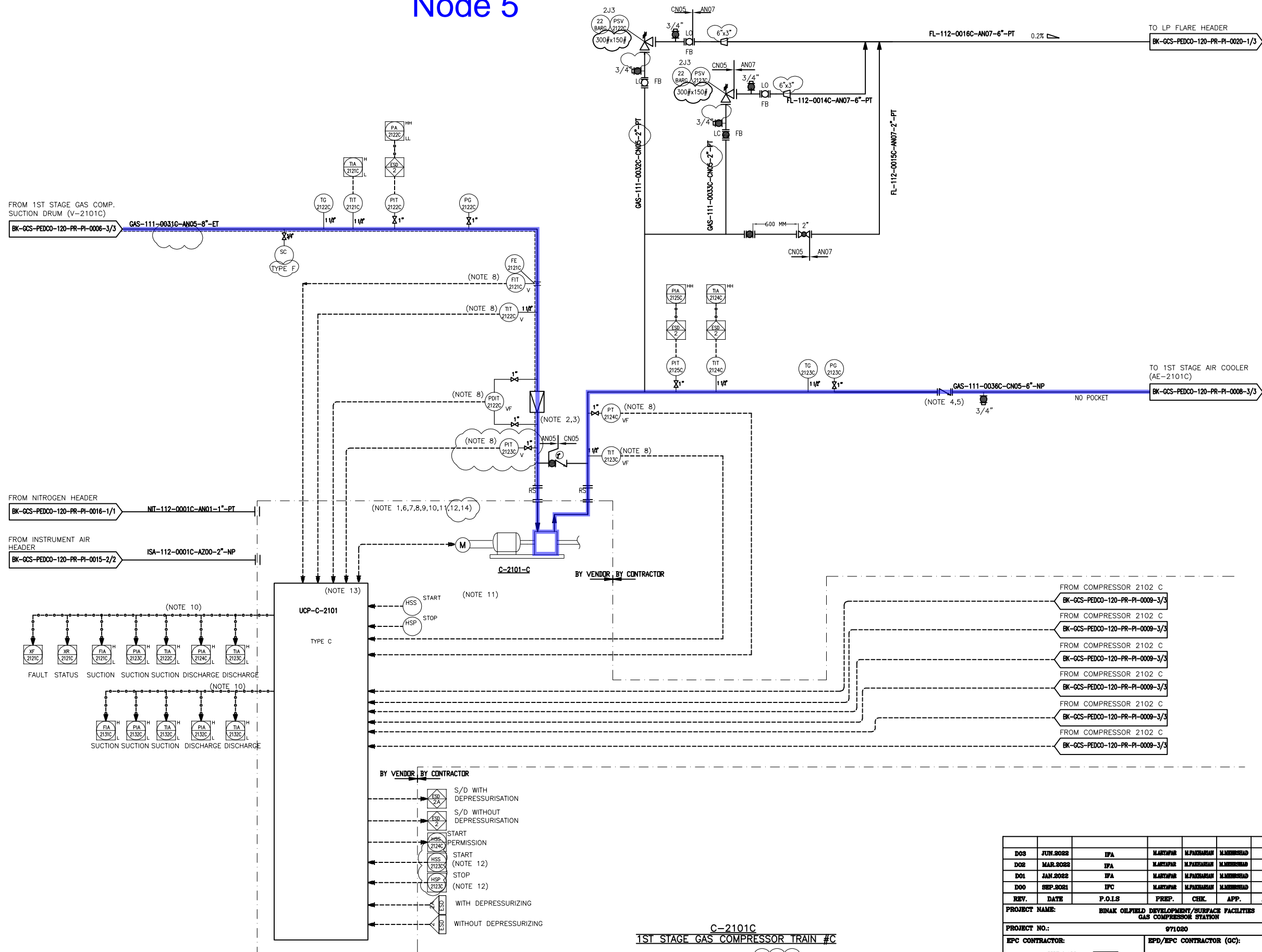
V : PROVIDE BY COMPRESSOR VENDOR

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-FI-0001

KEY PLAN

[illegible]

Node 5



C-2101C
1ST STAGE GAS COMPRESSOR TRAIN #C

RATED CAPACITY : 8924 kg/hr
DESIGN TEMP. : 150 °C
DESIGN PRESS. : 22 barg
(1 X 100%)

NOTES

- 1- COMPRESSOR PACKAGE WILL BE FINALIZED BY VENDOR.
- 2- STRAINER TO BE MIN. DISTANCE FROM COMPRESSOR INLET NOZZLE.
- 3- STRAINER TO BE REMOVABLE WITHOUT BREAKING PIPING ALIGNMENT.
- 4- NON SLAM TYPE SUITABLE FOR COMPRESSOR SERVICE.
- 5- LOCATE AS CLOSE TO C-2101A OUTLET FLANGE AS POSSIBLE.
- 6- CONTROL OF COMPRESSOR PACKAGE WILL BE FINALIZED BY VENDOR.
- 7- COMPRESSOR VENDOR TO CONFIRM REQUIREMENT FOR HOT GAS BY-PASS.
- 8- SHALL BE PROVIDED BY COMPRESSOR VENDOR.
- 9- PULSATION DAMPERS ARE REQUIRED ON DISCHARGE OF EACH STAGE.
- 10- REDUNDANT SERIAL LINK SHALL BE CONSIDERED BETWEEN UCP AND DCS. QUANTITIES OF SIGNALS WILL BE FINALIZED LATER. UCP WILL BE CONNECTED TO ESD VIA HARD WIRE
- 11- LCP SHALL BE PROVIDED AS PER COMPRESSOR DATA SHEET BY VENDOR.
- 12- STOP/START SEQUENCE LOGIC SHALL BE IMPLEMENTED BY COMMON COMPRESSOR UCP LOCATED ON CONTROL BUILDING.
- 13- COMMON UCP FOR ALL TRAIN TO BE PROVIDED BY VENDOR FOR CONTROL SAFETY PURPOSE.
- 14- SIL 3 REQUIREMENT TO BE CONSIDERED FOR SAFETY LOOP. BY COMPRESSOR VENDOR. MCC BY CONTRACTOR DURING DESIGN (SIL STUDY OF PACKAGE IS BY VENDOR)



LEGEND

V : PROVIDE BY COMPRESSOR VENDOR

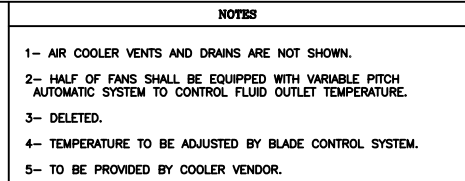
REFERENCE DRAWING

Process Flow Diagram	DRG. No.
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PF-0001

KEY PLAN

DOS	JUN.2022	IPA	MARTAPUR	MPAKHARAN	MMHSHAD	00.00														
DOS	MAR.2022	IPA	MARTAPUR	MPAKHARAN	MMHSHAD	00.00	000.00000000	00.00	000.0000	00.00	000.0000									
DO1	JAN.2022	IPA	MARTAPUR	MPAKHARAN	MMHSHAD	00.00														
DOO	SEP.2021	IPC	MARTAPUR	MPAKHARAN	MMHSHAD	00.00														
REV.	DATE	P.O.I.S	PREP.	CHEK.	APP.	AUT.														
PROJECT NAME: BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION																				
PROJECT NO.: 971080																				
EPC CONTRACTOR:										EPC CONTRACTOR (GC):										
 HIRGAN ENERGY - DESIGN & INSPECTION COMPANIES										 PETROIRAN DEVELOPMENT COMPANY										
DRAWING TITLE:																				
P&ID - 1st Stage Gas Compression Compressors																				
NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED																				
APPROVED FOR CONSTRUCTION										BY:		DATE:								
SCALE	SIZE	DRAWING NO.			SHEET NO.	REV.	BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET		REVISION						
NS	A3	BK-GCS-PEDCO-120-PR-PI-0007			3 OF 3	DOS	DOS-073-9184	F	2	A	708785	3 OF 3		DOS						

AE-2101A
1ST STAGE GAS COMPRESSION AIR
COOLER TRAIN #A
DESIGN DUTY : 365 kW
DESIGN PRESS. : 22 barg
DESIGN TEMP. : 150 °C



LEGEND

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001

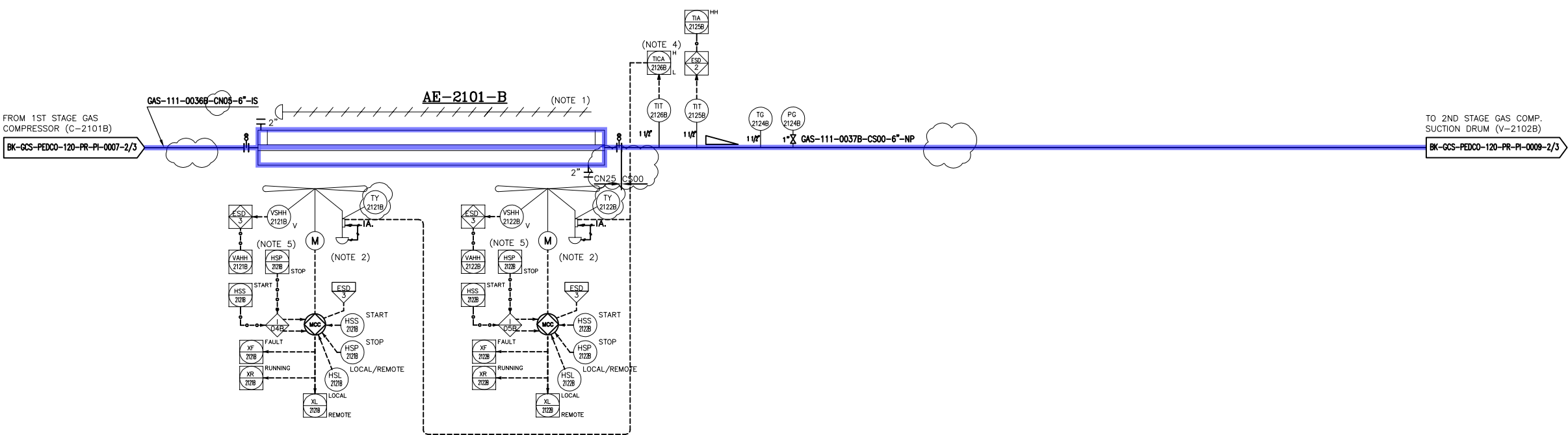
KEY PLAN

[illegible]

(VENDOR TITLE BLOCK)**

Node 5

AE-2101B
1ST STAGE GAS COMPRESSION AIR
COOLER TRAIN #B
DESIGN DUTY : 365 kW
DESIGN PRESS. : 22 barg
DESIGN TEMP. : 150 °C






- NOTES
- 1- AIR COOLER VENTS AND DRAINS ARE NOT SHOWN.
 - 2- HALF OF FANS SHALL BE EQUIPPED WITH VARIABLE PITCH AUTOMATIC SYSTEM TO CONTROL FLUID OUTLET TEMPERATURE.
 - 3- DELETED.
 - 4- TEMPERATURE TO BE ADJUSTED BY BLADE CONTROL SYSTEM.
 - 5- TO BE PROVIDED BY COOLER VENDOR.

LEGEND

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

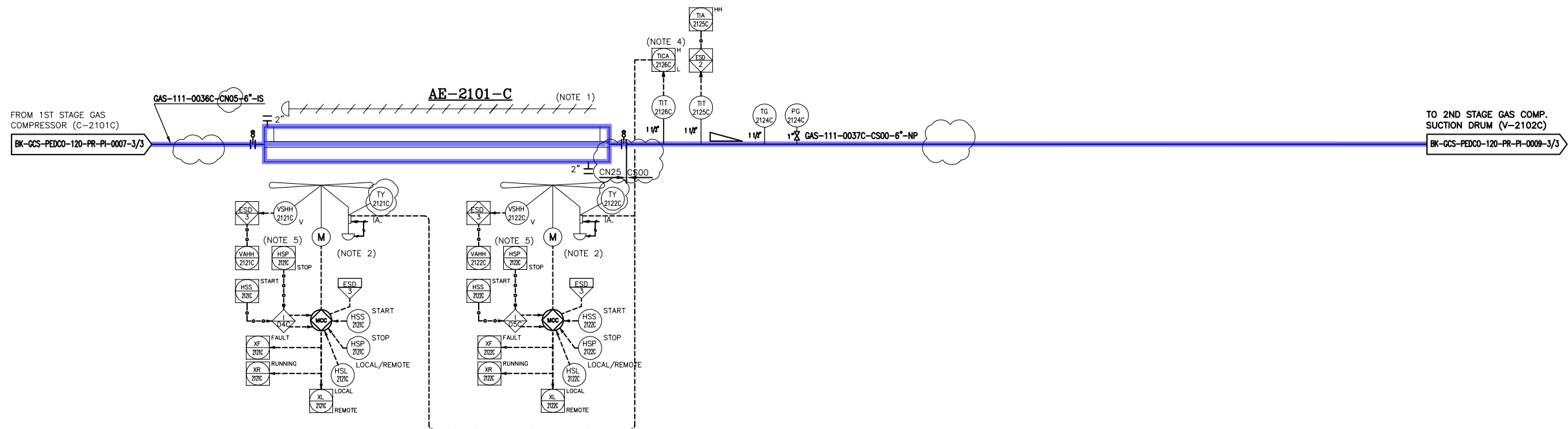
D03	JUN.2022	IPA	MARYAM	M.PAKHMAN	M.MOHSHAD	00.00							
D02	MAR.2022	IPA	MARYAM	M.PAKHMAN	M.MOHSHAD	00.00	000	0000000000	00.00	000.0000	00.00	000.0000	
D01	JAN.2022	IPA	MARYAM	M.PAKHMAN	M.MOHSHAD	00.00	REV.	DESCRIPTION	BY	DATE	BY	DATE	
D00	SEP.2021	IPC	MARYAM	M.PAKHMAN	M.MOHSHAD	00.00			CHECKED		REV. APPR.		
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.							
PROJECT NAME:							BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION						
PROJECT NO.:							971020						
EPC CONTRACTOR:			EPD/EPC CONTRACTOR (GC):				<div></div> <div>THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH THE COPYRIGHT THEREIN ARE THE SOLE PROPERTY OF N.I.S.O.C./ FIELDS</div>						
<div> HURGAN ENERGY - DESIGN & INSPECTION COMPANIES</div>			<div> PETROIRAN DEVELOPMENT COMPANY</div>										
DRAWING TITLE:													
P&ID - 1st Stage Gas Compression Air Coolers													
							NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED						
							APPROVED FOR CONSTRUCTION			BY:		DATE:	
SCALE	SIZE	DRAWING NO.			SHEET NO.	REV.	BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET	REVISION
NS	A3	BK-GCS-PEDCO-120-PR-PI-0006			2 OF 3	D03	053-073-9184	F	2	A	708786	2 OF 3	D03

(VENDOR TITLE BLOCK)**

Node 5

AE-2101C
1ST STAGE GAS COMPRESSION AIR
COOLER TRAIN #C

DESIGN DUTY : 365 kW
DESIGN PRESS. : 22 barg
DESIGN TEMP : 150 °C





NOTES

- 1- AIR COOLER VENTS AND DRAINS ARE NOT SHOWN.
- 2- HALF OF FANS SHALL BE EQUIPPED WITH VARIABLE PITCH AUTOMATIC SYSTEM TO CONTROL FLUID OUTLET TEMPERATURE.
- 3- DELETED.
- 4- TEMPERATURE TO BE ADJUSTED BY BLADE CONTROL SYSTEM.
- 5- TO BE PROVIDED BY COOLER VENDOR.

LEGEND

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

D03	JUN.2022	IPA	MARYAM	M.PAKZADIAN	M.MOHESSAD	00.00								
D02	MAR.2022	IPA	MARYAM	M.PAKZADIAN	M.MOHESSAD	00.00	000	000000000000	00.00	000.0000	00.00	000.0000		
D01	JAN.2022	IPA	MARYAM	M.PAKZADIAN	M.MOHESSAD	00.00	REV.	DESCRIPTION	BY	DATE	BY	DATE		
D00	SEP.2021	IPC	MARYAM	M.PAKZADIAN	M.MOHESSAD	00.00			CHECKED		REV. APPR.			
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.			اصل و کاپیه نسخ این نقشه و حق اقدایی متعلق به شرکت ملی نفتکاری نفت غیر جنوب می باشد.					
PROJECT NAME:							BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION							
PROJECT NO.:							971020							
EPC CONTRACTOR:			EPD/EPC CONTRACTOR (GC):				BINAK OILFIELD DEVELOPMENT SURFACE FACILITIES GAS COMPRESSOR STATION							
 HURGAN ENERGY - DESIGN & INSPECTION COMPANIES			 PEDCO											
			PETROIRAN DEVELOPMENT COMPANY											
DRAWING TITLE:							NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED							
							APPROVED FOR CONSTRUCTION							BY:
SCALE	SIZE	DRAWING NO.			SHEET NO.	REV.	BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET	REVISION	
NS	A3	BK-GCS-PEDCO-120-PR-PI-0006			3 OF 3	D03	053-073-9184	F	2	A	708786	3 OF 3	D03	

(VENDOR TITLE BLOCK)**

Node 6

The diagram illustrates the process flow for the 2nd stage gas compressor (C-2102A). Key components and connections include:

- Inlet Piping:** Gas enters from the top left through a 2" x 1" valve (3/4" LO, FB) and a 600 mm valve, leading to a 2" x 1" valve (3/4" LO, FB). The line is labeled GAS-111-0042A-CN05-2"-PT.
- Compressor Vessel (V-2102-A):** A vertical vessel with a 20" diameter. It has multiple pressure points (P1, P2, P3, P4) and a temperature point (T). The vessel is equipped with a motor (M) and a stirrer (S).
- Control System:** The compressor is controlled by a PLC (LIT 2131A) with various input and output modules (XZIC, XZIO, XZSC, XZSO, XZVC, XZVO). The system includes a 2" x 1" valve (3/4" LO, FB) and a 2" x 1" valve (3/4" LO, FB).
- Outlet Piping:** The gas exits the compressor through a 2" x 1" valve (3/4" LO, FB) and a 600 mm valve, leading to a 2" x 1" valve (3/4" LO, FB). The line is labeled GAS-111-0044A-CN05-6"-ET.
- Flare Header:** The gas is sent to the LP flare header through a 2" x 1" valve (3/4" LO, FB) and a 600 mm valve. The line is labeled FL-112-0019A-AN07-2"-PT.
- Compressor Header:** The gas is sent to the 2nd stage gas compressor header through a 2" x 1" valve (3/4" LO, FB) and a 600 mm valve. The line is labeled GAS-111-0044A-CN05-6"-ET.
- Drain Header:** The gas is sent to the closed drain header through a 2" x 1" valve (3/4" LO, FB) and a 600 mm valve. The line is labeled CDH-111-0023A-CS00-2"-NP.
- Other Components:** The diagram includes various valves (XZIC, XZIO, XZSC, XZSO, XZVC, XZVO), pressure points (P1, P2, P3, P4), temperature points (T), and a motor (M).

BK-GCS-PEDCO-120-PR-PI-0008-1/3

1- DELETED.

2- DELETED.

3- DELETED.

4- DELETED.

5- ESD LEVEL 2 FOR HH AND 3 FOR LOW LOW LIQUID LEVEL.

