



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض

احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک



شماره پیمان:

053 - 073 - 9184

PROCESS MAIN EQUIPMENT LIST

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|------|-------|----------|------|---------|-----------|-----------|-------|
| D03 | 0001 | LI | PR | 120 | PEDCO | GCS | BK |

شماره صفحه: 1 از 10

طرح نگهداشت و افزایش تولید 27 مخزن

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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



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|------|-------|----------|------|---------|-----------|-----------|-------|
| D03 | 0001 | LI | PR | 120 | PEDCO | GCS | BK |

شماره صفحه: 2 از 10

EVISION RECORD SHEET

| PAGE | D00 | D01 | D02 | D03 | D04 |
|------|-----|-----|-----|-----|-----|
| 1 | X | | X | X | |
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| 62 | | | | | |
| 63 | | | | | |
| 64 | | | | | |
| 65 | | | | | |

| PAGE | D00 | D01 | D02 | D03 | D04 |
|------|-----|-----|-----|-----|-----|
| 66 | | | | | |
| 67 | | | | | |
| 68 | | | | | |
| 69 | | | | | |
| 70 | | | | | |
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| 129 | | | | | |
| 130 | | | | | |



نگهداشت و افزایش تولید میدان نفتی بینک
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| D03 | 0001 | LI | PR | 120 | PEDCO | GCS | BK |

شماره صفحه: 3 از 10

| | | |
|-----|----------------------------|----|
| 1.0 | INTRODUCTION | 4 |
| 2.0 | NORMATIVE REFERENCES..... | 5 |
| 2.1 | THE PROJECT DOCUMENTS..... | 5 |
| 2.2 | ENVIRONMENTAL DATA | 5 |
| 3.0 | DRUM | 6 |
| 4.0 | TANK | 7 |
| 5.0 | COMPRESSOR | 7 |
| 6.0 | PUMP..... | 8 |
| 7.0 | AIR COOLER | 9 |
| 8.0 | SUMP..... | 9 |
| 9.0 | PACKAGE | 10 |

|  | <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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| نسخه | سریال | نوع مدرک | رشته | تسهیلات | صادرکننده | بسته کاری | پروژه | | | | | | | | | | | |
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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, New Gas/Condensate Pipelines (from Binak New GCS to Siahmakan GIS/Binak PU) shall be constructed.

GENERAL DEFINITION

The following terms shall be used in this document.

| | |
|------------------------------|--|
| CLIENT: | National Iranian South Oilfields Company (NISOC) |
| PROJECT: | Binak Oilfield Development – Surface Facilities; Gas & Gas-Condensate Pipelines |
| 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. |

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| پروژه | بسته کاری | صادرکننده | تسهیلات | رشته | نوع مدرک | سریال | نسخه | | | | | | | | | | | |
| BK | GCS | PEDCO | 120 | PR | LI | 0001 | D03 | | | | | | | | | | | |


2.0 NORMATIVE REFERENCES

2.1 THE PROJECT DOCUMENTS

- BK-GNRAL-PEDCO-000-PR-DB-0001 Process Basis of Design
- BK-GNRAL-PEDCO-000-PR-DC-0001 Process Design Criteria
- BK-GCS-PEDCO-120-PR-CN-0001 Calculation Note For Pumps
- BK-GCS-PEDCO-120-PR-CN-0002 Calculation Note For Drum Sizing

2.2 ENVIRONMENTAL DATA

Refer to "Process Basis of Design"; Doc. No. "BK- GNRAL-PEDCO-000-PR-DB-0001"

Note: 

- 1- Considered 2.5 m³/hr as minimum flow
- 2- Rated Power Based on Vendor Data , for Motor powers to be referred to Electrical Load List



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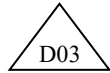
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|------|-------|----------|------|---------|-----------|-----------|-------|
| D03 | 0001 | LI | PR | 120 | PEDCO | GCS | BK |

