



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض

احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک



شماره پیمان:

۰۵۳ - ۰۷۳ - ۹۱۸۴

CALCULATION NOTE FOR INDOOR AREA LIGHTING SYSTEM

شماره صفحه ۱: از ۹

نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه
D05	0002	CN	EL	120	PEDCO	GCS	BK

طرح نگهداشت و افزایش تولید ۲۷ مخزن

CALCULATION NOTE FOR INDOOR AREA LIGHTING SYSTEM

نگهداشت و افزایش تولید میدان نفتی بینک

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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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پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	EL	CN	0002	D05

شماره صفحه: ۲ از ۹

REVISION RECORD SHEET



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 <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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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.

2.0 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 COMPANY (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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3.0 SCOPE

This specification describes the practices that shall be employed and the Standards that will be required to be met for the Indoor Lightings Illumination

4.0 NORMATIVE REFERENCES

4.1 CODES AND STANDARDS


- IPS-E-EL-100 Engineering Standard For Electrical System Design (Industrial And Non-Industrial)

4.2 THE PROJECT REFERENCE DOCUMENTS

- BK-GNRAL-PEDCO-000-PR-DB-0001 Process Basis Of Design
- BK-GNRAL-PEDCO-000-EL-DC-0001 Electrical System Design Criteria
- BK-GNRAL-PEDCO-000-EL-SP-0007 Specification For Lighting & Small Power System
- BK-GCS-PEDCO-120-SA-PY-0002 Hazardous Area Classification Layout
- BK-GCS-PEDCO-120-AR-DW-0002 Architectural Detail Drawing for Extension of Existing Electrical Building
- BK-GCS-PEDCO-120-AR-DW-0003 Architectural Drawing for Gas Compressors Shelter
- BK-GCS-PEDCO-120-AR-DW-0004 Architectural Drawing for Chemical Injection Packages/Chemical Storage Shelter
- BK-GCS-PEDCO-120-AR-DW-0005 Architectural Drawing for Utility Shelter
- BK-GCS-PEDCO-120-AR-DW-0006 Architectural Drawing for Fire Water Pumps Shelter
- BK-GCS-PEDCO-120-AR-DW-0008 Architectural Drawing for CCTV Control Room-Binak GCS
- BK-GCS-PEDCO-120-AR-DW-0009 Architectural Drawing for CCTV Control Room-Binak DU
- BK-GCS-PEDCO-120-AR-DW-0010 Architectural Drawing for CCTV Rack Room- Binak PU
- BK-GCS-PEDCO-120-AR-DW-0011 Architectural Detail Drawing for Extension of Existing Control Building
- BK-GCS-PEDCO-120-AR-DW-0012 Architectural Detail Drawing for GCS Warehouse

5.0 LANGUAGE AND SYSTEM OF UNITS

All documentation, drawings, data, etc. furnished by the manufacturer shall be in English. SI

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metric system of measurement shall be used except for pipe and pipe fitting sizes, flange ratings and nozzle dimensions in which inch will be used.

6.0 DESIGN SOFTWARE

Calculation is performed with version 4.13 of DIALUX Software.

7.0 CONCLUSION

According to IPS-E-EL-100, illumination level for each area has been lighted.



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شماره پیمان:

CALCULATION NOTE FOR INDOOR AREA LIGHTING SYSTEM

شماره صفحه : ۷ از ۹

۰۵۳ - ۰۷۳ - ۹۱۸۴

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TABLE 15 - ILLUMINANCES LEVELS