* SPARE PSV IN WAREHOUSE

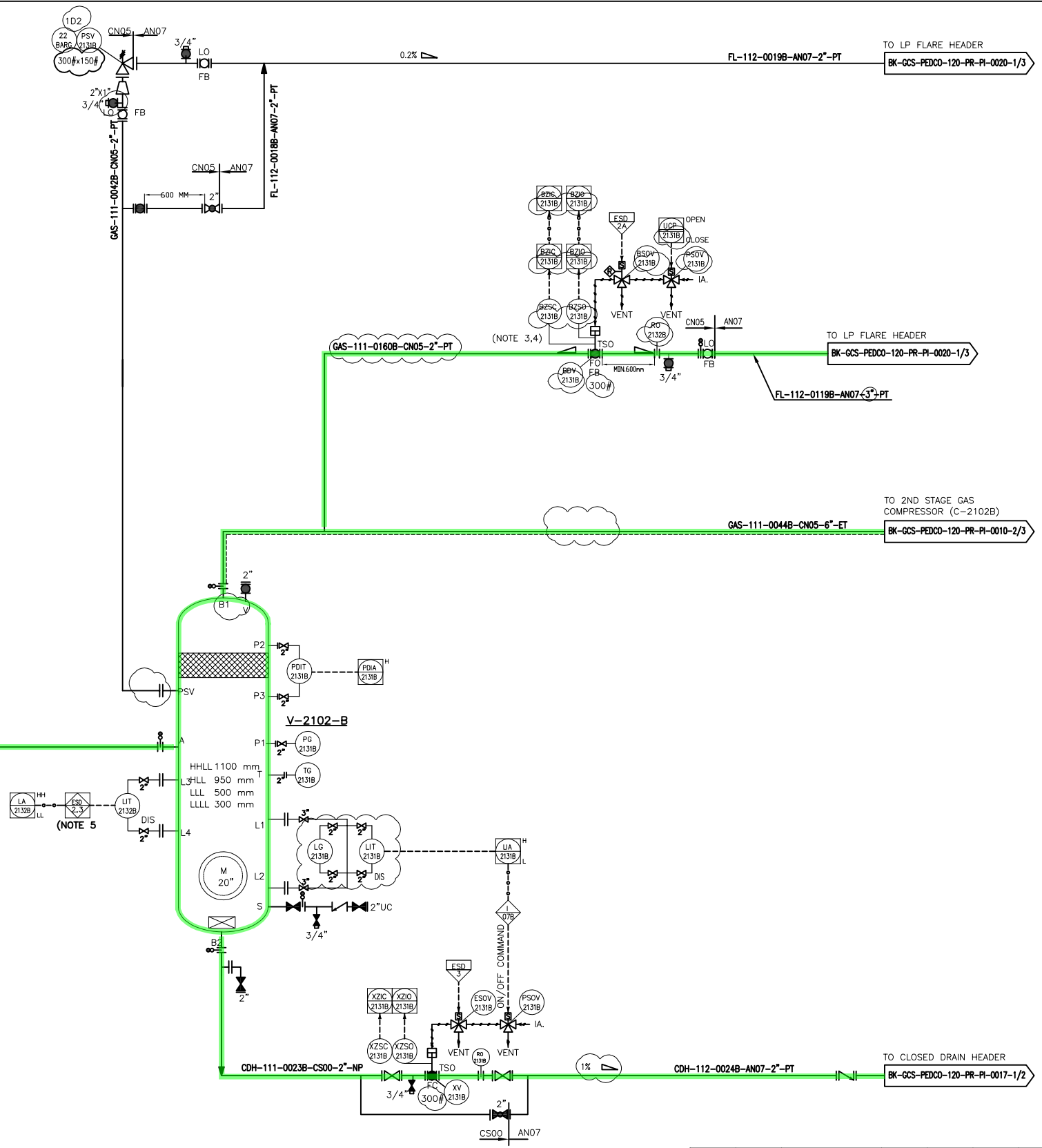
KEY PLAN

[illegible]

V-2102B
2ND STAGE GAS COMPRESSOR SUCTION
DRUM TRAIN #B

DIMENSIONS (ID X TL-TL) : 900 X 2840 mm
DESIGN TEMP. : 115.5 °C
DESIGN PRESS. : FV/22 barg

Node 6



- NOTES
- 1- DELETED.
 - 2- DELETED.
 - 3- DELETED.
 - 4- DELETED.
 - 5- ESD LEVEL 2 FOR HH AND 3 FOR LOW LOW LIQUID LEVEL.

LEGEND

* SPARE PSV IN WAREHOUSE

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

D03	JUN.2022	IPA	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00														
D02	MAR.2022	IPA	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00														
D01	JAN.2022	IPA	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00														
D00	SEP.2021	IPC	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00														
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.														
PROJECT NAME: BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION							THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH THE COPYRIGHT THEREIN ARE THE SOLE PROPERTY OF N.I.S.O.C./ FIELDS													
PROJECT NO.: 971020							BINAK OILFIELD DEVELOPMENT SURFACE FACILITIES GAS COMPRESSOR STATION													
EPC CONTRACTOR: HIRGAN ENERGY - DESIGN & INSPECTION COMPANIES							PETROIRAN DEVELOPMENT COMPANY													
DRAWING TITLE: P&ID - 2nd Stage Gas Compression Suction Drums							DATE	SCALE	DRAWING BY	CHECKED BY	PROJECT ENG.	NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED								
SCALE: NS A3							APPROVED FOR CONSTRUCTION			BY:		DATE:								
DRAWING NO. BK-GCS-PEDCO-120-PR-PI-0009							BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET	REVISION							
SHEET NO. 2 OF 3							653-073-9184	F	2	A	708787	2 OF 3	D03							

(VENDOR TITLE BLOCK)**

Node 6

[illegible]

BK-GCS-PEDCO-120-PR-PI-0008-3/3

NOTES	
1-	DELETED.
2-	DELETED.
3-	DELETED.
4-	DELETED.
5-	ESD LEVEL 2 FOR HH AND 3 FOR LOW LOW LIQUID LEVEL.

LEGEND

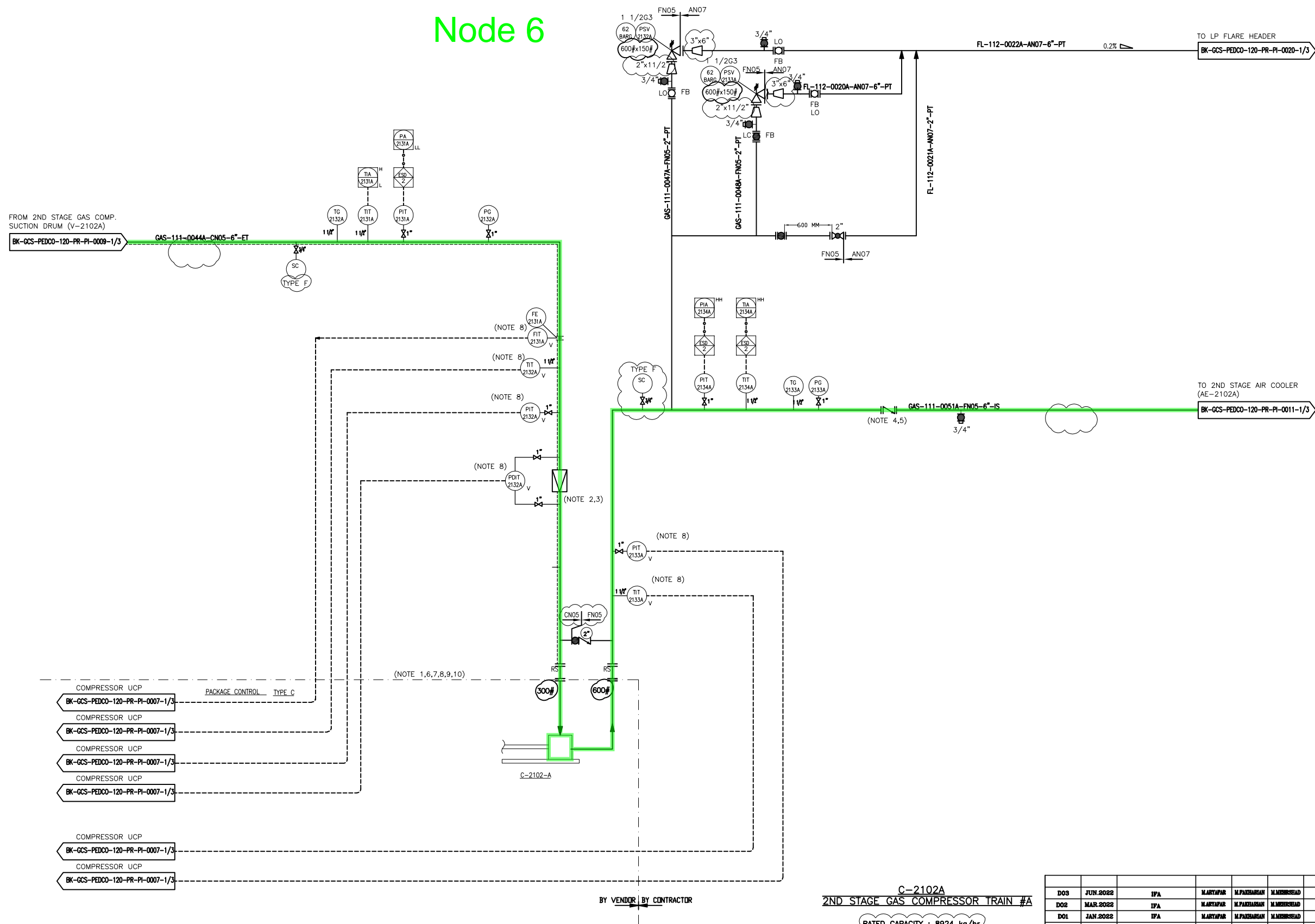
* SPARE PSV IN WAREHOUSE

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

[illegible]

Node 6



C-2102A
2ND STAGE GAS COMPRESSOR TRAIN #A

RATED CAPACITY : 8924 kg/hr
DESIGN TEMP. : 175 °C
DESIGN PRESS. : 62 barg
(1 X 100%)

[illegible]

- 1- COMPRESSOR PACKAGE WILL BE FINALIZED BY VENDOR.
- 2- STRAINER TO BE MIN. DISTANCE FROM COMPRESSOR INLET NOZZLE.
- 3- STRAINER TO BE REMOVABLE WITHOUT BREAKING PIPING ALIGNMENT.
- 4- NON SLAM TYPE SUITABLE FOR COMPRESSOR SERVICE.
- 5- LOCATE AS CLOSE TO C-2102A OUTLET FLANGE AS POSSIBLE.
- 6- CONTROL OF COMPRESSOR PACKAGE WILL BE FINALIZED BY VENDOR.
- 7- COMPRESSOR VENDOR TO CONFIRM REQUIREMENT FOR HOT GAS BY-PASS.
- 8- SHALL BE PROVIDED BY COMPRESSOR VENDOR.
- 9- PULSATION DAMPERS ARE REQUIRED ON DISCHARGE OF EACH STAGE.
- 10- REDUNDANT SERIAL LINK SHALL BE CONSIDERED BETWEEN UCP AND DC. QUANTITIES OF SIGNALS WILL BE FINALIZED LATER.

LEGEND

V : PROVIDE BY COMPRESSOR VENDOR

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	EK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	EK-GCS-PEDCO-120-PR-FI-0001

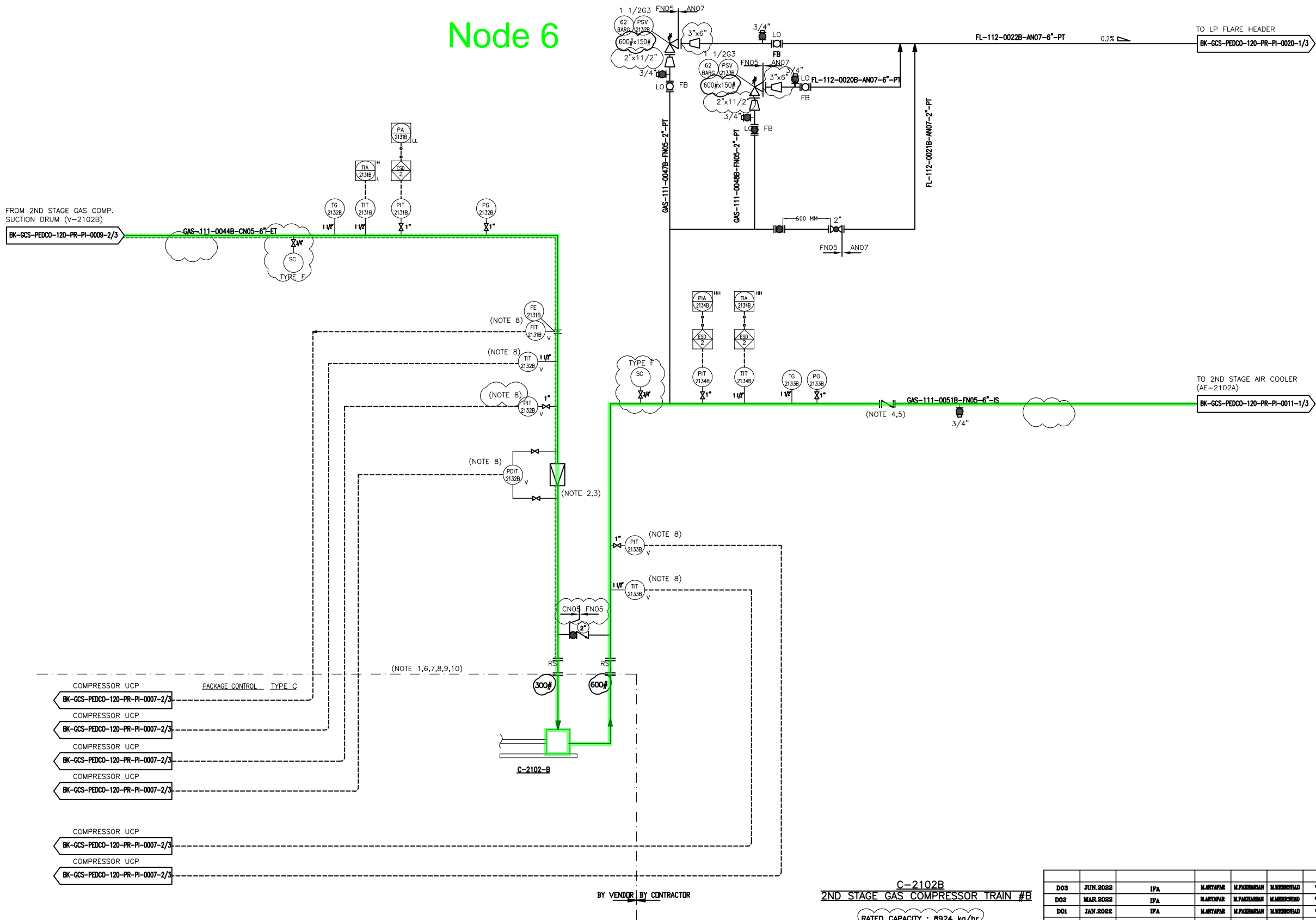
KEY PLAN

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THE COPYRIGHT THEREIN ARE THE SOLE PROPERTY OF
N.I.S.O.C./ FIELDS

**BINAK OILFIELD DEVELOPMENT
SURFACE FACILITIES
GAS COMPRESSOR STATION**

NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED		
APPROVED FOR CONSTRUCTION	BY:	DATE:

Node 6



C-2102B
2ND STAGE GAS COMPRESSOR TRAIN #B

RATED CAPACITY : 8924 kg/hr
DESIGN TEMP. : 175 °C
DESIGN PRESS. : 62 barg
(1 X 100%)





- NOTES
- 1- COMPRESSOR PACKAGE WILL BE FINALIZED BY VENDOR.
 - 2- STRAINER TO BE MIN. DISTANCE FROM COMPRESSOR INLET NOZZLE.
 - 3- STRAINER TO BE REMOVABLE WITHOUT BREAKING PIPING ALIGNMENT.
 - 4- NON SLAM TYPE SUITABLE FOR COMPRESSOR SERVICE.
 - 5- LOCATE AS CLOSE TO C-2102B OUTLET FLANGE AS POSSIBLE.
 - 6- CONTROL OF COMPRESSOR PACKAGE WILL BE FINALIZED BY VENDOR.
 - 7- COMPRESSOR VENDOR TO CONFIRM REQUIREMENT FOR HOT GAS BY-PASS.
 - 8- SHALL BE PROVIDED BY COMPRESSOR VENDOR.
 - 9- PULSATION DAMPERS ARE REQUIRED ON DISCHARGE OF EACH STAGE.
 - 10- REDUNDANT SERIAL LINK SHALL BE CONSIDERED BETWEEN UCP AND DCS. QUANTITIES OF SIGNALS WILL BE FINALIZED LATER.

LEGEND

V : PROVIDE BY COMPRESSOR VENDOR

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

D03	JUN.2022	IPA	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00														
D02	MAR.2022	IPA	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00	000	0000000000	00.00	000.0000	00.00	000.0000								
D01	JAN.2022	IPA	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00														
D00	SEP.2021	IPC	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00														
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.														
PROJECT NAME:							BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION													
PROJECT NO.:							971020													
EPC CONTRACTOR:							EPC CONTRACTOR (GC):													
 HIRGAN ENERGY - DESIGN & INSPECTION COMPANIES							 PETROIRAN DEVELOPMENT COMPANY							 PEDCO						
							BINAK OILFIELD DEVELOPMENT SURFACE FACILITIES GAS COMPRESSOR STATION													
							DATE	SCALE	DRAWING BY	CHECKED BY	PROJECT ENG.									
DRAWING TITLE:							NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED													
P&ID - 2nd Stage Gas Compression Compressors							BUDGET REF. FOR CONSTRUCTION							BY:		DATE:				
SCALE	SIZE	DRAWING NO.			SHEET NO.	REV.	AUGUST APP.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET	REVISION							
NS	A3	BK-GCS-PEDCO-120-PR-PI-0010			2 OF 3	D03	D03-073-9184	F	2	A	708788	2 OF 3	D03							

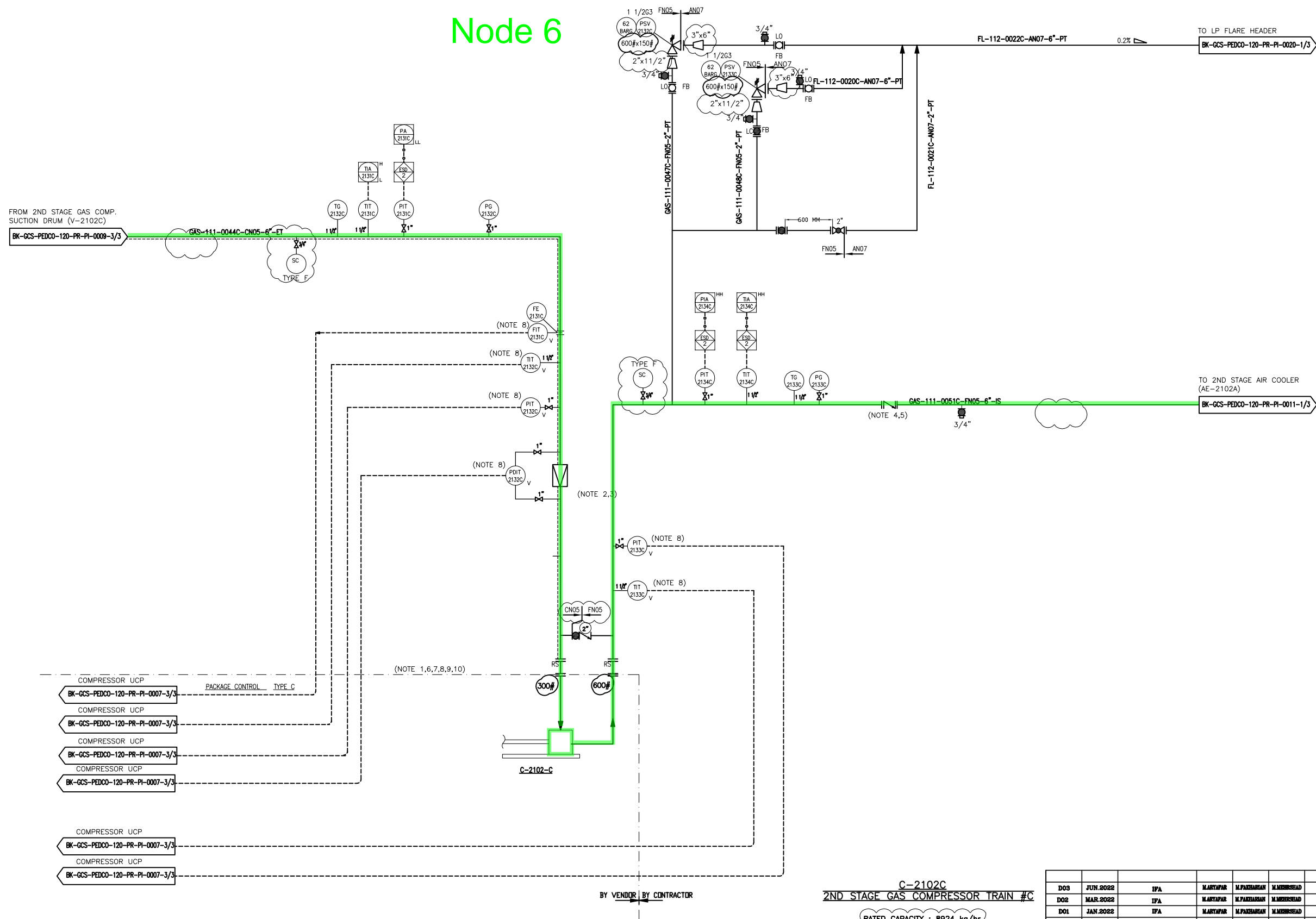
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DATE	SCALE	DRAWING BY	CHECKED BY	PROJECT ENG.

NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED

APPROVED FOR CONSTRUCTION BY: DATE:

Node 6



C-2102C
2ND STAGE GAS COMPRESSOR TRAIN #C

RATED CAPACITY : 8924 kg/hr
DESIGN TEMP. : 175 °C
DESIGN PRESS. : 62 barg
(1 X 100%)

[illegible]

- NOTES**
- 1- COMPRESSOR PACKAGE WILL BE FINALIZED BY VENDOR.
 - 2- STRAINER TO BE MIN. DISTANCE FROM COMPRESSOR INLET NOZZLE.
 - 3- STRAINER TO BE REMOVABLE WITHOUT BREAKING PIPING ALIGNMENT.
 - 4- NON SLAM TYPE SUITABLE FOR COMPRESSOR SERVICE.
 - 5- LOCATE AS CLOSE TO C-2102C OUTLET FLANGE AS POSSIBLE.
 - 6- CONTROL OF COMPRESSOR PACKAGE WILL BE FINALIZED BY VENDOR.
 - 7- COMPRESSOR VENDOR TO CONFIRM REQUIREMENT FOR HOT GAS BY-PASS.
 - 8- SHALL BE PROVIDED BY COMPRESSOR VENDOR.
 - 9- PULSATION DAMPERS ARE REQUIRED ON DISCHARGE OF EACH STAGE.
 - 10- REDUNDANT SERIAL LINK SHALL BE CONSIDERED BETWEEN UCP AND DCS. QUANTITIES OF SIGNALS WILL BE FINALIZED LATER.

LEGEND
V : PROVIDE BY COMPRESSOR VENDOR

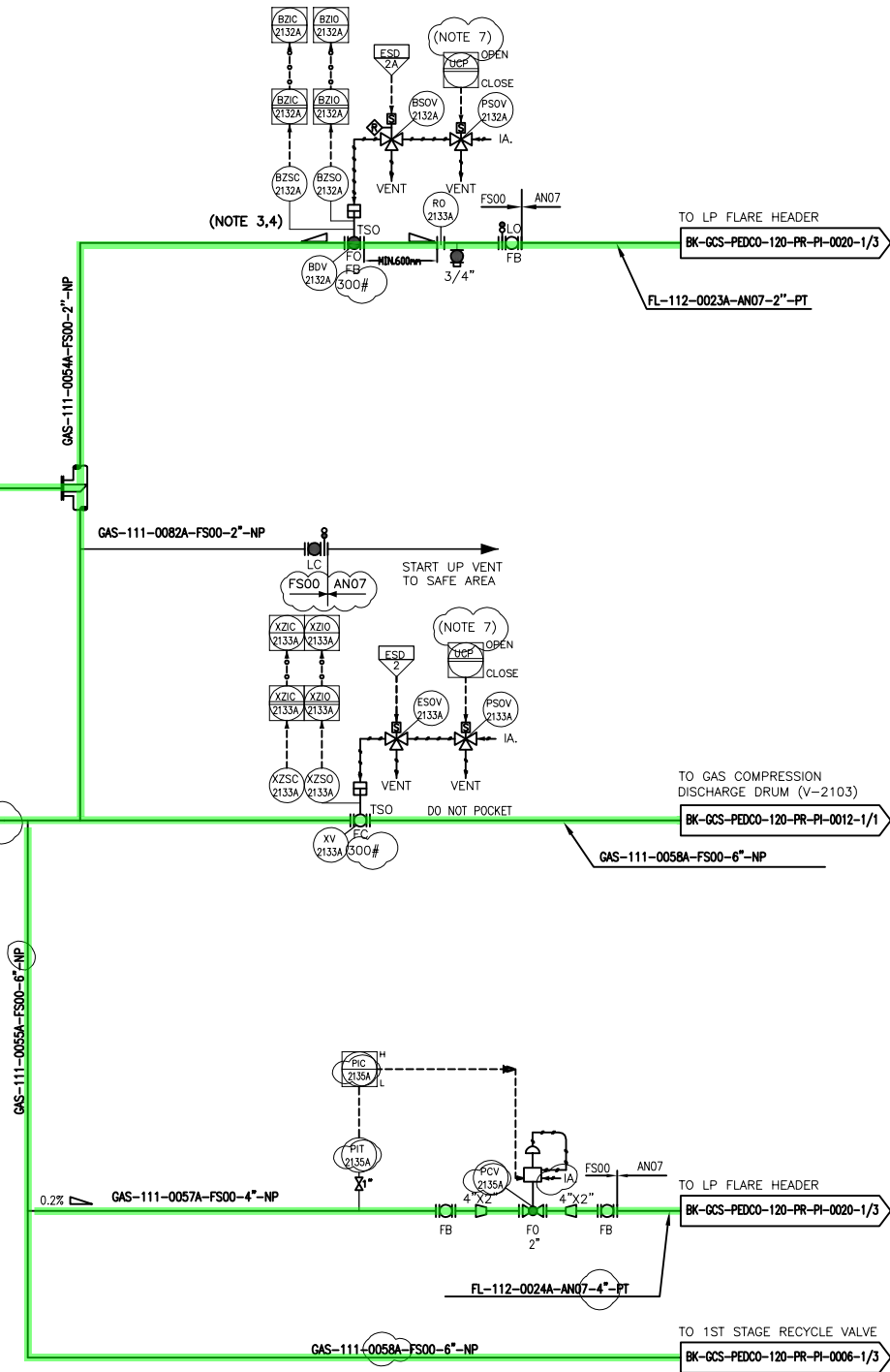
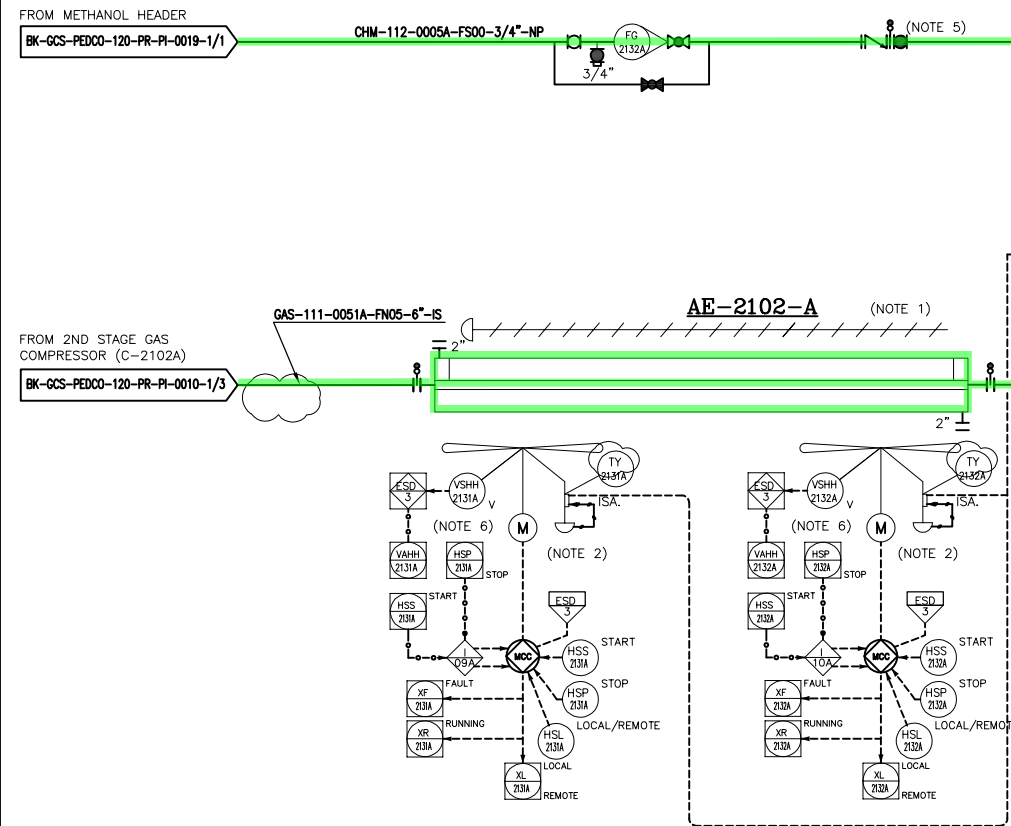
REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

Node 6

AE-2102A 2ND STAGE GAS COMPRESSION AIR COOLER TRAIN #A

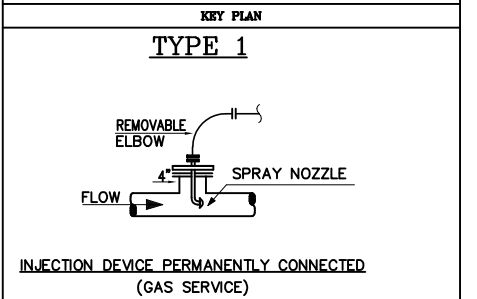
RATED DUTY : 642 kW
DESIGN TEMP. : 175 °C
DESIGN PRESS. : 62 barg



- NOTES
- 1- AIR COOLER VENTS AND DRAINS ARE NOT SHOWN.
 - 2- HALF OF FANS SHALL BE EQUIPPED WITH VARIABLE PITCH AUTOMATIC SYSTEM TO CONTROL FLUID OUTLET TEMPERATURE.
 - 3- THIS ESD VALVE SHOULD BE OPENED DURING START-UP OF COMPRESSOR.
 - 4- TEMPERATURE TO BE ADJUSTED BY BLADE CONTROL SYSTEM.
 - 5- BEFOR IN CASE OF COLD DEPRESSURIZING, MANUAL VALVE WILL BE OPEN BY OPERATOR.
 - 6- TO BE PROVIDED BY COOLER VENDOR.
 - 7-SHALL BECONTROLLED BY COMPRESSOR PACKAGE UCP DURING START UP.

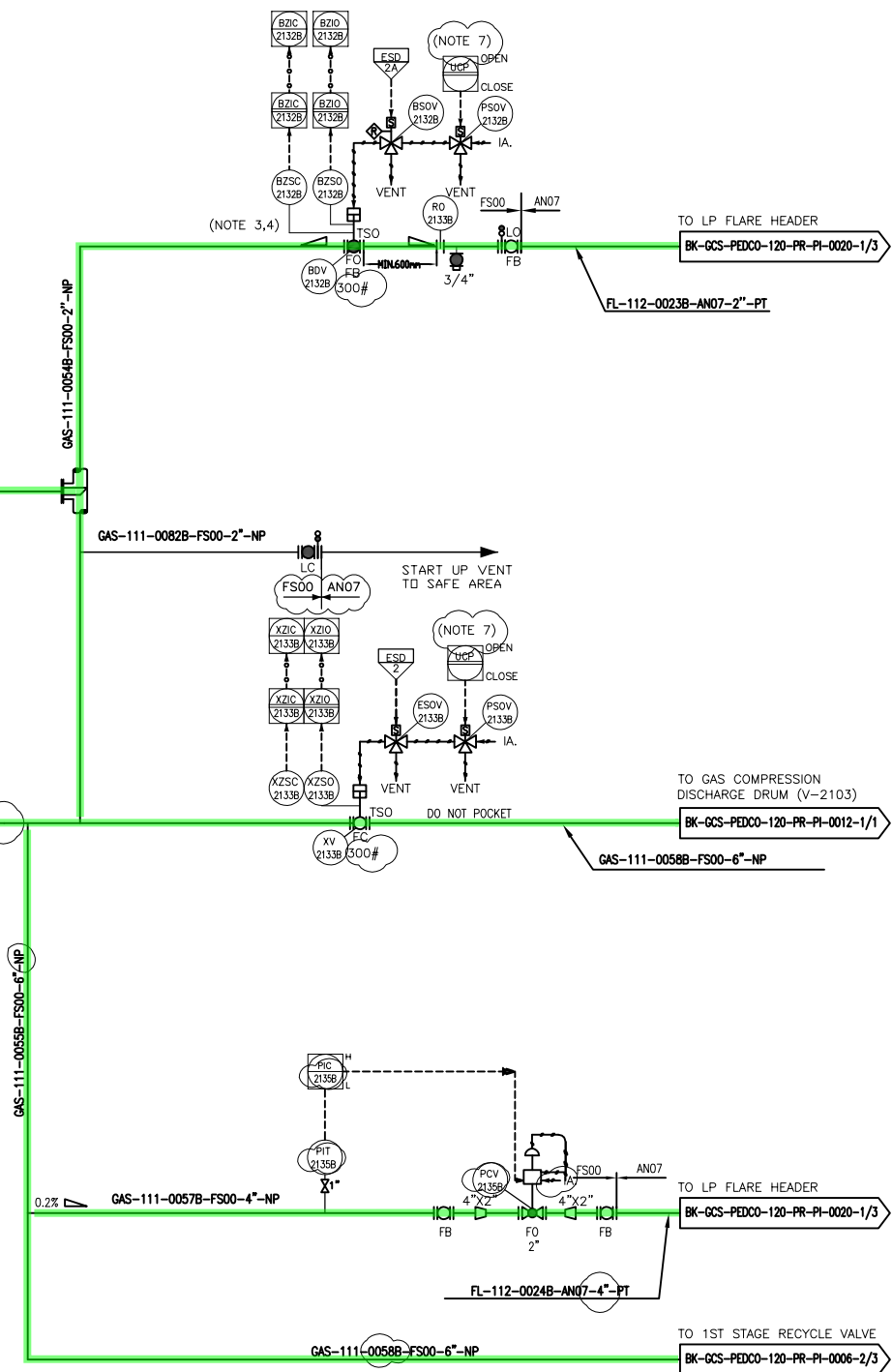
LEGEND

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001



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RATED DUTY : 542 kW
DESIGN TEMP. : 175 °C
DESIGN PRESS. : 62 barg



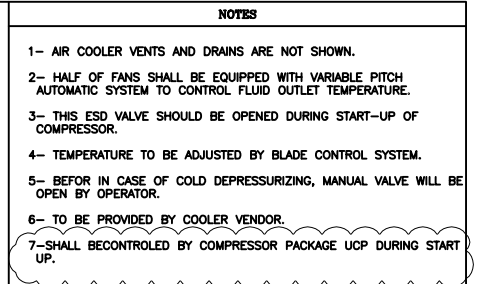
- ### LEGEND

TYPE 1

INJECTION DEVICE PERMANENTLY CONNECTED
(GAS SERVICE)

[illegible]

RATED DUTY : 542 kW
DESIGN TEMP. : 175 °C
DESIGN PRESS. : 62 barg

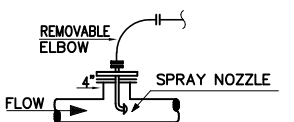


LEGEND

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

TYPE 1



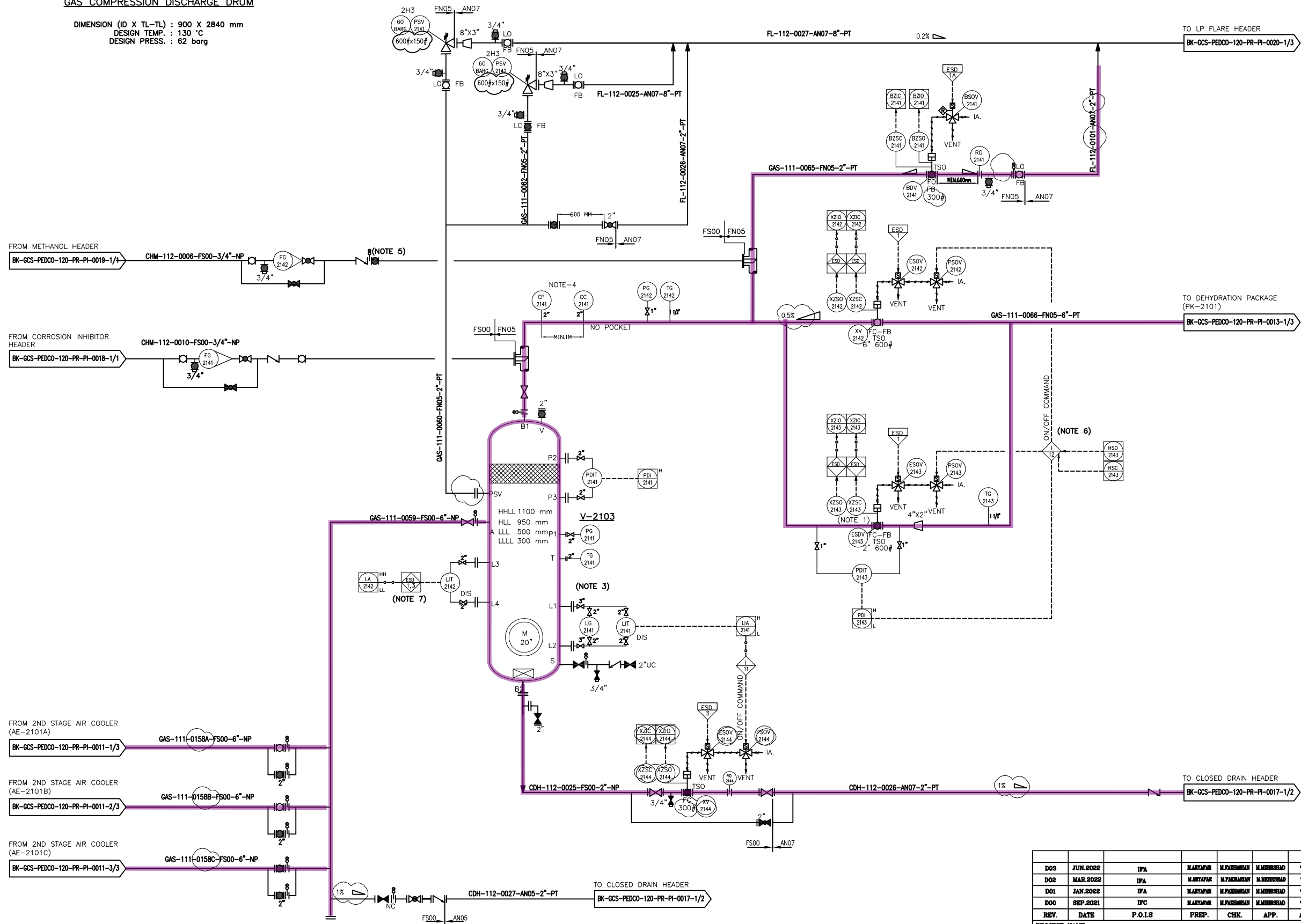
INJECTION DEVICE PERMANENTLY CONNECTED
(GAS SERVICE)

[illegible]

V-2103
GAS COMPRESSION DISCHARGE DRUM

V-2103
GAS COMPRESSION DISCHARGE DRU

DIMENSION (ID X TL-TL) : 900 X 2840 mm
DESIGN TEMP. : 130 °C
DESIGN PRESS. : 62 barg



NOTES

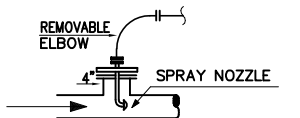
- 1- DELETED.
- 2- DELETED.
- 3- DELETED.
- 4- ONE PORTABLE METER FOR CORROSION PROBES TO BE PROVIDED PER SITE TO RECOVERY MONITOR CORROSION DATA.
- 5- BEFORE IN CASE OF COLD DEPRESSURIZING, MANUAL VALVE WILL BE OPEN BY OPERATOR.
- 6- OPEN/CLOSE COMMAND BY OPERATOR WILL BE IMPLEMENTED BY EQUALIZING LOGIC DURING START UP.
- 7- ESD LEVEL 1 FOR HH AND 3 FOR LL LIQUID LEVEL.

