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|---|---|------|-------|------|------|------|--|-------------------------|--------|
| OWNER:  شرکت سست و سویی توهمه ایران (سایه و شیشه) | BUSHEHR PETROCHEMICAL COMPANY MEG PLANT | | | | | | EPC CONTRACTOR:  Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT | | |
| | CAUSE & EFFECT CHART LIST FOR NITROGEN GAS BOOSTER | | | | | |  Netherlands | | |
| MC :  شرکت سست و سویی توهمه ایران (سایه و شیشه) | Project | Area | Phase | Unit | Dis. | Doc. | Seq. | Contract No : 52-98/445 | |
| Owner Document Number: 17811-27A | BU | 20 | VD | 303 | PR | LST | 0042 | Rev.: | Page |
| | | | | | | | | 02 | 1 of 4 |

**P&ID OF NITROGEN COMPRESSOR
SHALL BE SUBMITTED.**

CAUSE & EFFECT CHART LIST FOR NITROGEN GAS BOOSTER

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|  شرکت سست و سویی توهمه ایران  Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT | BUSHEHR PETROCHEMICAL COMPANY MEG PLANT |
| Document Review | |
| Issue Purpose: | AFC |
| Result Code: AP,AN,CM,RE,NC | AN |
| Next Status : IFC,IFA,IFI,AFC,AB | AFC |
| Responsible Department | MECHANICAL |
| Commented Date | Dec/18/2021 |
| Approval or review hereunder shall not be construed to relieve Vendor / Subcontractor of his responsibilities and liability under the contract. | |

| Rev. | Date | Purpose of Issue | Prepared | Checked | Approved | AC Code |
|-------------------------------|------------|---------------------------|----------|---------|----------|---------|
| 02 | 06/12/2021 | Approved for Construction | KP | JR | PW | |
| 01 | 12/11/2021 | For approval | AV | KP | PW | |
| 00 | 15/09/2021 | For approval | AV | KP | PW | |
| Class: 1 Phase: P | | | | | | |



DOCUMENT TITLE: 17811-27A
Cause & Effect chart for Nitrogen Compressor

Tag Numbers are inconsistent with PID. many tag numbers are revised while the relevant documents have not updated. it is worth mentioning that PID must be submitted prior to this document