شماره صفحه: 6 از 10

3.0 DRUM



| Item | Tag No. | Item Description | Quantity | Type | Design Press. Min/Max (barg) | Design Temp. Min/Max (°C) | Dimension (mm) | | Boot (mm) | | Internal Type | Hazardous Area | Material | | | Corrosion Allowance (mm) | | Insulation/Fireproofing | P&ID Number | Rev. |
|------|-------------|---|----------|------------|------------------------------|---------------------------|----------------|-------|-----------|-------|---------------------------|----------------|------------------------------|----------|------------------------------|--------------------------|----------|-------------------------|-----------------------------------|------|
| | | | | | | | ID | TL-TL | ID | TL-TL | | | Shell | Internal | Boot | Shell | Internal | | | |
| 1 | V-2101A/B/C | 1ST Stage Gas Compression Suction Drum | 3(2+1) | Vertical | 22(Full Vacuum) | 5/85 | 900 | 3000 | NA | NA | Demister / Vortex Breaker | zone 2 | C.S.+ Non-metallic coating | S.S.316L | C.S.+ Non-metallic coating | 6 | - | No | BK-GCS-PEDCO-120-PR-PI-0006 | D03 |
| 2 | V-2102A/B/C | 2 Nd Stage Gas Compression Suction Drum | 3(2+1) | Vertical | 22(Full Vacuum) | 5/115.4 | 900 | 3000 | NA | NA | Demister / Vortex Breaker | zone 2 | C.S.+ 3mm S.S. 316L Cladding | S.S.316L | C.S.+ 3mm S.S. 316L Cladding | 0 | - | PP | BK-GCS-PEDCO-120-PR-PI-0009 | |
| 3 | V-2103 | Gas Compression Discharge Gas K.O. Drum | 1 | Vertical | 62(Full Vacuum) | 5/130 | 900 | 3000 | NA | NA | Demister / Vortex Breaker | zone 2 | C.S.+ 3m S.S. 316L Cladding | S.S.316L | C.S.+ 3m S.S. 316L Cladding | 0 | - | PP | BK-GCS-PEDCO-120-PR-PI-0012 | |
| 4 | V-2104 | Slug Catcher Drum | 1 | Horizontal | 9(Full Vacuum) | 5/85 | 4200 | 12600 | NA | NA | Demister / Vortex Breaker | zone 2 | C.S.+ Non-metallic coating | S.S.316L | C.S.+ Non-metallic coating | 6 | - | No | BK-GCS-PEDCO-120-PR-PI-0004 (1/3) | |
| 5 | V-2105 | Inlet Gas K.O. Drum | 1 | Horizontal | 9(Full Vacuum) | 5/85 | 1500 | 4500 | 300 | 600 | Demister / Vortex Breaker | zone 2 | C.S.+ Non-metallic coating | S.S.316L | C.S.+ Non-metallic coating | 6 | - | No | BK-GCS-PEDCO-120-PR-PI-0005 | |
| 6 | V-2106 | Deleted | | | | | | | | | | | | | | | | | | |
| 7 | V-2107 | Glycol Sump Drum | 1 | Horizontal | 3.5(Full Vacuum) | 5/85 | 1100 | 3600 | NA | NA | - | zone 2 | C.S.+ Non-metallic coating | S.S.316L | C.S.+ Non-metallic coating | 3 | - | No | BK-GCS-PEDCO-120-PR-PI-0025 | |
| 8 | V-2201 | LP Flare K.O. Drum | 1 | Horizontal | 7.5(Full Vacuum) | -29/85 | 1000 | 3000 | NA | NA | Vortex Breaker | zone 2 | C.S.+ Non-metallic coating | - | C.S.+ Non-metallic coating | 3.2 | - | No | BK-GCS-PEDCO-120-PR-PI-0020 (2/2) | |
| 9 | V-2202 | Closed drain drum | 1 | Horizontal | 7.5(Full Vacuum) | -29/85 | 2600 | 7800 | NA | NA | Vortex Breaker | zone 2 | C.S.+ Non-metallic coating | S>S.316L | C.S.+ Non-metallic coating | 6 | - | No | BK-GCS-PEDCO-120-PR-PI-0017 (2/2) | |
| 10 | V-2203 | Instrument Air Receiver | 1 | Vertical | 12.5 | 5/85 | 1500 | 5000 | NA | NA | - | Safe Area | C.S.+ Non-metallic coating | - | C.S.+ Non-metallic coating | 1.6 | - | No | BK-GCS-PEDCO-120-PR-PI-0015 | |
| 11 | V-2204 | Nitrogen Receiver Drum | 1 | Vertical | 12.5 | 5/85 | 1050 | 3150 | NA | NA | - | Safe Area | C.S.+ Non-metallic coating | - | C.S.+ Non-metallic coating | 1.6 | - | No | BK-GCS-PEDCO-120-PR-PI-0016 | |
| 12 | V-2205 | Fuel Gas K.O. Drum | 1 | Vertical | 9(Full Vacuum) | 5/85 | 438 | 2950 | NA | NA | Demister / Vortex Breaker | zone 2 | C.S.+ Non-metallic coating | - | C.S.+ Non-metallic coating | 6 | - | No | BK-GCS-PEDCO-120-PR-PI-0022 | |
| 13 | Deleted | | | | | | | | | | | | | | | | | | | D03 |
| 14 | V-2206 | Diesel Oil Drum | 1 | Horizontal | ATM+Full Of Water | 5/85 | 2300 | 6000 | NA | NA | Vortex Breaker | zone 2 | C.S.+ Non-metallic coating | - | C.S.+ Non-metallic coating | 1 | | | BK-GCS-PEDCO-120-PR-PI-0023 | D03 |