LEGEND

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

TYPE 1



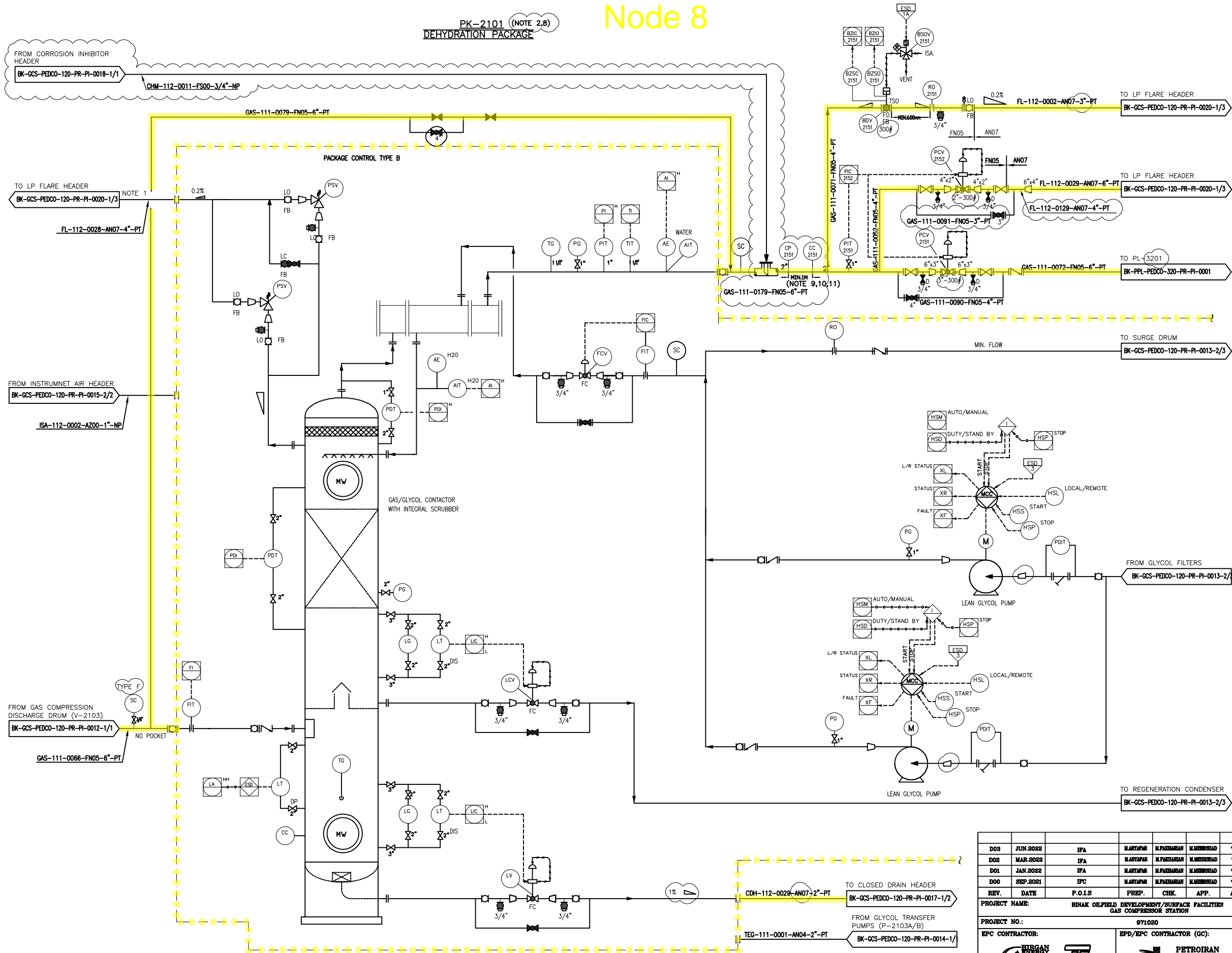
INJECTION DEVICE PERMANENTLY CONNECTED
(GAS SERVICE)

[illegible]

(VENDOR TITLE BLOCK)**

Node 8

PK-2101 (NOTE 2.8)
DEHYDRATION PACKAGE





NOTES

- 1- MIN. DESIGN TEMPERATURE SHALL BE CONFIRMED AFTER COMPLETION OF BLOW DOWN STUDY.
- 2- DETAILS INSIDE PACKAGE ARE INDICATIVE TO BE DEVELOPED BY PACKAGE SUPPLIER.
- 3- FILTER ELEMENT AND SUPPORTING DEVICE INTEGRITY TO BE VERIFIED FOR THE DEPRESSURIZATION CASE BY EPC CONTRACTOR.
- 4- FLARE LINE SIZES TO BE DETERMINED BY PACKAGE SUPPLIER.
- 5- DEW POINT OF THE DRY GAS LEAVING THE CONTRACTOR SHALL BE MEASURED AND RECORDED.
- 6- FOR DETAIL OF SAMPLE CONNECTION VENT LINE PREFER TO P&ID FOR LEGEND AND SYMBOLS.
- 7- INSTRUMENT TRANSMITTERS ARE NOT SHOWN INSIDE PACKAGE TO BE DEVELOPED BY PACKAGE SUPPLIER.
- 8- DEHYDRATION PACKAGE IS TYPE B AND SHALL BE CONTROLLED BY MAIN SCS/ESD ALL INSTRUMENT AND DEVICES SHALL BE PROVIDED BY VENDOR AS PER PROJECT SPECS AND P&ID. PROJECT PID NUMBERING PROCEDURE SHALL BE FOLLOWED BY VENDOR.
- 9- THE MONITORING DEVICE SHOULD BE USED AT 12 O'CLOCK POSITION ON HORIZONTAL PIPE SECTION.
- 10- ENOUGH CLEARANCE AND PROPER PLATFORMS SHALL BE PROVIDED FOR COUPON RETRIEVAL OPERATIONS.
- 11- THE MIN. DISTANCE OF 7 PIPE DIAMETERS AT DOWNSTREAM AND 3 PIPE DIAMETERS AT UPSTREAM OF ANY CHANGES IN FLOW CAUSED BY BENDS, VALVES AND ETC. SHALL BE CONSIDERED.

LEGEND

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

D03	JUN 2022	IPA	MARYAM	M.PAKRABAN	M.MOHSEAD	00.00														
D02	MAR 2022	IPA	MARYAM	M.PAKRABAN	M.MOHSEAD	00.00	000	0000000000	00.00	000.0000	00.00	000.0000								
D01	JAN 2022	IPA	MARYAM	M.PAKRABAN	M.MOHSEAD	00.00														
D00	SEP 2021	IPC	MARYAM	M.PAKRABAN	M.MOHSEAD	00.00	REV.	DESCRIPTION	BY	DATE	BY	DATE	CHECKED	REV.	APPR.	اصل و کاپیه نسخ این نقشه و حق اقتباس مطابق فنت شرکت عزیز جنوب میباشند				
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.														
PROJECT NAME:							BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION													
PROJECT NO.:							971020													
EPC CONTRACTOR:			EPD/EPC CONTRACTOR (GC):				BINAK OILFIELD DEVELOPMENT SURFACE FACILITIES GAS COMPRESSOR STATION													
 HURGAN ENERGY ~ DESIGN & INSPECTION COMPANIES			 PETROIRAN DEVELOPMENT COMPANY																	
							DATE	SCALE	DRAWING BY	CHECKED BY	PROJECT ENG.									
DRAWING TITLE:							NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED													
P&ID - Gas Compression Dehydration Package							APPROVED FOR CONSTRUCTION							BY:		DATE:				
SCALE	SIZE	DRAWING NO.			SHEET NO.	REV.	BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET	REVISION							
NS	A3	BK-GCS-PEDCO-120-PR-PI-0013			1 OF 3	D03	053-073-9184	F	2	A	708791	1 OF 3	D03							

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DATE	SCALE	DRAWING BY	CHECKED BY	PROJECT ENG.

NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED

APPROVED FOR CONSTRUCTION BY: DATE:

(VENDOR TITLE BLOCK)**

Node 8

Node 8 is a process flow diagram for a gas compressor station, specifically focusing on glycol dehydration and gas compression. The diagram includes the following components and connections:

- Inputs:**
 - FROM GLYCOL CONTRACTOR: BK-GCS-PEDCO-120-PR-PI-0013-1/3
 - TO CLOSE DRAIN HEADER: BK-GCS-PEDCO-120-PR-PI-0017-1/2
 - TO GLYCOL FILTERS: BK-GCS-PEDCO-120-PR-PI-0013-3/3
 - FROM GLYCOL FILTERS: BK-GCS-PEDCO-120-PR-PI-0013-3/3
 - TO LEAN GLYCOL PUMPS: BK-GCS-PEDCO-120-PR-PI-0013-1/3
 - FROM GLYCOL DRAIN PUMP (P-2104): BK-GCS-PEDCO-120-PR-PI-0025-1/1
 - FROM GLYCOL BOOSTER PUMP: BK-GCS-PEDCO-120-PR-PI-0013-1/3
 - FROM FUEL GAS K.O. DRUM (V-2205): BK-GCS-PEDCO-120-PR-PI-0022-1/1
- Process Flow:**
 - The glycol dehydration system includes a **FLASH DRUM** with a **LIC** (Level Indicating Controller) and **LCV** (Level Control Valve). It is connected to a **STRIPPING COLUMN** and a **GLYCOL REBOILER**.
 - The **GLYCOL REBOILER** is part of a **RICH/LEAN EXCHANGER** system, which also includes a **CGD** (Circulating Gas Dehydrator) and a **PSV** (Pressure Safety Valve).
 - The **GLYCOL REBOILER** is connected to a **GLYCOL REBOILER** and a **GLYCOL REBOILER**.
 - The **GLYCOL REBOILER** is connected to a **GLYCOL REBOILER** and a **GLYCOL REBOILER**.
 - The **GLYCOL REBOILER** is connected to a **GLYCOL REBOILER** and a **GLYCOL REBOILER**.
- Outputs:**
 - TO LP FLARE HEADER: FL-112-0030-AN07-2"-PT
 - TO LP FLARE HEADER: BK-GCS-PEDCO-120-PR-PI-0020-1/3
- Other Components:**
 - STRIPPING COLUMN**: A vertical column used for gas dehydration.
 - FLASH DRUM**: A horizontal vessel used for separating liquid from gas.
 - RICH/LEAN EXCHANGER**: A heat exchanger used for preheating and cooling the glycol.
 - GLYCOL REBOILER**: A vertical vessel used for heating the glycol.
 - GLYCOL REBOILER**: A horizontal vessel used for heating the glycol.
 - GLYCOL REBOILER**: A vertical vessel used for heating the glycol.
 - GLYCOL REBOILER**: A horizontal vessel used for heating the glycol.

REV.	DATE	P.O.I.S	PREP.	CHK.	APP.
D03	JUN.2022	IPA	M.ARTAPAR	M.PANJAHARIAN	M.MEHRSHAD
D02	MAR.2022	IPA	M.ARTAPAR	M.PANJAHARIAN	M.MEHRSHAD
D01	JAN.2022	IPA	M.ARTAPAR	M.PANJAHARIAN	M.MEHRSHAD
D00	SEP.2021	IPC	M.ARTAPAR	M.PANJAHARIAN	M.MEHRSHAD

PROJECT NAME: BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION

PROJECT NO.: 971020

EPC CONTRACTOR: HIRGAN ENERGY

EPD/EPC CONTRACTOR (GC): PETROIRAN DEVELOPMENT

- 1- DETAILS INSIDE PACKAGE ARE INDICATIVE TO BE DEVELOPED BY PACKAGE SUPPLIER.
- 2- LOCATION OF PSVs AND DEPRESSURIZE VALVES (IF REQUIRED) BY PACKAGE SUPPLIER.
- 3- INSTRUMENT TRANSMITTERS ARE NOT SHOWN INSIDE PACKAGE TO BE DEVELOPED BY PACKAGE SUPPLIER.
- 4- LOCATION OF LEAN GLYCOL PUMP BEFORE OR AFTER FILTER TO BE DETERMINED BY PACKAGE SUPPLIER.
- 5- NUMBER LOCATION AND ARRANGEMENT OF FILTERS/ PRE-FILTER/ AFTER FILTER TO DETERMINED BY PACKAGE SUPPLIER.
- 6- REQUIREMENT FOR STRIPPING GAS TO BE DETERMINED BY PACKAGE SUPPLIER.
- 7- STOP / START PUSH BOTTOM FOR BURNER TO BE CONSIDER IN LCP.

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001

اصل و کلیه نسخ این نقشه و حق اقتباس متعلق به شرکت ملی منابع نفت غیز جنوب میباشد

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[illegible]

The diagram illustrates the Glycol Circulation (GC) system, which consists of three parallel loops for different filter stages: After Glycol Filter, Charcoal Filter, and Rich Glycol Filter. Each loop is equipped with a PDG (Positive Displacement Glycol) pump, a CGD (Circulating Glycol Drum) tank, and a PSV (Pressure Safety Valve). The system is fed by a common inlet line with a TG (Temperature Gauge) and PG (Pressure Gauge) sensor, and it discharges to a common outlet line. The diagram also shows a common inlet line with a TG and PG sensor, and a common outlet line.

BK-GCS-PEDCO-120-PR-PI-0013-2/3

TO GLYCOL HEADER

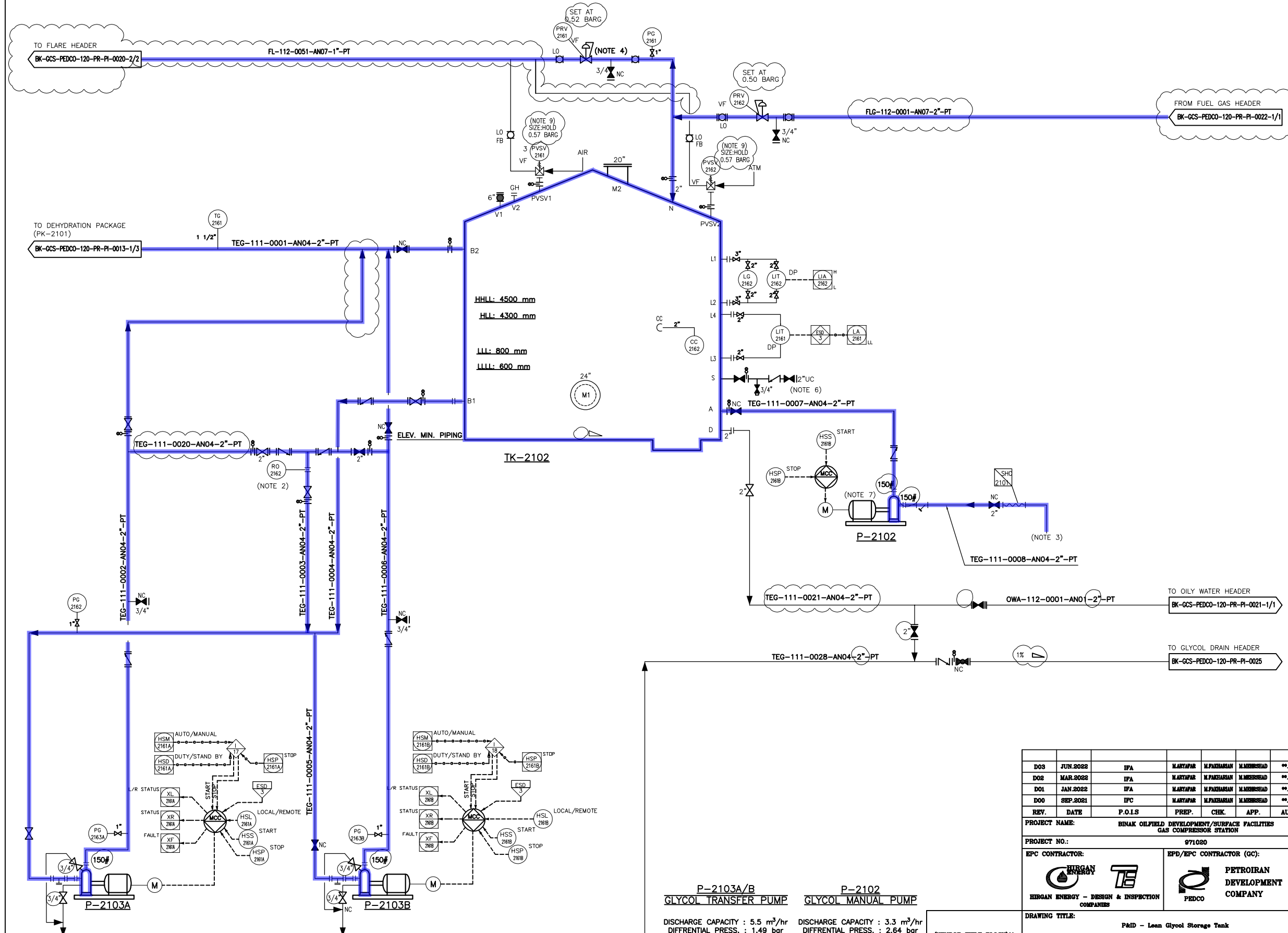
BK-GCS-PEDCO-120-PR-PI-0025

(VENDOR TITLE BLOCK)**

Node 9

TK-2102 LEAN GLYCOL STORAGE TANK

DIMENSIONS (ID X TL-TL) : 4000 X 5000 mm (NOTE 8)
DESIGN TEMP. : 85 °C
DESIGN PRESS. : 0.6 barg



- ### NOTES
- 1- DELETED.
 - 2- MIN. FLOW RECYCLE.
 - 3- BARREL DIP PIPE FOR LOADING OF FRESH GLYCOL.
 - 4- GAS-BLANKETING SYSTEM WAS SIZED FOR WORST CASE OF PUMPING IN/OUT OF TANK.
 - 5- DRAIN DURING TANK MAINTENANCE.
 - 6- PURGE CONNECTION.
 - 7- TEG MANUAL PUMP FOR GLYCOL LOADING.
 - 8- TANK DIMENSION WILL BE FINALIZED AFTER RECEIVING DEHYDRATION PACKAGE VENDOR DATA.
 - 9- NUMBERING AND SIZE ARE HOLD FOR PVS VENDOR INFORMATION.