AREA OR ACTIVITY	MINIMUM ILLUMINANCE LUX	ELEVATION MILLIMETER
I PROCESS AREAS		
A) General process units		
Pump rows, valves, manifolds	50	Ground
Heat exchangers	30	Ground
Maintenance platforms	10	Floor
Operating platforms	50	Floor
Cooling towers (equipment areas)	50	Ground
Furnaces	30	Ground
Ladders and stairs (inactive)	30	Floor
Ladders and stairs (active)	50	Floor
Gage glasses	50	Eye level
Instruments (on process units)	50	Floor
Compressor houses	200	Eye level
Separators	50	Floor
General area	10	Top of bay
		Ground
B) Control rooms and houses		
Ordinary control house	300	Floor
Instrument panel	300	1700
Console	300	760
Back of panel	300	760
Central control house	100	760
Instrument	500	Floor
Back of pane	500	1700
	100	900
C) Specialty process units		
Conveyors		
Conveyor transfer points	20	Surface
	50	Surface
II NONPROCESS AREA		
A) Loading, unloading, and cooling water pump houses, Pump area		
General control area	50	Ground
Control panel	150	Floor
	200	1100
B) Boiler and air compressor plants		
Indoor		
Outdoor equipment 50	200	Floor
	50	Ground
C) Tank fields (where lighting is required)		
Ladders and stairs		
Gating area	5	Floor
Manifold area	10	Ground
	5	Floor
D) Loading racks		
General area		
Tank car	50	Floor
Tank trucks, loading point	100	Point
	100	Point
E) Tanker dock facilities		



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F) Electrical substations and switch yards							
Outdoor switch yards				20			Ground
General substation (outdoor)				20			Ground
Substation operating aisles				150			Floor
General substation (indoor)				50			Floor
Switch racks				50			1200
G) Plant road lighting (where lighting is required)							
Frequent use (trucking)				4			Ground
Infrequent use				2			Ground
H) Plant parking lots							
				1			Ground
I) Aircraft obstruction lighting							

III Buildings							
A) Offices				500			
B) Laboratories							
Qualitative, quantitative and physical test							
Research, experimental				500			900
Pilot plant, process and specialty				500			900
Glassware, washrooms				300			Floor
Fume hoods				300			900
Stock rooms				300			900
				150			Floor
C) Warehouses and stock rooms							
Indoor bulk storage							
Outdoor bulk storage				50			Floor
Large bin storage				5			Ground
Small bin storage				50			760
Small parts storage				100			760
Counter tops				200			760
				300			1200
D) Repair shop							
Large fabrication							
Bench and machine work				200			Floor
Crane way, aisles				500			760
Small machine				150			Floor
Sheet metal				300			760
Electrical				200			760
Instrument				200			760
				300			760
E) Change housed							
Locker room, shower							
Lavatory				100			Floor
				100			Floor
F) Clock house and entrance gatehouse							
Card rack and clock area							
Entrance gate, inspection				100			Floor
General				150			Floor
				50			Floor
G) Cafeteria							
Eating				300			760
Serving area				300			900
Food preparation				300			900
General, halls, etc.				100			Floor
H) Garage and firehouse							
Storage and minor repairs				100			Floor
I) First aid roomed				700			760



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Comparison of Lighting Between Standard & Calculation (LUX)

Item	Building	Room	Standard	Calculation (Av)
1	Existing Control Room	UPS	50	294
		Battery	50	100
		Conference Room	500	586
		Management	500	430
		Entrance	50	316
		Air Lock	50	246
		Archive	300	361
		Locker	150	245
		Prayer Room	150	244
		Store	300	448
		Corridor	50	291
2	Existing Switchgear	Capacitor	50	168
		CO2	50	89
		Transformer	20	113
		Diesel Generator	50	94
3	GCS CCTV	Control Room	500	521
4		Rack Room	200	423
5		Corridor	50	372
6	DU CCTV	Control Room	500	521
7		Rack Room	200	423
8		Corridor	50	372
9	PU CCTV	Guard House	500	695
10		Rack Room	200	443
11	Utility Shelter	Shelter	200	236
12	Chemical Package	Shelter	200	261
13	Fire Water Pump	Shelter	200	294
14	Compressor Shelter	Shelter	200	217
15	Ware House	Storage	100	242
16		Instrument Workshop	100	320
17		Instrument Storage	100	219

D05

8.0 LIGHTING CALCULATION – DETAIL REPORT

DIALUX report has been attached in “Attachments”

Attachment “01” - Existing Control Room

Attachment “05” - CCTV PU

Attachment “02” - Existing Switchgear

Attachment “06” - All Shelters Area

Attachment “03” - CCTV GCS

Attachment “07” - Warehouse

Attachment “04” - CCTV DU