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| **طرح نگهداشت و افزایش تولید 27 مخزن** |
| **CALCULATION NOTE FOR PSV SIZING** |
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| D02 | OCT. 2022 | AFD | M.Aryafar | M.Fakharian | M.Mehrshad |  |
| D01 | MAY. 2022 | IFA | M.Aryafar | M.Fakharian | M.Mehrshad |  |
| D00 | FEB. 2022 | IFC | M.Aryafar | M.Fakharian | M.Mehrshad |  |
| **Rev.** | **Date** | **Purpose of Issue/Status** | **Prepared by:** | **Checked by:** | **Approved by:** | **CLIENT Approval** |
| **Class:2** | **CLIENT Doc. Number:** **F0Z-708527** |
| **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** |

**REVISION RECORD SHEET**

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1. **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. |

1. **Scope**

The scope of this document is to provide sizing calculation of Pressure Safety Valves’s of BINAK PIPELINE.

1. **NORMATIVE REFERENCES**

## Local Codes and Standards

* IPS-E-PR-450 Process Design Of Pressure Relieving systems inclusive safety relief valves
* IPS-E-PR-460 Process Design Of Flare And Blowdown Systems

## International Codes and Standards

* API-STD-520 Sizing, Selection and Installation of Pressure Relieving Devices in Refineries, Part 1-Sizing and Selection
* API-STD-521 Pressure Relieving and Depressuring Systems
* API-STD-526 Flanged Steel Pressure Relief Valves

## 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-PPL-PEDCO-320-PR-PF-0001 Process Flow Diagram For pipelines
* BK-PPL-PEDCO-320-PR-PI-0001 P&ID - Gas Pipeline (to Siahmakan G.I. Station)

## ENVIRONMENTAL DATA

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

## Order of Precedence

In case of any conflict between the contents of this document or any discrepancy between this document and other project documents or reference standards, this issue must be reported to the CLIENT. The final decision in this situation will be made by CLIENT.

1. **PSV SIZING CALCULATION REPORT**

D02

## software

The software using for sizing Pressure safety valve is valve star. Pressure safety valve sizing report have been reported as following attachment.

|  |  |  |
| --- | --- | --- |
| PSV No. | PSV-3201 | PSV-3202 |
| Service | Sour Gas | Sour Gas |
| Fire | YES | YES |
| Other | - | - |
| Fluid & State | GAS | GAS |
| Operating Pressure (Barg) | 50.90 | 40 |
| Normal Temperature (°C) | 58.30 | 31.30 |
| P set, Barg | 62 | 62 |
| Required massflow (kg/hr) | 1799.992 | 4,300.753 |
| Specific Heat Ratio (Cp/Cv) | 1.448 | 1.437 |
| Molecular Weight (kg/Kmol) | 24.58 | 24.58 |
| Compressibility Factor  | 0.829 | 0.827 |
| Total Back Pressure ( Barg ) | 0.5 | 0.5 |
| Allowable Over Pressure (%) | 21 | 21 |
| Minimum required effective discharge area, mm2 | 39.41 | 103.381 |
| Orifice Designation | D | E |
| Body size | 1” × 2” | 1" × 2” |
| P&ID Number | BK-PPL-PEDCO-320-PR-PI-0001 (1/3) | BK-PPL-PEDCO-320-PR-PI-0001 (3/3)  |

D02

**ATTACHMENT: SOFTWARE REPORT**