LEGEND

REFERENCE DRAWING	DRG. No.
Process Flow Diagram	BK-GCS-PEDCO-120-PR-PF-0001
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

REV.	DATE	DESCRIPTION	CHECKED	BY	DATE	BY	DATE
D03	JUN.2022	IPA	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00	00.00
D02	MAR.2022	IPA	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00	00.00
D01	JAN.2022	IPA	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00	00.00
D00	SEP.2021	IPC	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00	00.00

THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH THE COPYRIGHT THEREIN ARE THE SOLE PROPERTY OF N.I.S.O.C./ FIELDS

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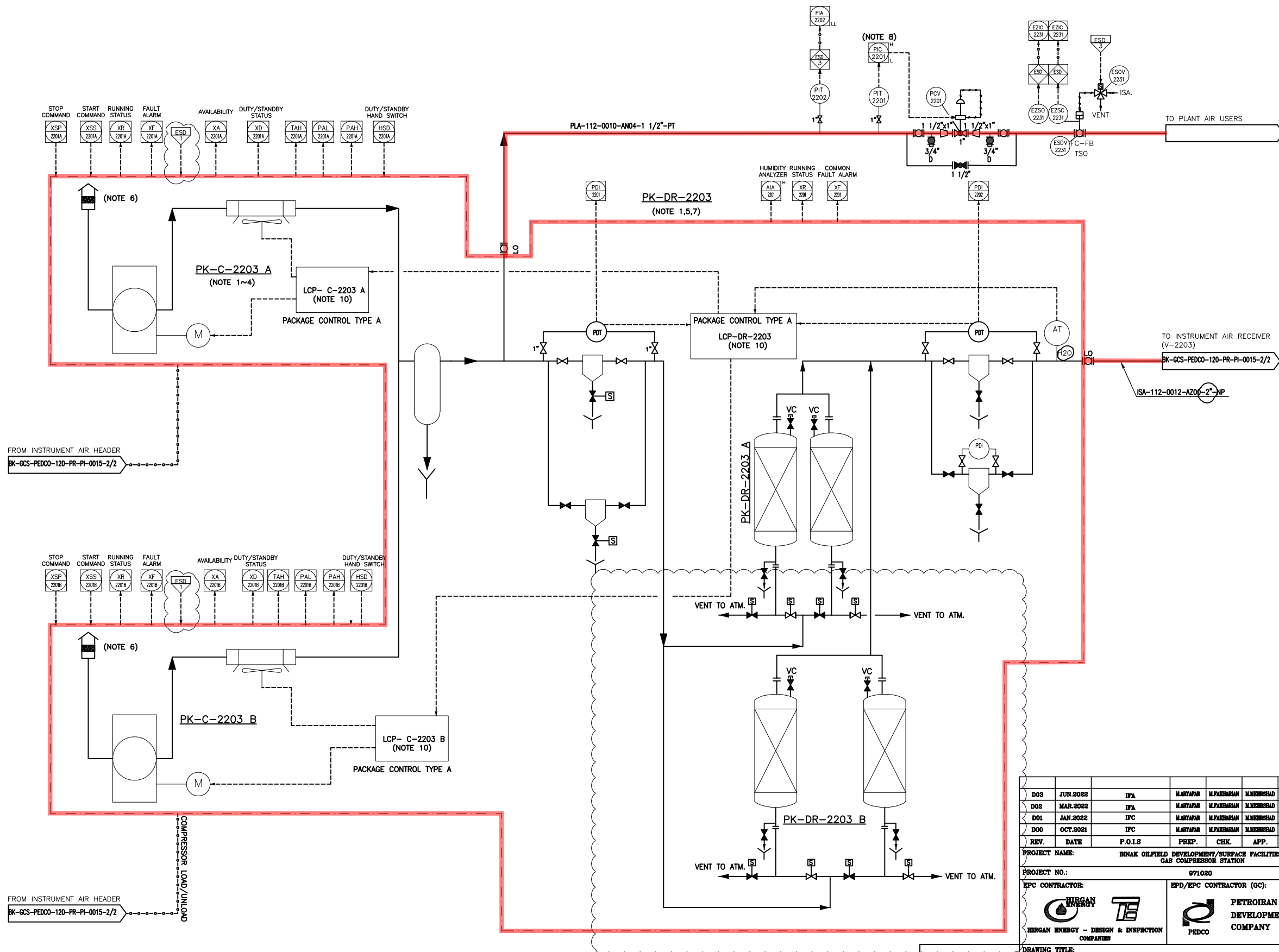
Node 10

PK-C-2203 A/B
AIR COMPRESSOR PACKAGE

DESIGN CAPACITY (DRY BASIS) : 191 Nm³/hr
DESIGN PRESS. : 12.5 barg

PK-DR-2203 A/B
AIR DRYER PACKAGE

DESIGN CAPACITY (DRY BASIS) : 157.3 Nm³/hr
DESIGN PRESS. : 12.5 barg



- 1- ALL EQUIPMENT AND INSTRUMENTATION INSIDE PACKAGE ARE IN THE VENDOR SCOPE OF WORK. LOCAL CONTROL PANEL FOR EACH TRAIN TO BE CONSIDERED AS PER SPECIFICATION.
- 2- THE STANDBY COMPRESSOR SHALL BE AUTOMATICALLY START BEFORE LOW LOW PRESSURE.
- 3- MOTOR SHALL BE CONTROLLED AND MONITORED BY PACKAGE CONTROL PANEL.
- 4- AIR INTAKE FILTER SHOULD BE SPECIFIED BY VENDOR IN THE AIR COMPRESSOR PACKAGE.
- 5- DETAILS OF AIR DRYER PACKAGE IS ONLY SHOWN INDICATIVELY, SIZE & MATERIAL WILL BE FINALIZED BY VENDOR.
- 6- AIR INTAKE FILTER SHOULD BE SPECIFIED BY VENDOR IN THE AIR COMPRESSOR PACKAGE.
- 7- 20% EXCESS DRY AIR IS CONSIDERED FOR DRYER.
- 8- SET POINT OF PALL--2201 ON THE PLANT AIR LINE IS EQUAL TO THE SET POINT OF PALL--2203 ON THE INSTRUMENT AIR LINE. THEREFORE, IF PALL IS OCCURRED IN THE INSTRUMENT AIR LINE, XV-0000 ON THE PLANT AIR LINE WILL BE CLOSED.
- 9- EACH COMPRESSOR HAS DEDICATED CONTROL ROOM MOUNTED UP FOR EACH TRAIN. DRYER HAS LCP SHALL BE CONNECTED TO PLANT DCS BY HARDWARE.
- 10- TYPE A, MICRO CONTROLLER BASED ON CONTROL PANEL (LOCATED IN COMPRESSOR AREA) SHALL BE PROVIDED BY VENDOR FOR COMPLETE ELECTRICALLY/CONTROL ACTION REQUIRED.
- 11-MOTOR STARTER SHALL BE CONSIDERED IN LOCAL CONTROL PANEL ON PACKAGE SKID BY MANUFACTURER.

GENERAL NOTE

LEGEND

REFERENCE DRAWING	DRG. No.
Utility Flow Diagram	BK-GCS-PEDCO-120-PR-UF-0001
Symbol & Legend For PFD & P&ID	BK-GCS-PEDCO-120-PR-PI-0001

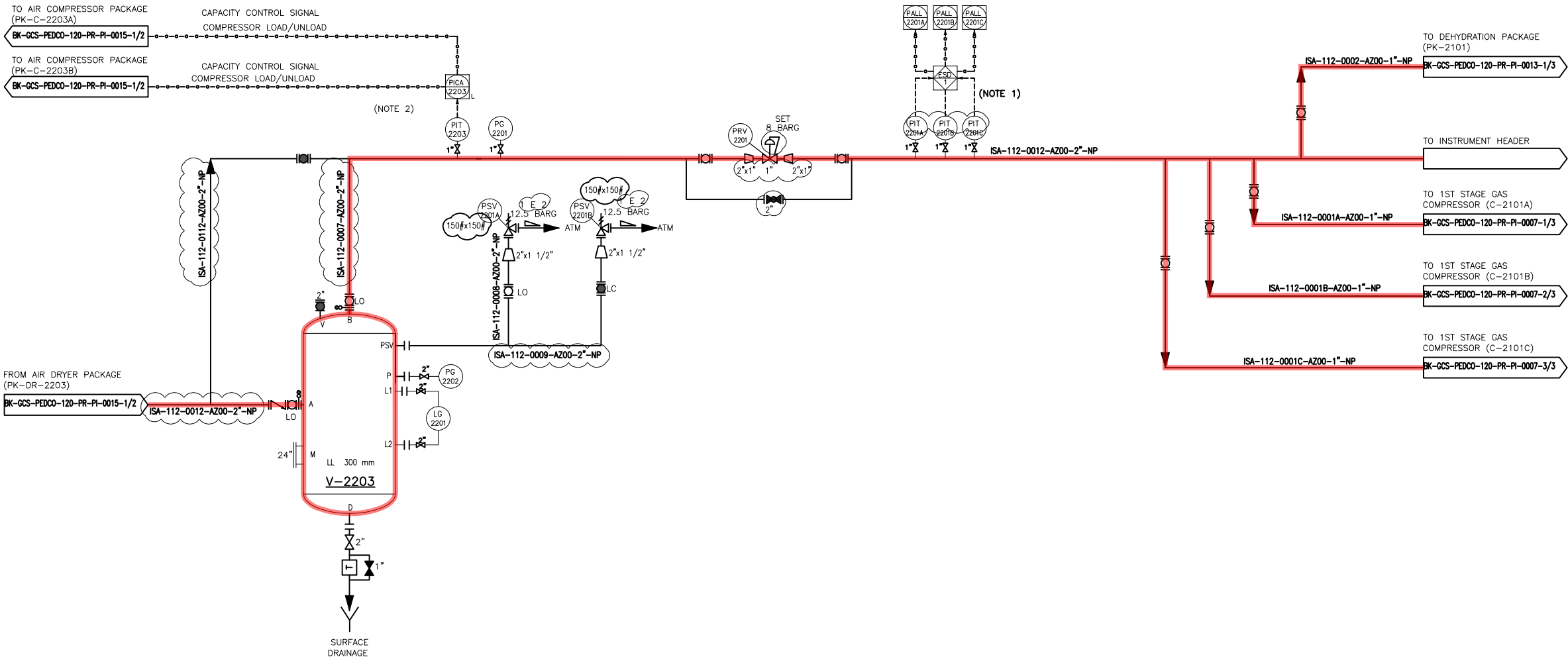
KEY PLAN

[illegible]

Node 10

V-2203
INSTRUMENT AIR RECEIVER

DIMENSION (ID X TL-TL) : 1500 X 5000 mm
DESIGN TEMP. : 85 °C
DESIGN PRESS. : 12.5 barg



- NOTES
- 1- 2 OF 3 VOTING FOR SYSTEM SHUTDOWN.
 - 2- PRESSURE TRANSMITTER WILL START STANDBY COMPRESSOR ON LOW PRESSURE OF DUTY COMPRESSOR.

GENERAL NOTE

LEGEND

REFERENCE DRAWING	DRG. No.
Utility Flow Diagram	BK-GCS-PEDCO-120-PR-UF-0001
Symbol & Legend For PFD & P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

D03	JUN 2022	IPA	MARYAM	M.FARHANI	M.MOKHLES	00.00																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												</
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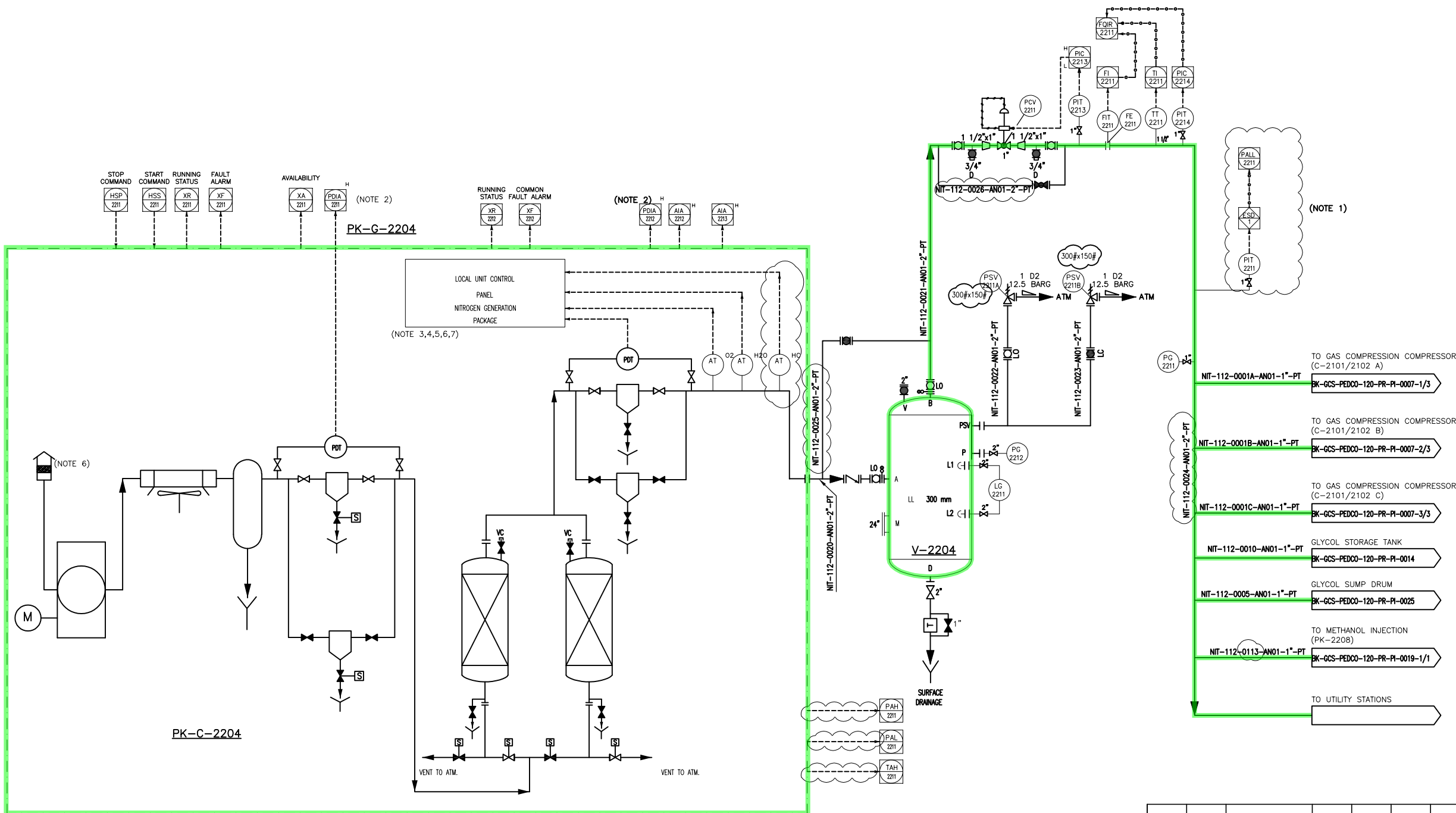
(VENDOR TITLE BLOCK)**

Node 11

PK-C-2204
AIR COMPRESSOR PACKAGE
DESIGN CAPACITY (DRY BASIS) : 161 Nm³/hr
DESIGN PRESS. : 12.5 barg

PK-G-2204
NITROGEN PACKAGE
DESIGN CAPACITY : 43 Nm³/hr
DESIGN PRESS. : 12.5 barg

V-2204
NITROGEN RECEIVER
DIMENSION (ID X TL-TL) : 1050 X 3150 mm
DESIGN TEMP. : 85 °C
DESIGN PRESS. : 12.5 barg







- NOTES
- 1- 2 OF 3 VOTING FOR SYSTEM SHUTDOWN.
 - 2- PACKAGE OUTPUT PRESSURE SIGNAL.
 - 3- DETAILS INSIDE NITROGEN GENERATION PACKAGE SHALL BE FINALIZED BY VENDOR.
 - 4- SIGNALS TO BE FINALIZED BY VENDOR.
 - 5- VENDOR SHALL CONSIDER ONE TIE-IN POINT FOR DRAINS & ONE TIE-IN POINT FOR VENTS.
 - 6- DELETED.
 - 7- ALL EQUIPMENT AND INSTRUMENTATION INSIDE PACKAGE ARE IN THE VENDOR SCOPE OF WORK. LOCAL CONTROL PANEL FOR EACH TRAIN TO BE CONSIDERED AS PER SPECIFICATION.