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| D03 | 0001 | LI | PR | 120 | PEDCO | GCS | BK |

شماره صفحه: 7 از 10

4.0 TANK

| Item | Tag.No | Item Description | Quantity | Type | Design Press. Min/Max (barg) | Design Temp. Min/Max (°C) | Dimension (mm) | | Mixer | Heater | Hazardous Area | Material | Corrosion Allowance (mm) | | Insulation/ Fireproofing | P&ID Number | Rev. |
|------|-------------|-----------------------------|----------|------------|----------------------------------|---------------------------|----------------|-------|-------|--------|----------------|----------------------------|--------------------------|--|--------------------------|-----------------------------|------|
| | | | | | | | ID | TL-TL | | | | | | | | | |
| 1 | TK-2101 | Deleted | | | | | | | | | | | | | | | |
| 2 | TK-2102 | Lean Glycol Storage Tank | 1 | Fixed Roof | Full of liquid+160 mbarg/-7mbarg | 5/85 | 4000 | 5000 | NA | NA | zone 2 | C.S.+ Non-metallic coating | 1.6 | 3.2only for bottom plate & first shell course | - | BK-GCS-PEDCO-120-PR-PI-0014 | |
| 3 | TK-2301 A/B | Fire Water Storage Tank | 1 | Fixed Roof | ATM+Full of water | 5/85 | 13 | 9.5 | NA | NA | safe area | C.S.+ Non-metallic coating | 1.6 | 1.6 only for bottom plate & first shell course | - | BK-GCS-PEDCO-120-SA-PI-0001 | |
| 4 | TK-2209 | Elevated Potable Water Tank | 1 | Fixed Roof | ATM+Full of water | 5/85 | 3500 | 2600 | NA | NA | safe area | C.S.+ Non-metallic coating | 1.6 | | - | BK-GCS-PEDCO-120-PR-PI-0024 | |