| <p align="center">DOCUMENT TITLE: 17811-27A Cause & Effect chart for Nitrogen Compressor</p> | | | | EFFECT | Tag. Number | | | | | | | | | | |
|---|-------------|---------|---|--------|--------------------|---------------------|---------------------|-------------------|--------------------|-----------------------|-----------------------|----------------------|----------------------|---------------|----------|
| | | | | | Component | N/A | N/A | XY-10151 | XY-10152 | XAL-108-2 | XL-10153 | XL-10158 | XL-10154 | XL-10159 | PY-10151 |
| Instrument Tag | Signal | Type | Description | | MOTOR START / STOP | HEATER START / STOP | LOAD / UNLOAD VALVE | WATER INLET VALVE | COMMON TRIP TO ESD | COMMON ALARM LAMP LCP | COMMON ALARM LAMP UCP | COMMON TRIP LAMP LCP | COMMON TRIP LAMP UCP | RECYCLE VALVE | |
| PB-10157 | ESD | BUTTON | EMERGENCY SHUT DOWN UCP | | SP | ST | DE | DE | X | | | X | X | | |
| PB-10153 | ESD | BUTTON | EMERGENCY SHUT DOWN LCP | | SP | ST | DE | DE | X | | | X | X | | |
| HS-108-SD-1 | ESD | ESD | EMERGENCY SHUT DOWN ESD | | SP | ST | DE | DE | X | | | X | X | | |
| PB-10151 | START | BUTTON | START COMPRESSOR LCP | Note 3 | ST | | E | E | | | | | | ST | |
| PB-10155 | START | BUTTON | START COMPRESSOR UCP | Note 3 | ST | | E | E | | | | | | ST | |
| PB-10152 | STOP | BUTTON | STOP COMPRESSOR LCP | | SP | ST | DE | DE | | | | | | | |
| PB-10156 | STOP | BUTTON | STOP COMPRESSOR UCP | | SP | ST | DE | DE | | | | | | | |
| PIT-10153 | TRANSMITTER | HH | PACKAGE INLET PRESSURE HIGH HIGH | | SP | | DE | DE | X | | | X | X | | |
| PIT-10153 | TRANSMITTER | LL | PACKAGE INLET PRESSURE LOW LOW | | SP | | DE | DE | X | | | X | X | | |
| PIT-10154 | TRANSMITTER | LL | COMPRESSOR OIL PRESSURE LOW LOW | | SP | | DE | DE | X | | | X | X | | |
| PIT-10156 | TRANSMITTER | H | COMPRESSOR 1st STAGE PRESSURE HIGH | | | | | | | X | X | | | | |
| PIT-10156 | TRANSMITTER | HH | COMPRESSOR 1st STAGE PRESSURE HIGH HIGH | | SP | | DE | DE | X | | | X | X | | |
| PIT-10158 | TRANSMITTER | CONTROL | COMPRESSOR OUTLET PRESSURE CONTROL | Note 2 | | | | | | | | | | C | |
| PIT-10158 | TRANSMITTER | CONTROL | PACKAGE OUTLET PRESSURE UNLOAD / STOP | Note 2 | SP | | DE | DE | | | | | | | |
| PIT-10158 | TRANSMITTER | CONTROL | PACKAGE OUTLET PRESSURE LOAD / START | Note 2 | ST | | E | | | | | | | | |
| PIT-10159 | TRANSMITTER | HH | COMPRESSOR OUTLET PRESSURE HIGH HIGH | | SP | | DE | DE | X | | | X | X | | |
| PIT-10159 | TRANSMITTER | LL | COMPRESSOR OUTLET PRESSURE LOW LOW | | SP | | DE | DE | X | | | X | X | | |
| TIT-10151 | TRANSMITTER | H | COMPRESSOR INLET TEMPERATURE HIGH | | | | | | | X | X | | | | |
| TIT-10152 | TRANSMITTER | H | COMPRESSOR 1st STAGE TEMPERATURE HIGH | | | | | | | X | X | | | | |
| TIT-10153 | TRANSMITTER | HH | COMPRESSOR 1st STAGE TEMPERATURE HIGH HIGH | | SP | | DE | DE | X | | | X | X | | |
| TIT-10154 | TRANSMITTER | H | COMPRESSOR 2nd STAGE SUCTION TEMPERATURE HIGH | | | | | | | X | X | | | | |
| TIT-10155 | TRANSMITTER | HH | COMPRESSOR 2nd STAGE TEMPERATURE HIGH HIGH | | SP | | DE | DE | X | | | X | X | | |
| FIT-10151 | TRANSMITTER | L | COMPRESSOR COOLING WATER FLOW LOW | | | | | | | X | X | | | | |
| VT-10151 | TRANSMITTER | HH | COMPRESSOR 2nd STAGE SUCTION TEMPERATURE HIGH | | SP | | DE | DE | X | | | X | X | | |
| N/A | MOTOR | CONTROL | MOTOR RUNNING FEEDBACK TRIP | Note 1 | ST | | DE | DE | X | | | X | X | | |
| N/A | MOTOR | CONTROL | MOTOR FAULT | | ST | | DE | DE | X | | | X | X | | |
| N/A | HEATER | CONTROL | HEATER RUNNING FEEDBACK ALARM | | | | | | | X | X | | | | |
| N/A | HEATER | CONTROL | HEATER FAULT | | | | | | | X | X | | | | |



Legend:

ST = Start

SP = Stop

I = Interlock

X = Action

E = Energize

DE = De-energize

C = Control

NOTES:

1. MOTOR FEEDBACK TRIP, 2 SECOND AFTER START SIGNAL IS SEND AND MOTOR IS NOT SENDING FEEDBACK, THE PACKAGE IS TRIPPED

2. START AND STOP ON LOAD ON UNLOAD IS BASED ON THE TIMERS SPECIFIED IN THE CONTROL PHILOSOPHY

3. LOADING AFTER 30 SECONDS AFTER START AS PER CONTROL PHILOSOPHY

4. HEATER WILL BE STARTED WHEN COMPRESSOR IS STOPPED, TEMPERATURE WILL BE CONTROLLED AUTOMATICALLY FROM A SENSOR IN THE HEATER AND A CONTROLLER IN THE DISTRIBUTION PANEL