GENERAL NOTE

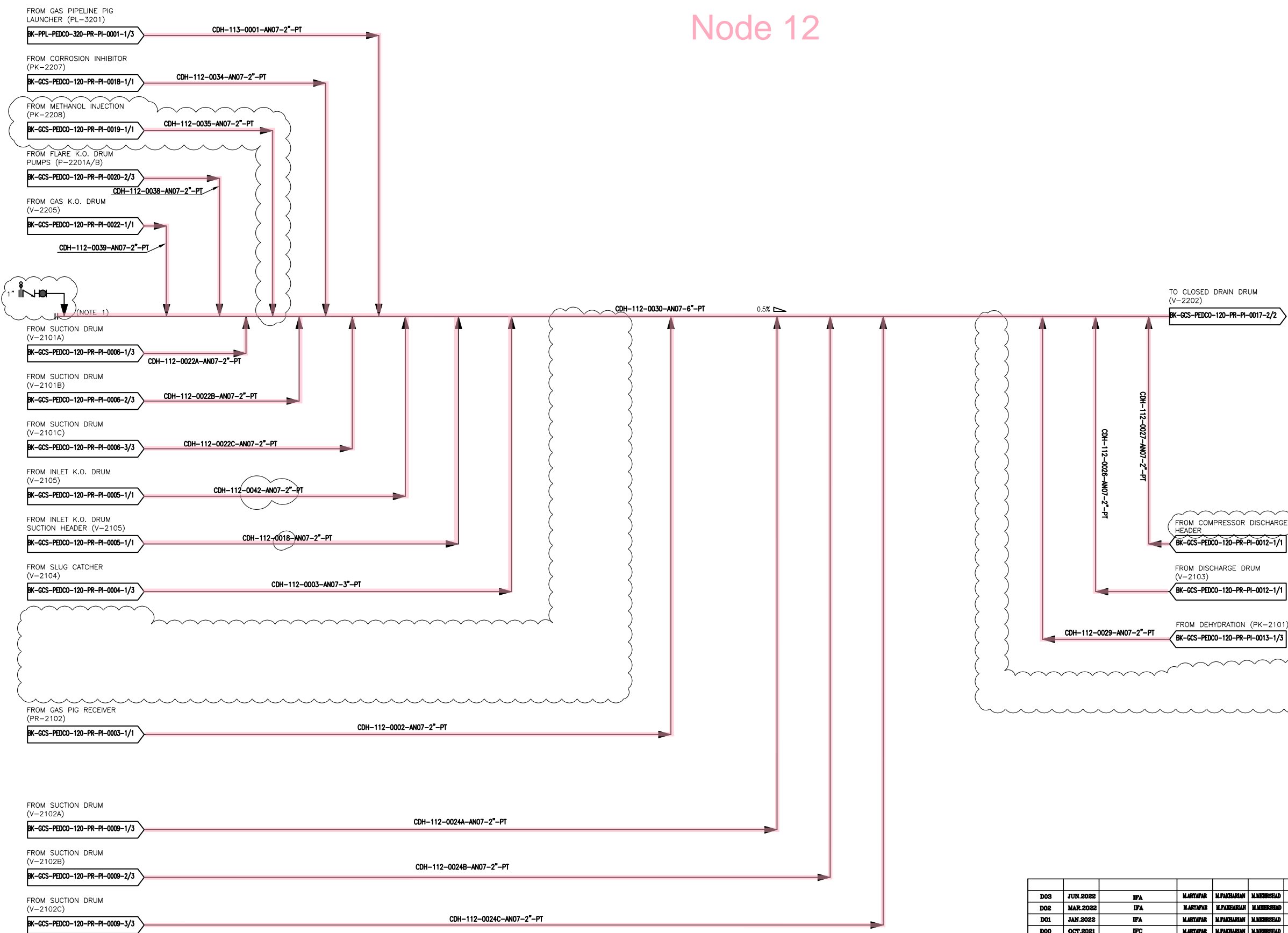
LEGEND

REFERENCE DRAWING	DRG. No.
Utility Flow Diagram	BK-GCS-PEDCO-120-PR-UF-0001
Symbol & Legend For PFD & P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

D03	JUN.2022	IPA	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00							
D02	MAR.2022	IPA	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00	000	0000000000	00.00	000.0000	00.00 000.0000		
D01	JAN.2022	IPC	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00	REV.	DESCRIPTION	BY	DATE	BY DATE		
D00	OCT.2021	IPC	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00			CHECKED		REV. APPR.		
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.	اصل و کلیه نسخ این نقشه و حق اقتباس محتای به شرکت ملی حفاری نفت خیز جنوب میباشد						
PROJECT NAME: BINAQ OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION							THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH THE COPYRIGHT THEREON ARE THE SOLE PROPERTY OF N.I.S.O.C./ FIELDS						
PROJECT NO.: 971020													
EPC CONTRACTOR:			EPD/EPC CONTRACTOR (GC):				BINAQ OILFIELD DEVELOPMENT SURFACE FACILITIES GAS COMPRESSOR STATION						
 HIRGAN ENERGY – DESIGN & INSPECTION COMPANIES			 PETROIRAN DEVELOPMENT COMPANY										
			 PEDCO										
DRAWING TITLE: P&ID – Nitrogen Generation System							NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED						
							APPROVED FOR CONSTRUCTION			BY:		DATE:	
SCALE	SIZE	DRAWING NO.			SHEET NO.	REV.	BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET	REVISION
NS	A3	BK-CGS-PEDCO-120-PR-PI-0016			1 OF 1	D03	053-073-9184	F	2	A	708794	1 OF 1	D03

Node 12



NOTES

1-PURGE AND FLUSHING CONNECTION.

GENERAL NOTE

LEGEND

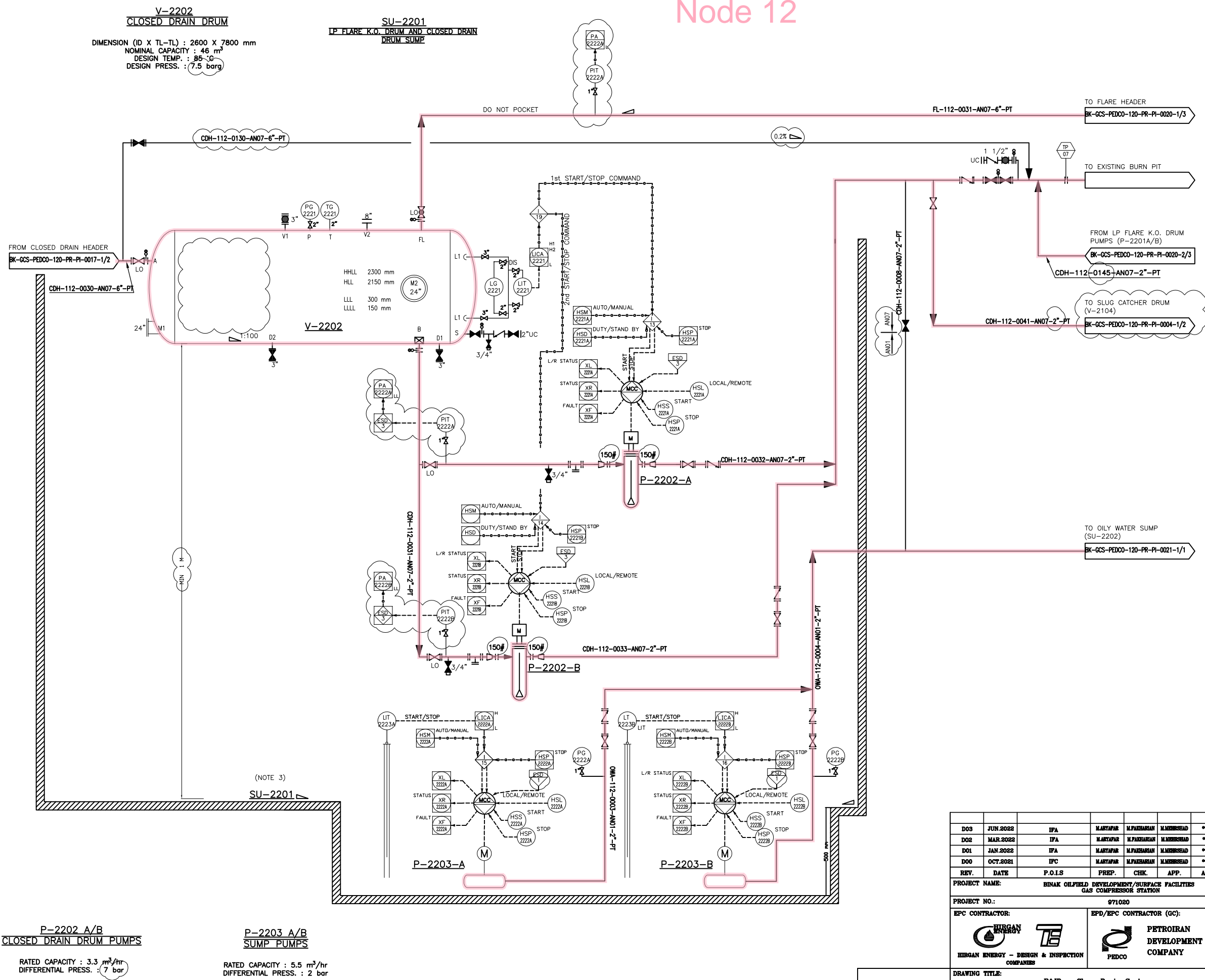
REFERENCE DRAWING	DRG. No.
Utility Flow Diagram	BK-GCS-PEDCO-120-PR-UF-0001
Symbol & Legend For PFD & P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

D03	JUN.2022	IPA	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00																		
D02	MAR.2022	IPA	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00	000	0000000000	00.00	000.0000	00.00	000.0000												
D01	JAN.2022	IPA	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00	REV.	DESCRIPTION	BY	DATE	BY	DATE												
D00	OCT.2021	IPC	MARYAM	M.PAKHMAN	M.MOHSEAD	00.00			CHECKED		REV.	APPR.												
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.	اصل و کاپیه نسخ این نقشه و حق اقتباس منطبق به شرکت ملی مناطق نفت خیز جنوب میباشد.																	
PROJECT NAME: BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION																								
PROJECT NO.: 971020																								
EPC CONTRACTOR: HURGAN ENERGY - DESIGN & INSPECTION COMPANIES								EPD/EPC CONTRACTOR (GC): PETROIRAN DEVELOPMENT COMPANY																
DRAWING TITLE: P&ID - Close Drain System																								
BINAK OILFIELD DEVELOPMENT SURFACE FACILITIES GAS COMPRESSOR STATION																								
DATE				SCALE				DRAWING BY				CHECKED BY												
NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED																								
APPROVED FOR CONSTRUCTION										BY:		DATE:												
SCALE	SIZE	DRAWING NO.			SHEET NO.	REV.	BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET	REVISION											
NS	A3	BK-GCS-PEDCO-120-PR-PI-0017			1 OF 2	D03	D53-073-9184	F	2	A	708795	1 OF 2	D03											

(VENDOR TITLE BLOCK)**

Node 12



NOTES

1- IN CASE OF LOW LEVEL OF UA-2221, THE CONTROL SYSTEM STOPS BOTH PUMPS, IF LIQUID LEVEL OF V-2202 REACHES H1 LEVEL, LEAD PUMP WILL BE STARTED. IN CASE OF H2 LEVEL ALARM, LAG PUMP WILL BE STARTED.

2- DELETED.

3- FLARE K.O. DRUM, CLOSE DRUM AND RELATED PUMPS ARE IN COMMON PIT.

GENERAL NOTE

LEGEND

REFERENCE DRAWING	DRG. No.
Utility Flow Diagram	BK-GCS-PEDCO-120-PR-UF-0001
Symbol & Legend For PFD & P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

D03	JUN.2022	IPA	MARYAPAR	M.PAKHMAN	M.MOHSEAD	00.00
D02	MAR.2022	IPA	MARYAPAR	M.PAKHMAN	M.MOHSEAD	00.00
D01	JAN.2022	IPA	MARYAPAR	M.PAKHMAN	M.MOHSEAD	00.00
D00	OCT.2021	IPC	MARYAPAR	M.PAKHMAN	M.MOHSEAD	00.00
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.

PROJECT NAME: BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION

PROJECT NO.: 971080

EPC CONTRACTOR: HIRGAN ENERGY - DESIGN & INSPECTION COMPANIES

EPC CONTRACTOR (GC): PETROIRAN DEVELOPMENT COMPANY

DRAWING TITLE: P&ID - Close Drain System

DATE	SCALE	DRAWING BY	CHECKED BY	PROJECT ENG.

NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED

APPROVED FOR CONSTRUCTION	BY:	DATE:




SCALE	SIZE	DRAWING NO.	SHEET NO.	REV.	BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET	REVISION
NS	A3	BK-GCS-PEDCO-120-PR-PI-0017	2 OF 2	D03	053-073-9184	F	2	A	708795	2 OF 2	D03

Node 14

FROM EXISTING HEADER

(NOTE 1)

TP
10

D03	XXX 2022	IFA	MARYAM	M.PAKHMAN	M.MEHRSHAD	00.00																																										
D02	MAR 2022	IFA	MARYAM	M.PAKHMAN	M.MEHRSHAD	00.00	000	0000000000	00.00	000.0000	00.00	000.0000																																				
D01	JAN 2022	IFA	MARYAM	M.PAKHMAN	M.MEHRSHAD	00.00	REV.	DESCRIPTION	BY	DATE	BY	DATE																																				
D00	OCT 2021	IPC	MARYAM	M.PAKHMAN	M.MEHRSHAD	00.00					CHECKED		REV.	APPR.																																		
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.	اصل و کاپیه نسخ این نقشه و حق اقتباس منطبق به شرکت ملی مناطق نفت خیز جنوب میباشد.																																									
PROJECT NAME:							BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION											THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH THE COPYRIGHT THEREIN ARE THE SOLE PROPERTY OF N.I.S.O.C./ FIELDS																														
PROJECT NO.:							971020																																									
EPC CONTRACTOR:							EPD/EPC CONTRACTOR (GC):									BINAK OILFIELD DEVELOPMENT SURFACE FACILITIES GAS COMPRESSOR STATION																																
 HURGAN ENERGY - DESIGN & INSPECTION COMPANIES							 PETROIRAN DEVELOPMENT COMPANY																																									
DATE							SCALE															DRAWING BY									CHECKED BY									PROJECT ENG.								
DRAWING TITLE:							P&ID - Methanol Injection Package									NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED																																
							APPROVED FOR CONSTRUCTION									BY:									DATE:																							
SCALE	SIZE	DRAWING NO.				SHEET NO.	REV.	BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET	REVISION																																		
NS	AS	BK-GCS-PEDCO-120-PR-PI-0019				1 OF 1	D03	05-073-9184	F	2	A	708797	1 OF 1	D03																																		

NOTES

1- METHANOL WILL BE SUPPLY FROM EXISTING METHANOL INJECTION PACKAGE.

GENERAL NOTE

LEGEND

REFERENCE-DRAWING

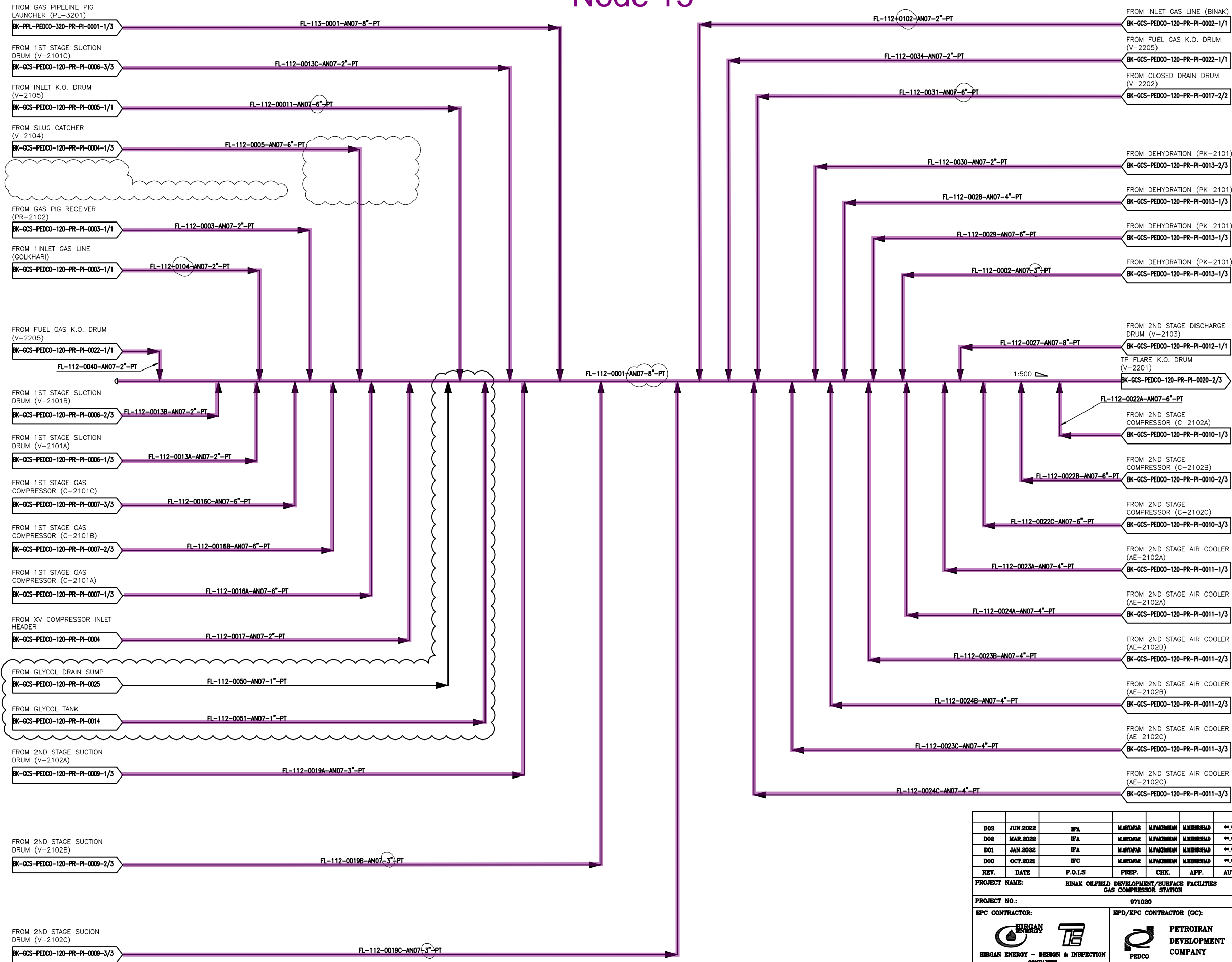
DEG. No.

Utility Flow Diagram	BK-GCS-PEDCO-120-PR-UF-0001
Symbol & Legend For PFD & P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

(VENDOR TITLE BLOCK)**

Node 15



NOTES

1- ALL FLARE LINES SHALL BE SELF DRAINING WITH NO POCKET
FLARE SUB-HEADERS SHALL BE CONNECTED TO HEADER FROM TOP.

GENERAL NOTE

LEGEND

REFERENCE DRAWING	DRG. No.
Utility Flow Diagram	BK-GCS-PEDCO-120-PR-UF-0001
Symbol & Legend For PFD & P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

D03	JUN.2022	IPA	MARYAPAR	MPAKHARAN	MMHSHAD	00.00
D02	MAR.2022	IPA	MARYAPAR	MPAKHARAN	MMHSHAD	00.00
D01	JAN.2022	IPA	MARYAPAR	MPAKHARAN	MMHSHAD	00.00
D00	OCT.2021	IPC	MARYAPAR	MPAKHARAN	MMHSHAD	00.00
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.

PROJECT NAME: BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION

PROJECT NO.: 971080

EPC CONTRACTOR:

HURGAN ENERGY - DESIGN & INSPECTION COMPANIES

EPC CONTRACTOR (GC):

PETROIRAN DEVELOPMENT COMPANY

DRAWING TITLE: P&ID - LP Flare System

SCALE	SIZE	DRAWING NO.	SHEET NO.	REV.
NS	A3	BK-GCS-PEDCO-120-PR-PI-0080	1 OF 3	D03

BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET	REVISION
D53-073-9184	F	2	A	708798	1 OF 3	D03

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BINAK OILFIELD DEVELOPMENT SURFACE FACILITIES GAS COMPRESSOR STATION

DATE	SCALE	DRAWING BY	CHECKED BY	PROJECT ENG.

NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED

APPROVED FOR CONSTRUCTION	BY:	DATE:

DIMENSION (ID X TL-TL) : 1000 X 3000 mm
DESIGN TEMP. : 85 °C
DESIGN PRESS. : 7.5 barg

SU-2201
LP FLARE K.O. DRUM AND CLOSED DRAIN
DRUM SUMP

Node 15

NOTES

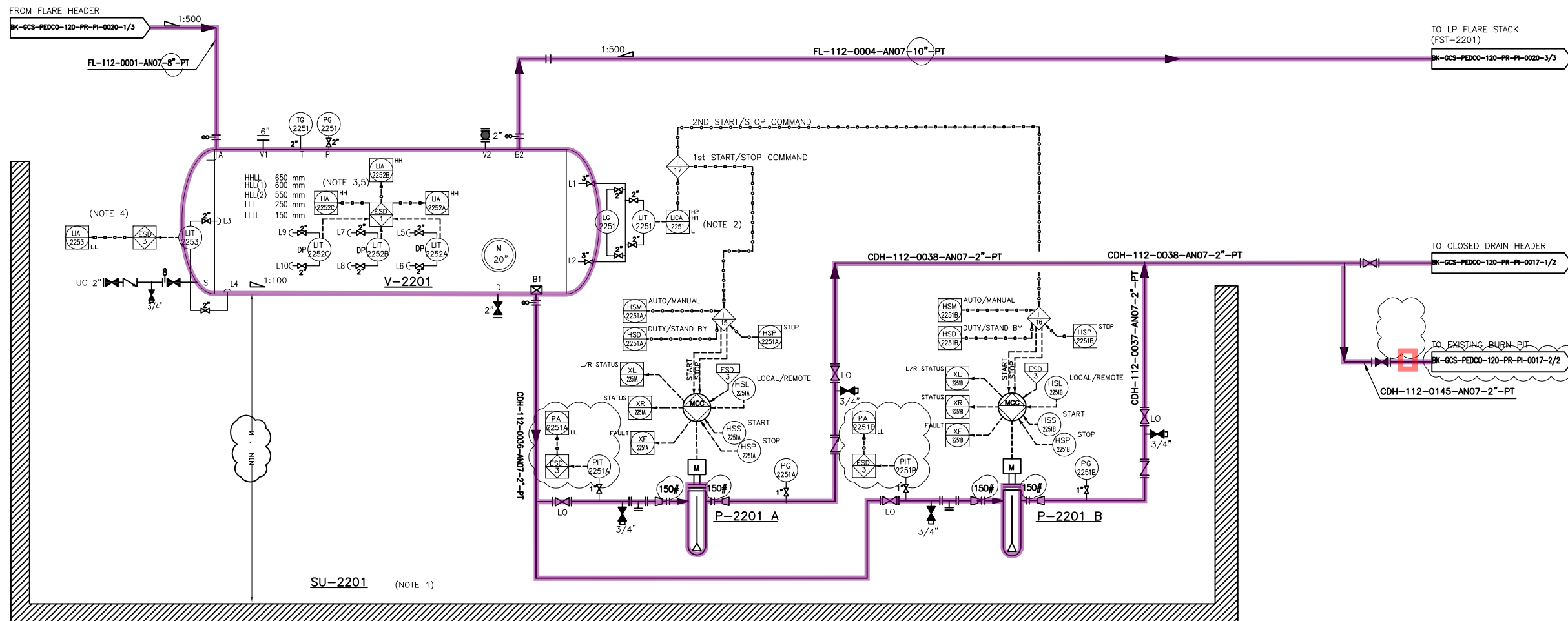
- 1- FLARE K.O. DRUM, CLOSED DRAIN DRUM, GLYCOL SUMP DRUM AND RELATED PUMPS ARE IN COMMON PIT.
- 2- AT LEVEL H1, DUTY PUMP TO BE STARTED. AT LEVEL H2, STAND-BY PUMP TO BE STARTED.
- 3- HIGH-LEVEL LIQUID LEVEL INITIATES PLANT TOTAL SHUT-DOWN.
- 4- LT (LOW LOW LEVEL TRANSMITTER LT- 2253IN THE FLARE DRUM) WILL STOP THE PUMPS.
- 5- VOTING 2 OF 3.

GENERAL NOTE

LEGEND

REFERENCE DRAWING	DRG. No.
Utility Flow Diagram	BK-GCS-PEDCO-120-PR-UF-000
Symbol & Legend For PFD & P&ID	BK-GCS-PEDCO-120-PR-PI-000

KEY PL



P-2201 A/B
LP FLARE K.O. DRUM PUMP

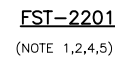
RATED CAPACITY : 2.2 m³/hr
DIFFERENTIAL PRESS. : (1.5) bar

[illegible]

(VENDOR TITLE BLOCK)*

FST-2201
LP FLARE STACK
FLARE STACK HEIGHT : 17 M
FLARE STACK SIZE : 10 INCH

Node 15



- NOTES**
- 1- FLARE PACKAGE SHALL INCLUDE (AT LEAST):
 - FLARE STACK
 - FLARE TIP & SEAL
 - PILOT & IGNITION SYSTEM
 - LPG BOTTLES
 - 2- IGNITION PANEL SHALL BE INSTALLED OUTSIDE FLARE RADIATION ZONE.
 - 3- SET PRESSURE TO BE ADVISED BY FLARE TIP VENDOR.
 - 4- THREE PILOT AND IGNITION LINES (ONE PER PILOT) PRESENTED FOR THE FLARE TIP TO BE CONFIRMED BY VENDOR.
 - 5- HIGH ENERGY IGNITION TYPE WITH AUTO REIGNITION CAPABILITY SHALL BE CONSIDERED FOR FLARE PACKAGE (BY VENDOR).
 - 6- PILOT GAS BACK-UP BY LPG BOTTLES. NUMBER OF BOTTLES AND DETAILS TO BE FINALIZED BY VENDOR.
 - 7- THE LPG BOTTLE REQUIRED FOR 12 HOUR BACK-UP AND NUMBER OF BOTTLES SHALL BE SPECIFIED AND SUPPLIED BY VENDOR.
 - 8- THE LPG BOTTLE CONNECTION POINT SHALL BE CLOSEST AS POSSIBLE TO DISTRIBUTION POINT.
 - 9- PILOT FLAME STATUS TO BE PROVIDED BY FLAME PACKAGE IN CONTROL ROOM. VENDOR TO PROVIDE DUPLEX THERMOCOUPLES ON BURN-LOCAL LINE.
 - 10- LOCAL MCC (MOTOR CONTROL CENTER) OR PDP (POWER DISTRIBUTION PANEL) IS IN VENDOR SCOPE OF WORK.
 - 11- SIGNAL WILL BE FINALIZED BY VENDOR.

GENERAL NOTE

LEGEND

REFERENCE DRAWING	DRG. No.
Utility Flow Diagram	BK-GCS-PEDCO-120-PR-UF-0001
Symbol & Legend For PFD & P&ID	BK-GCS-PEDCO-120-PR-PI-0001

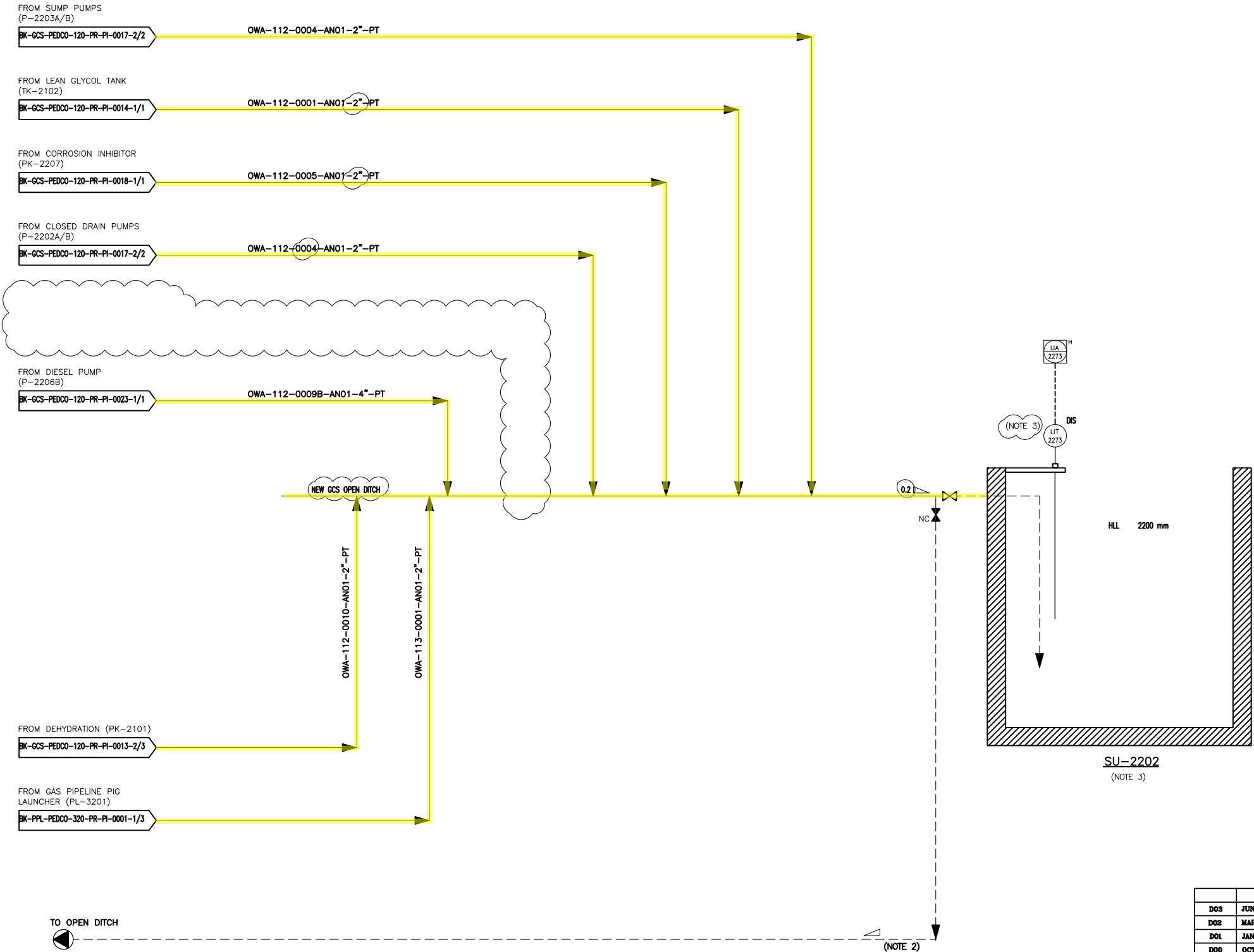
KEY PLAN

[illegible]

SU-2202
OILY WATER SUMP

DIMENSION (H X W X L) : 2500 X 3000 X 4000 mm

Node 16






- NOTES
- 1-DELETED.
 - 2- IT IS ASSUMED THAT OILY WATER FROM PAVING AREA SHALL BE ROUTED TO NON-CONTAMINATED SEWER AFTER 15 MINUTES OF RAIN.
 - 3- SU-2202 WILL BE UNLOADED BY PORTABLE PUMP (OUT OF SCOPE).
 - 4- TOP MOUNTED DISPLACER LEVEL TRANSMITTER WILL BE INSTALLED ON A PLATE AT SUMP GROUND LEVEL)NO PIPING CONNECTION REQUIRED.)

GENERAL NOTE

LEGEND

REFERENCE DRAWING	DRG. No.
Utility Flow Diagram	BK-GCS-PEDCO-120-PR-UF-0001
Symbol & Legend For PFD & P&ID	BK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

D03	JUN.2022	IPA	MARYAM	M.PAKHRAHAN	M.MOHSEHAD	00.00									
D02	MAR.2022	IPA	MARYAM	M.PAKHRAHAN	M.MOHSEHAD	00.00	000	0000000000	00.00	000.0000	00.00	000.0000			
D01	JAN.2022	IPA	MARYAM	M.PAKHRAHAN	M.MOHSEHAD	00.00	REV.	DESCRIPTION	BY	DATE	BY	DATE			
D00	OCT.2021	IPC	MARYAM	M.PAKHRAHAN	M.MOHSEHAD	00.00					CHECKED		REV.	APPR.	
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.	<div>اصل و کلیه نسخ این نقشه و حق اقبالی متعلق به شرکت ملی مناطق نفت خیز جنوب می باشد.</div> <div>THE ORIGINAL AND ALL COPIES OF THIS DRAWING TOGETHER WITH THE COPYRIGHT THEREIN ARE THE SOLE PROPERTY OF N.I.S.O.C./ FIELDS</div>								
PROJECT NAME:							BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION								
PROJECT NO.:							971020								
EPC CONTRACTOR:			EPD/EPC CONTRACTOR (GC):				<div><div><div>HIRGAN ENERGY - DESIGN & INSPECTION COMPANIES</div></div><div><div>PEDCO</div></div><div><div>PETROIRAN DEVELOPMENT COMPANY</div></div></div>								
<div>DRAWING TITLE:</div> <div>P&ID - Oily Water Sewer</div>							BINAK OILFIELD DEVELOPMENT SURFACE FACILITIES GAS COMPRESSOR STATION								
							DATE	SCALE	DRAWING BY	CHECKED BY	PROJECT ENG.				
<div>DRAWING TITLE:</div> <div>P&ID - Oily Water Sewer</div>							NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED								
							APPROVED FOR CONSTRUCTION						BY:		DATE:
SCALE	SIZE	DRAWING NO.			SHEET NO.	REV.	BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET	REVISION		
NS	A3	BK-GCS-PEDCO-120-PR-PI-0021			1 OF 1	D03	053-073-9184	F	2	A	708799	1 OF 1	D03		

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DATE	SCALE	DRAWING BY	CHECKED BY	PROJECT ENG.

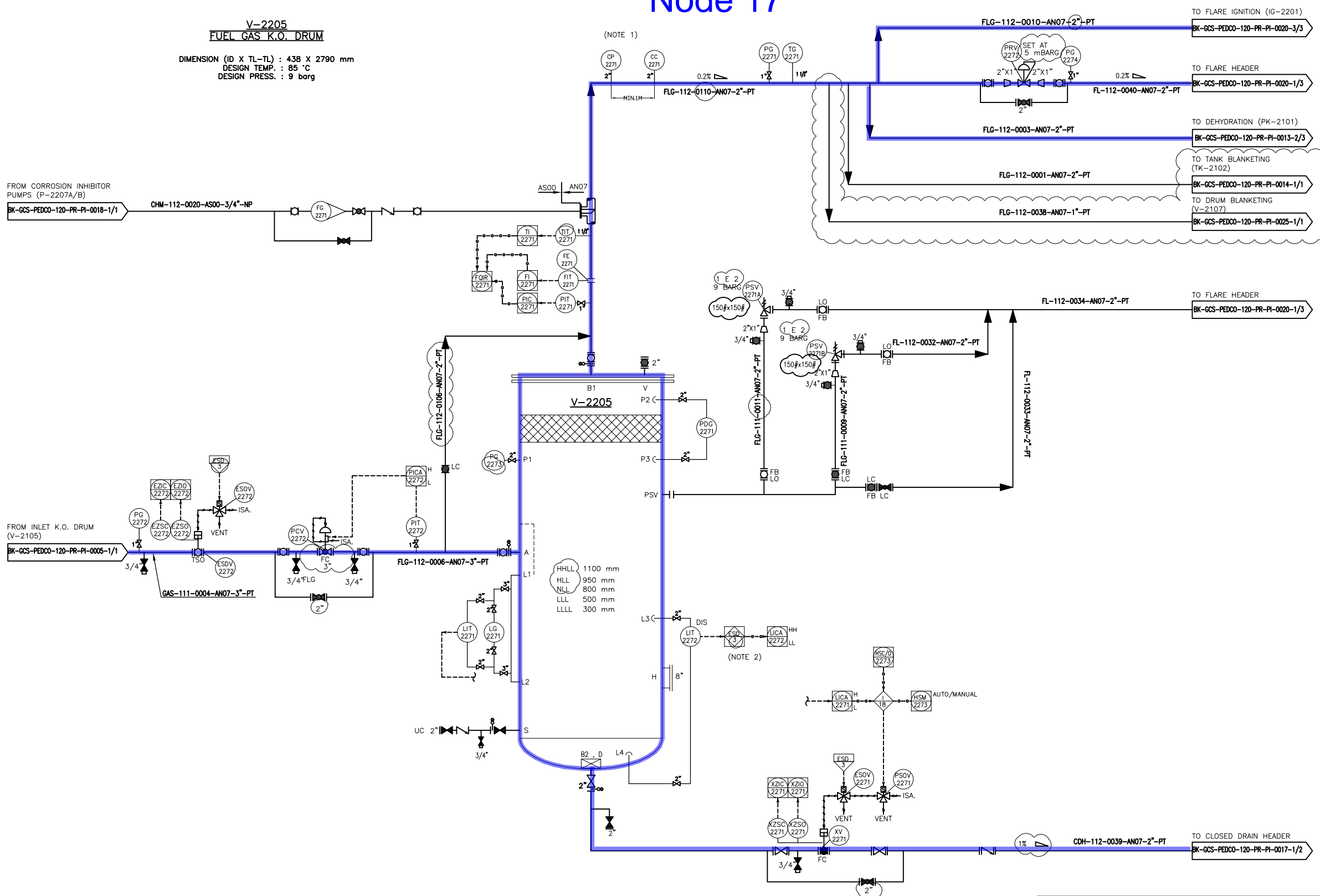
APPROVED FOR CONSTRUCTION	BY:	DATE:

(VENDOR TITLE BLOCK)**

Node 17

V-2205
FUEL GAS K.O. DRUM

DIMENSION (ID X TL-TL) : 438 X 2790 mm
DESIGN TEMP. : 85 °C
DESIGN PRESS. : 9 barg



NOTES

2- ESD LEVEL 3 FOR HH & LL ALARM LIQUID LEVEL.

GENERAL NOTE

LEGEND

REFERENCE DRAWING	DRG. No.
Utility Flow Diagram	BK-GCS-PEDCO-120-PR-UF-000
Symbol & Legend For PFD & P&ID	BK-GCS-PEDCO-120-PR-PI-000

KEY PLANS

[illegible]

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**BINAK OILFIELD DEVELOPMENT
SURFACE FACILITIES
GAS COMPRESSOR STATION**

DATE	SCALE	DRAWING BY	CHECKED BY	PROJECT ENG

NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED

APPROVED FOR CONSTRUCTION				BY:	DATE:	
BUDGET REF.	LOCATION	SIZE	CLASS	SERIAL NO.	SHEET	REVISION
053-073-8194	F	2	A	708800	1 OF 1	D03

PROJECT NAME:	BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION
---------------	---

PROJECT NO.:	971020
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EPC CONTRACTOR:

HIRGAN ENERGY - DESIGN & INSPECTION

	COMPANIES
DRAWING TITLE:	

P&ID -

SCALE	SIZE	DRAWING

NS	A3	BK-GCS-PEDC
----	----	-------------

EPD/EPC CONTRACTOR (GC):

DETROIT, Mich.