5.0 COMPRESSOR



| Item | Tag.No | Item Description | Quantity | Driving Medium | Type | Design Temp. Min/Max (°C) | Design Press. Min/Max (Barg) | Flow Rate (kg/hr) | Hazardous Area | Material Requirement | | P&ID Number | Rev. |
|------|--------------|---------------------------|----------|----------------|---------------|---------------------------|------------------------------|-------------------|----------------|----------------------|----------|-----------------------------|------|
| | | | | | | | | | | Casing | Impeller | | |
| 1 | C-2101 A/B/C | 1 St Stage Gas Compressor | 3(2+1) | Electerical | Reciprocating | 150 | 22 | 8664 | zone 2 | C.S | S.S.316L | BK-GCS-PEDCO-120-PR-PI-0007 | D03 |
| 2 | C-2102 A/B/C | 2Nd Stage Gas Compressor | 3(2+1) | Electerical | Reciprocating | 175 | 62 | 8664 | zone 2 | C.S | S.S.316L | BK-GCS-PEDCO-120-PR-PI-0010 | |



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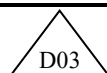
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| D03 | 0001 | LI | PR | 120 | PEDCO | GCS | BK |

شماره صفحه: 8 از 10

6.0 PUMP



| Item | Tag.No | Item Description | Quantity | Type | Design Press. Min/Max (barg) | Differential Pressure (barg) | Installation Horiz/Vert | Condition of Operation (Contin+ Intermittent) | Design Temp. Min/Max (°C) | Rated Capacity (m ³ /hr) | Head (m) | Power (EACH) BHP (kW) | Pump Efficiency | Hazardous Area | Material Requirement | | P&ID Number | Rev. |
|------|------------|--------------------------|----------|-------------|------------------------------|------------------------------|-------------------------|---|---------------------------|-------------------------------------|----------|-----------------------|-----------------|----------------|----------------------|----------|-----------------------------------|------|
| | | | | | | | | | | | | | | | Casing | Impeller | | |
| 1 | P-2101 A/B | Slug Pumps | 2 (1+1) | Centrifugal | -/22.5 | 14 | Vertical | Intermittent | 5/85 | 11 | 199.5 | 7 (Note1) | 61% | zone 2 | API 610 Cl. S-8 | | BK-GCS-PEDCO-120-PR-PI-0004 (2/2) | D03 |
| 2 | P-2102 | Glycol Manual Pump | 1 | Centrifugal | -/1.9 | 1.5 | Horizontal | Intermittent | 5/85 | 3.3 | 13.7 | 0.4 | 31% | zone 2 | API 610 Cl. S-8 | | BK-GCS-PEDCO-120-PR-PI-0014 | D03 |
| 3 | P-2103 A/B | Glycol Transfer Pumps | 2(1+1) | Centrifugal | -/3.1 | 2 | Horizontal | Intermittent | 5/85 | 5.5 | 18.3 | 1 | 31% | zone 2 | API 610 Cl. S-8 | | BK-GCS-PEDCO-120-PR-PI-0014 | D03 |
| 4 | P-2104 | Glycol Drain Pumps | 1 | Centrifugal | -/5.7 | 2 | Vertical | Intermittent | 5/85 | 3.3 | 18.3 | 0.8 | 22% | zone 2 | API 610 Cl. S-8 | | BK-GCS-PEDCO-120-PR-PI-0025 | D03 |
| 5 | P-2201A/B | LP Flare K.O. Drum Pumps | 2(1+1) | Centrifugal | 9 | 1.5 | Vertical | Intermittent | 5/85 | 2.2 | 15.6 | 0.6 | 15% | zone 1 | API 610 Cl. S-6 | | BK-GCS-PEDCO-120-PR-PI-0020(2/3) | D03 |
| 6 | P-2202A/B | Closed Drain Pumps | 2(1+1) | Centrifugal | 14.5 | 7 | Vertical | Intermittent | 5/85 | 3.3 | 72.8 | 2.9 | 22% | zone 1 | API 610 Cl. S-6 | | BK-GCS-PEDCO-120-PR-PI-0017(2/2) | D03 |
| 7 | P-2203A/B | Sump Pumps | 2(1+1) | Centrifugal | 2.5 | 2 | Vertical | Intermittent | 5/85 | 5.5 | 19.9 | 1 | 31% | zone 1 | API 610 Cl. I-1 | | BK-GCS-PEDCO-120-PR-PI-0017(2/2) | D03 |
| 8 | P-2206 | Diesel oil Pump | 1 | Centrifugal | 2.2 | 2 | Horizontal | Intermittent | 5/85 | 5.5+MnFlow (Note1) | 24 | 0.6 | 52% | zone 2 | API 610 Cl. S-1 | | BK-GCS-PEDCO-120-PR-PI-0023 | D03 |
| 9 | P-2209 | Potable Water Pumps | 1 | Centrifugal | 3.8 | 3 | Horizontal | Intermittent | 5/85 | 5.5 | 29.9 | 1.5 | 31% | safe area | API 610 Cl. I-2 | | BK-GCS-PEDCO-120-PR-PI-0024 | D03 |
| 10 | P-2301 A | Fire Water electric Pump | 1 | Centrifugal | 15 | 10.3 | Horizontal | Intermittent | 5/85 | 454 | 105 | 180.5 (NOTE2) | 72% | safe area | API 610 Cl. I-2 | | BK-GNRL-PEDCO-000-SA-DW-0002 | D03 |
| 11 | P-2301 B | Fire Water diesel Pumps | 1 | Centrifugal | 15 | 10.3 | Horizontal | Intermittent | 5/85 | 454 | 105 | 180.5 (NOTE2) | 72% | safe area | API 610 Cl. I-2 | | BK-GNRL-PEDCO-000-SA-DW-0002 | D03 |
| 12 | P-2302 A/B | Fire Water Jockey Pumps | 2(1+1) | Centrifugal | 15 | 10.3 | Horizontal | Intermittent | 5/85 | 15 | 105 | 14.8 (NOTE2) | 29% | safe area | API 610 Cl. I-2 | | BK-GNRL-PEDCO-000-SA-DW-0002 | D03 |



