
 PGSOC PERSIAN GULF STAR OIL COMPANY شرکت نفت ستاره خلیج فارس	PGSOC	REF. No. : **** (A2)						
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	PROJECT: ****	PLAN/PRJ ...	UNIT ...	PHASE ...	DISC. ...	DOC. TYPE DSH	SER. No. ...	REV. No A2

PROCESS DUTY SPECIFICATION

For

NITROGEN GENERATION PACKAGE


A0	14.Aug.18	ISSUED FOR APPROVAL			
REV.	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED

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1 INTRODUCTION

The purpose of this document is to define the process minimum requirements for the Nitrogen Generation package, for Persian Gulf Star Oil Company.

The provision of this specification shall in no way be considered as limiting or relieving the Vendor of any of his obligations to deliver adequate equipment within the specified limits and guarantees.

Moreover, the package unit shall be designed and constructed in order to guarantee the maximum operating reliability and flexibility without any effect on Product quality and plant capacity.

A control system including all instrumentation is required in order to ensure full automatic operation.

This document refers to following documents defining overall project requirements:

- NIOEC Specifications for Design Criteria for Process & Mechanics (NIOEC-SP-00-50)
- NIOEC Specifications for Instrumentation (NIOEC-SP-70-01)

2 SCOPE OF SUPPLY

Nitrogen generation package will include as maximum
Gaseous Nitrogen production plant (6650 NM³/Hr)

3 OPERATING PHILOSOPHY


Nitrogen generation package shall be capable of operating continuously with proper controls under each of the following operating scenario with no venting of Nitrogen.

Continuous Consumption

The selected usage capacity for this package is **6650** M³/Hr N₂. This production of this package
The N₂ condition at battery limit are as below:

Temperature: Amb

Pressure: 9 barg

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4 NITROGEN PLANT DESIGN FEATURES

Nitrogen vaporizers

Not Applicable

Materials of construction

Materials of construction to be specified by Vendor, inside Package battery limits.

Vendor to take into account that all the downstream Nitrogen Distribution system (equipment, piping, instruments) is not designed for cryogenic temperatures. Therefore, under no circumstances (normal and abnormal operation, emergency trip, etc.) should the outlet temperature fall below the minimum temperature for carbon steel material (-29 °C).

Control system & Instrumentation

Vendor to provide all required control systems to maintain nitrogen pressure of 8.5 barg at package battery limits, under all operating conditions.

All adequate signals required to monitor the performance of the Nitrogen Generation Package shall be available at package battery limits.

Vendor to provide all required safety devices (safety valves with spare), to protect equipment and lines against over pressurization.

Online oxygen analyzer to be provided by vendor for monitoring of gaseous nitrogen.


Connections for periodical sampling of nitrogen product shall be provided in appropriate locations of the package.

All instrumentation shall be easily accessible.

5 NITROGEN SPECIFICATION

The quality of liquid as well as gaseous nitrogen produced shall conform to the following minimum specifications:

Parameter	Unit	Specification
Nitrogen purity (Minimum)	% vol	99.9
Oxygen Content	ppmv	< 5
Carbon Dioxide Content	ppmv	< 10
Carbon Monoxide Content	ppmv	< 10
Other Carbon Compounds	ppmv	< 5
Water	ppmv	< 5
Noble Gases	ppmv	Balance

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6 BATTERY LIMIT CONDITIONS

Nitrogen generated by cryogenic plant and nitrogen delivered to users shall have the following conditions:

Parameter	At Nitrogen Package B.L.	At Consumer B.L.
Temperature, °C	Ambient	Ambient
	Normal Design	85
Pressure, bar(g)	Minimum	8.5
	Normal	9.0
	Maximum	-
	Design	12.5

7 ENVIRONMENTAL CONDITIONS

Refer to Basic Engineering Design Data, document no. 3034-00-ED-PM-DBS-AA002.

8 AVAILABLE UTILITIES


Not Available

9 PERFORMANCE GUARANTEES

Vendor to guarantee quality of Product Nitrogen as per Section 5, at Vendor battery limits.

Vendor to guarantee temperature and pressure as indicated in Section 6, at Nitrogen package battery limits.

Vendor to advise and guarantee Utility consumptions of Nitrogen package, including emergency power and emergency instrument air. And also Vendor to **provide** all required utilities for normal operation of package at all design conditions.

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10 PACKAGE PROCESS DOCUMENTS

Vendor shall provide at least the following process documentation, in accordance to formats applicable to Bandar Abbas Gas Condensate Refinery project:

- Process Description
- Process Flow Diagram
- Heat and Material Balance
- Piping and Instrumentation Diagrams
- Equipment Data Sheets
- Instrument Data Sheets
- Control System Philosophy
- Cause and Effect Diagram.
- Utility Consumption data
- List of wastes (gaseous, liquid, solid) and their conditions at battery limits
- Operating manual