PETROIRAN
DEVELOPMENT

**DEVELOPME
COMPANI**

N | PEDCO COMPANY

--	--

Fuel Gas System

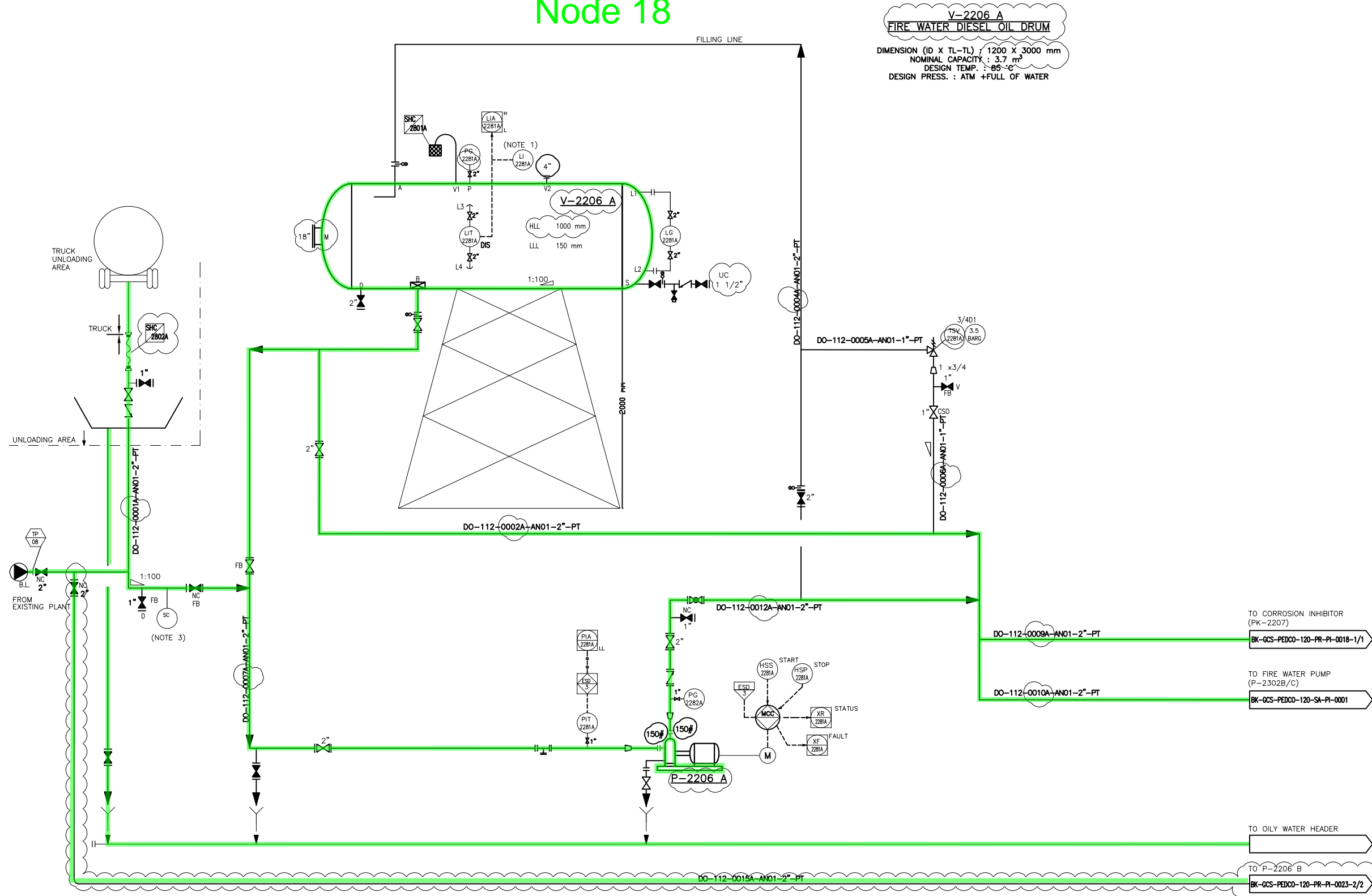
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WING NO.	SHEET NO

0-120-PR-PI-0022	1 OF 1
------------------	--------

(VENDOR TITLE BLOCK)**

Node 18



P-2206 A (NOTE 2)
FIRE WATER DIESEL PUMP
RATED CAPACITY : 5.5 m³/hr
DIFFERENTIAL PRESS. : 2 bar

V-2206 A
FIRE WATER DIESEL OIL DRUM
DIMENSION (ID X TL-TL) : 1200 X 3000 mm
NOMINAL CAPACITY : 3.7 m³
DESIGN TEMP. : 65 °C
DESIGN PRESS. : ATM. + FULL OF WATER

NOTES

- 1- REMOTE LEVEL INDICATION LOCATE AT GRADE OF UNLOADING AREA IS REQUESTED.
- 2- DIESEL PUMP TO BE INSTALLED UNDER SHELTER OR EQUIVALENT TO PROTECT AGAINST SOLAR RADIATION.
- 3- SAMPLE POSITION TO BE EASY TO ACCESS.
- 4- DELETED.
- 5- DELETED.

GENERAL NOTE

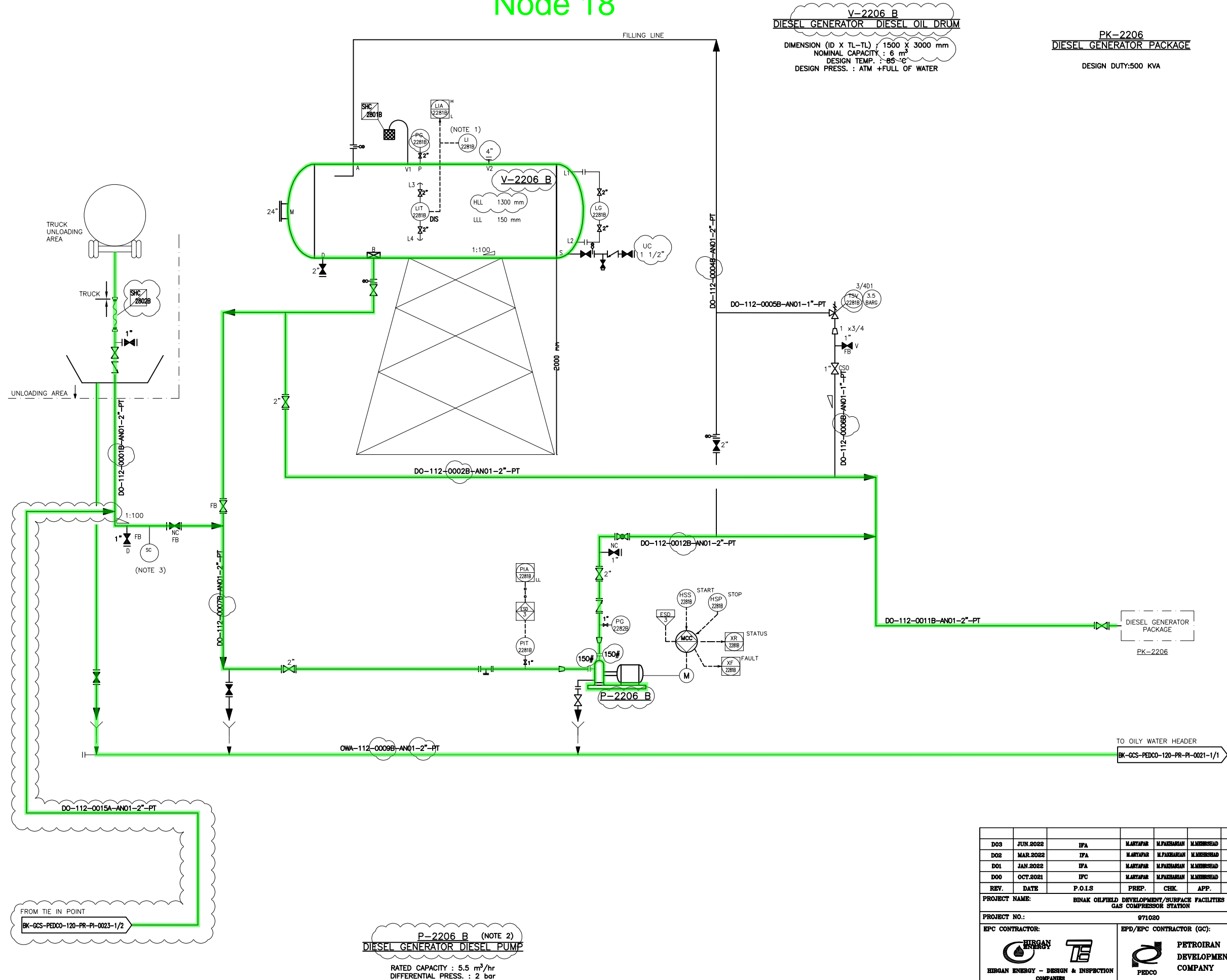
LEGEND

REFERENCE DRAWING	DRG. No.
Utility Flow Diagram	EK-GCS-PEDCO-120-PR-UF-0001
Symbol & Legend For PFD & P&ID	EK-GCS-PEDCO-120-PR-PI-0001

KEY PLAN

[illegible]

Node 18



- NOTES**
- | |
|--|
| 1- REMOTE LEVEL INDICATION LOCATE AT GRADE OF UNLOADING AREA IS REQUESTED. |
| 2- DIESEL PUMP TO BE INSTALLED UNDER SHELTER OR EQUIVALENT TO PROTECT AGAINST SOLAR RADIATION. |
| 3- SAMPLE POSITION TO BE EASY TO ACCESS. |
| 4- DELETED. |
| 5- DELETED. |

GENERAL NOTE

LEGEND

REFERENCE DRAWING	DRG. No.
Utility Flow Diagram	BK-GCS-PEDCO-120-PR-UF-0001
Symbol & Legend For PFD & P&ID	BK-GCS-PEDCO-120-PR-PI-0001

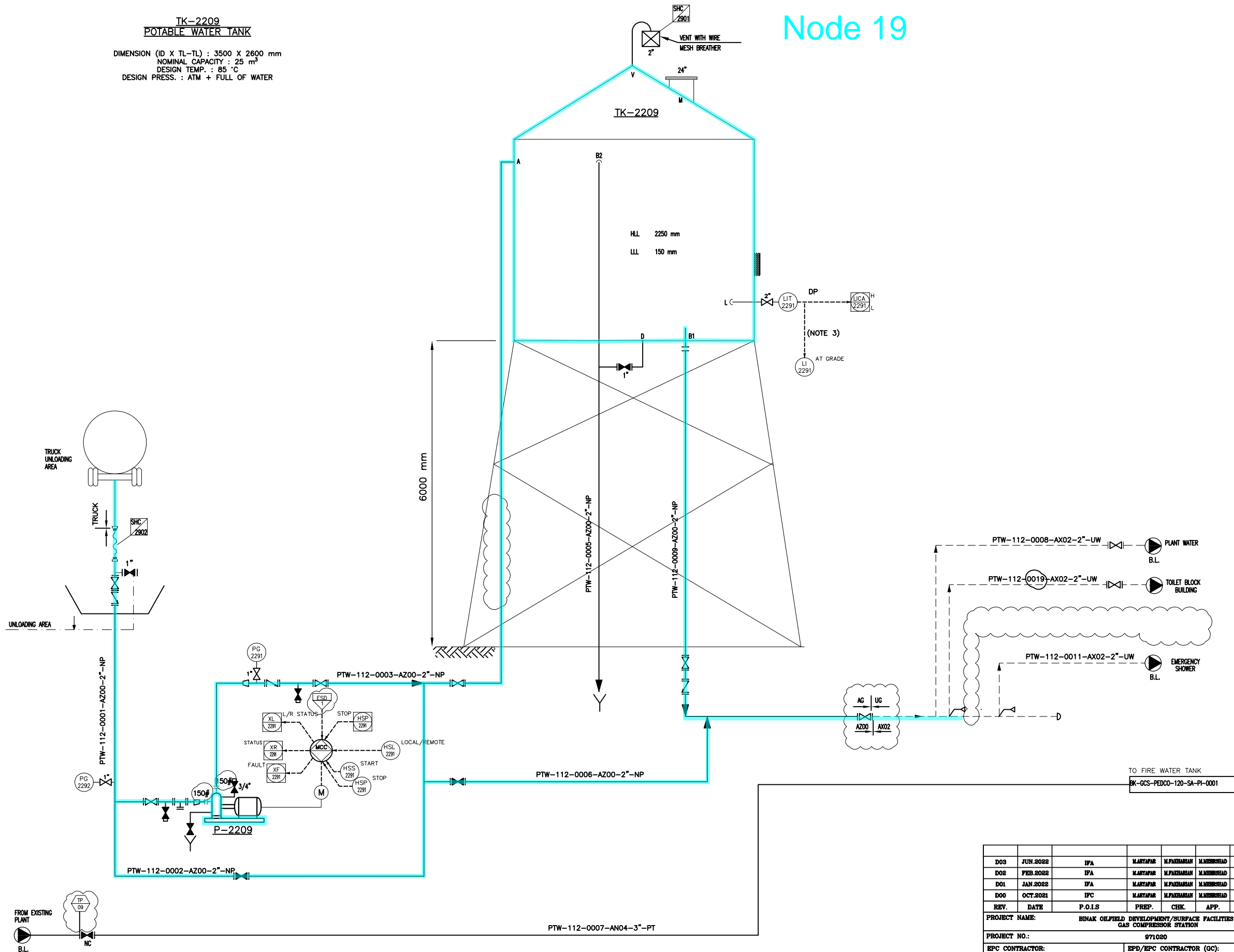
KEY PLAYS

[illegible]

Node 19

TK-2209
POTABLE WATER TANK

DIMENSION (ID X TL-TL) : 3500 X 2600 mm
NOMINAL CAPACITY : 25 m³
DESIGN TEMP. : 85 °C
DESIGN PRESS. : ATM + FULL OF WATER



P-2209
POTABLE WATER PUMP

RATED CAPACITY : 5.5 m³/hr
DIFFERENTIAL PRESS. : 2 bar

NOTES

- 1- DELETED.
2- DELETED.
3- LI SHALL BE READABLE AT GROUND.

GENERAL NOTE

LEGEND

REFERENCE DRAWING	DRG. No.
Utility Flow Diagram	BK-GCS-PEDCO-120-PR-UF-0001
Symbol & Legend For PFD & P&ID	BK-GCS-PEDCO-120-PR-PI-0001

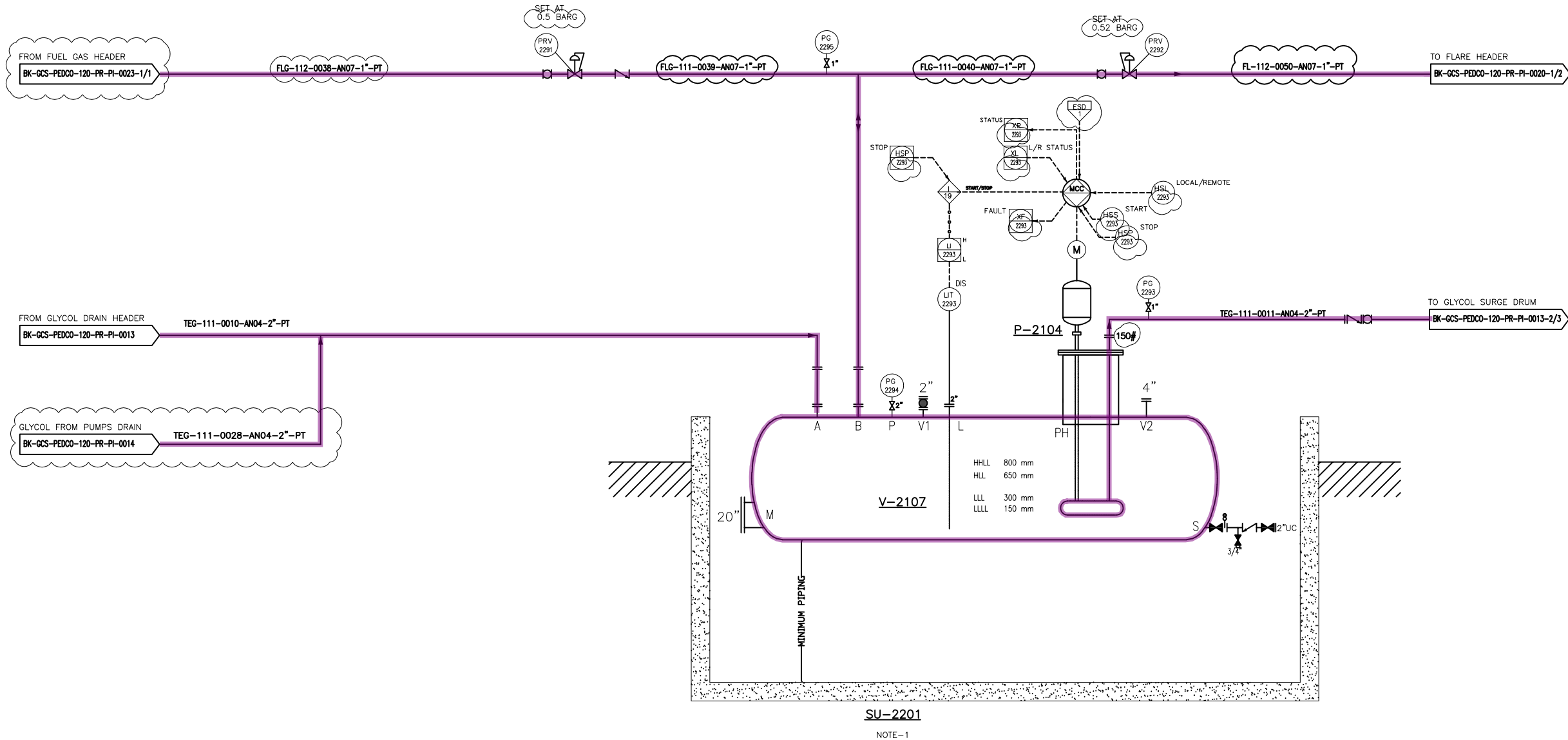
KEY PLAN

[illegible]

Node 20

GLYCOL SUMP DRUM




DIMENSION (ID X TL-TL) : 1100 X 3600 mm
DESIGN TEMP. : 85 °C
DESIGN PRESS. : 3.5 barg



P-2104
GLYCOL DRAIN PUMP

DISCHARGE CAPACITY : 3.3 m³/hr
DIFFERENTIAL PRESS. : 2 bar

(VENDOR TITLE BLOCK)**

D03	JUN.2022	IFA	MARTAFIR	M.PATEHARAN	M.MOHESHAID	00.00
D02	MAR.2022	IFA	M.PATEHARAN	M.MOHESHAID		000.0000
D01	JAN.2022	IFA	MARTAFIR	M.PATEHARAN	M.MOHESHAID	00.00
D00	SEP.2021	IFC	MARTAFIR	M.PATEHARAN	M.MOHESHAID	00.00
REV.	DATE	P.O.I.S	PREP.	CHK.	APP.	AUT.
PROJECT NAME: BINAK OILFIELD DEVELOPMENT/SURFACE FACILITIES GAS COMPRESSOR STATION						
PROJECT NO.: 971020						
EPC CONTRACTOR:			EPD/EPC CONTRACTOR (GC):			
  HINGNAN ENERGY - DESIGN & INSPECTION COMPANIES			 PETROIRAN DEVELOPMENT COMPANY			
<p align="center">BINAK OILFIELD DEVELOPMENT SURFACE FACILITIES GAS COMPRESSOR STATION</p> <div style="display: flex; justify-content: space-between;"> <div> <p>DATE</p> <p>SCALE</p> </div> <div> <p>DRAWING BY</p> <p>CHECKED BY PROJECT ENG.</p> </div> </div>						
DRAWING TITLE:						
F&I – Glycol Sump Drum						
NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED						
APPROVED FOR CONSTRUCTION BY:						DATE:
SCALE	SIZE	DRAWING NO.	SHEET NO.	REV.	BUDGET REF.	LOCATION SIZE CLASS SERIAL NO. SHEET REVISION
NS	A3	BK-GCS-PEDCO-120-PR-PI-0026	1 OF 1	DOS	053-073-9164	F 2 A 708603 1 OF 1 DOS

NOTES

1- GLYCOL SUMP DRUM ,FLARE K.O. DRUM, CLOSED DRAIN DRUM
AND RELATED PUMPS ARE IN COMMON PIT.

2- DELETED.

LEGEND

REFERENCE DRAWING	DRG. No.
Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-P1-0001

KEY PLAN