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض

احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک



شماره پیمان:

053 - 073 - 9184

PROCESS MAIN EQUIPMENT LIST

| پروژه | بسته کاری | صادرکننده | تسهیلات | رشته | نوع مدرک | سریال | نسخه |
|-------|-----------|-----------|---------|------|----------|-------|------|
| BK | GCS | PEDCO | 120 | PR | LI | 0001 | D03 |

شماره صفحه: 9 از 10

7.0 AIR COOLER

D03

| Item | Tag.No | Item Description | Quantity | Duty (kW) | Design Temp. Min/Max (°C) | Design Press. Min/Max (Barg) | Flow Rate (kg/hr) | Hazardous Area | Material Requirement | | P&ID Number | Rev. |
|------|---------------|--------------------------------------|----------|-----------|---------------------------|------------------------------|-------------------|----------------|----------------------|---------------|-----------------------------|------|
| | | | | | | | | | Header | Tube | | |
| 1 | AE-2101 A/B/C | 1 St Stage Gas Compressor Air Cooler | 3(2+1) | 365.2 | -28/155 | 22 | 8664 | zone 2 | SA 240Gr 316L | SA 213Gr 316L | BK-GCS-PEDCO-120-PR-PI-0008 | D03 |
| 2 | AE-2101 A/B/C | 2 Nd Stage Gas Compressor Air Cooler | 3(2+1) | 545 | -28/175 | 62 | 8664 | zone 2 | SA 240Gr 316L | SA 213Gr 316L | BK-GCS-PEDCO-120-PR-PI-0011 | D03 |

8.0 SUMP

D03

| Item | Tag.No | Item Description | Quantity | Design Press. Min/Max (barg) | Design Temp. Min/Max (°C) | Dimension (mm) | | | Mixer | Heater | Hazardous Area | Material | Corrosion Allowance (mm) | | Insulation/ Fireproofing | P&ID Number | Rev. |
|------|---------|--|----------|------------------------------|---------------------------|----------------|--------|-------|-------|--------|----------------|----------|--------------------------|---|--------------------------|-----------------------------------|------|
| | | | | | | H | W | L | | | | | | | | | |
| 1 | SU-2201 | LP Flare K.O Drum and Close Drain Sump | 1 | AMB | ATM | 4200 | 12.200 | 16800 | - | - | zone 1 | Concrete | - | - | pp | BK-GCS-PEDCO-120-PR-PI-0020 (2/3) | D03 |
| 2 | SU-2202 | Oily Water Sump | 1 | AMB | ATM | 2000 | 4000 | 8000 | - | - | zone 1 | Concrete | - | - | pp | BK-GCS-PEDCO-120-PR-PI-0021 | D03 |



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شماره پیمان:

053 - 073 - 9184

PROCESS MAIN EQUIPMENT LIST

| نسخه | سریال | نوع مدرک | رشته | تسهیلات | صادرکننده | بسته کاری | پروژه |
|------|-------|----------|------|---------|-----------|-----------|-------|
| D03 | 0001 | LI | PR | 120 | PEDCO | GCS | BK |

شماره صفحه : 10 از 10

9.0 PACKAGE



| Item | Tag.No | Item Description | Quantity | Operation Condition (Continuous/Intermittent) | Design Temp. Min/Max (°C) | Design Press. Min/Max (Barg) | Package Type | Hazardous Area | Material Requirement | | P&ID Number | Rev. |
|------|----------------|-----------------------------|----------|---|---------------------------|------------------------------|--------------|----------------|----------------------|----------|----------------------------------|------|
| | | | | | | | | | Casing | Impeller | | |
| 1 | PK 2101 | Dehydration Package | 1 | Continuous | 219 (VTC) | 62 (VTA) | VTA | zone 2 | By Vendor | | BK-GCS-PEDCO-120-PR-PI-0013 | D03 |
| 2 | FST-2201 | LP Flare Stack | 1 | Continuous | 5/85 | 7.5 | | Safe Area | Carbon Steel | | BK-GCS-PEDCO-120-PR-PI-0020(3/3) | |
| 3 | IG-2201 | LP Flare Ignation Package | 1 | Continuous | 5/85 | 7.5 | | zone 2 | Carbon Steel | | BK-GCS-PEDCO-120-PR-PI-0020(3/3) | |
| 4 | PK-C-2203 A/B | Air Compressor Package | 2(1+1) | Continuous | 5/85 | 12.5 | | safe area | Carbon Steel | | BK-GCS-PEDCO-120-PR-PI-0015 | |
| 5 | PK-Dr-2203 A/B | Air Dryer Package | 2(1+1) | Continuous | 5/85 | 12.5 | | safe area | Carbon Steel | | BK-GCS-PEDCO-120-PR-PI-0015 | |
| 6 | PK-G-2204 | Nitrogen Package | 1 | Continuous | 5/85 | 12.5 | | safe area | Carbon Steel | | BK-GCS-PEDCO-120-PR-PI-0016 | |
| 7 | PK-C-2204 | Air Compressor Package | 1 | Continuous | 5/85 | 12.5 | | safe area | Carbon Steel | | BK-GCS-PEDCO-120-PR-PI-0016 | |
| 8 | PK 2206 | Diesel Generator Package | 1 | Intermittent | 5/85 | - | VTA | safe area | Carbon Steel | | BK-GCS-PEDCO-120-PR-PI-0023 | |
| 9 | PK-2207 | Corrosion Inhibitor Package | 1 | Intermittent | VTA | 9/62 | VTA | zone 2 | S.S 316L | | BK-GCS-PEDCO-120-PR-PI-0018 | |
| 10 | PK-2208 | DELETED | | | | | | | | | | |