
 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>								
شماره پیمان: 053 – 073 – 9184	CALCULATION NOTE FOR INDOOR AREA LIGHTING SYSTEM							شماره صفحه: 1 از 8	
	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	EL	CN	0002		D03

طرح نگهداشت و افزایش تولید 27 مخزن

CALCULATION NOTE FOR INDOOR AREA LIGHTING SYSTEM

نگهداشت و افزایش تولید میدان نفتی بینک

D03	May.2023	IFA	H.Shakiba	M.Fakharian	A.M.Mohseni	
D02	Jan.2023	IFA	H.Shakiba	M.Fakharian	M.Mehrshad	
D01	Nov. 2022	IFA	H.Shakiba	M.Fakharian	M.Mehrshad	
D00	Apr. 2022	IFC	H.Shakiba	M.Fakharian	M.Mehrshad	
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نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض

احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک



شماره پیمان:

053 - 073 - 9184


CALCULATION NOTE FOR INDOOR AREA LIGHTING SYSTEM

نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه
D03	0002	CN	EL	120	PEDCO	GCS	BK

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 <p>NISOC</p>	<p>نگهداشت و افزایش تولید میدان نفتی بینک</p> <p>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-0001 Architectural Detail Drawing for Control Building
- 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

5.0 LANGUAGE AND SYSTEM OF UNITS

All documentation, drawings, data, etc. furnished by the manufacturer shall be in English. SI metric system of measurement shall be used except for pipe and pipe fitting sizes, flange ratings

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شماره پیمان: 053 - 073 - 9184	<table><tr><th colspan="8">CALCULATION NOTE FOR INDOOR AREA LIGHTING SYSTEM</th></tr><tr><th>پروژه</th><th>بسته کاری</th><th>صادر کننده</th><th>تسهیلات</th><th>رشته</th><th>نوع مدرک</th><th>سریال</th><th>نسخه</th></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>EL</td><td>CN</td><td>0002</td><td>D03</td></tr></table>	CALCULATION NOTE FOR INDOOR AREA LIGHTING SYSTEM								پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	EL	CN	0002	D03	شماره صفحه : 6 از 8
CALCULATION NOTE FOR INDOOR AREA LIGHTING SYSTEM																										
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	EL	CN	0002	D03																			

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.

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	Eye level
Compressor houses	200	Floor
Separators	50	Top of bay
General area	10	Ground
B) Control rooms and houses		
Ordinary control house	300	Floor
Instrument panel	300	1700
Console	300	760
Back of panel	100	760
Central control house	500	Floor
Instrument	500	1700
Back of pane	100	900
C) Specialty process units		
Conveyors	20	Surface
Conveyor transfer points	50	Surface
II NONPROCESS AREA		
A) Loading, unloading, and cooling water pump houses, Pump area	50	Ground
General control area	150	Floor
Control panel	200	1100
B) Boiler and air compressor plants		
Indoor	200	Floor
Outdoor equipment 50	50	Ground
C) Tank fields (where lighting is required)		
Ladders and stairs	5	Floor
Gating area	10	Ground
Manifold area	5	Floor
D) Loading racks		
General area	50	Floor
Tank car	100	Point
Tank trucks, loading point	100	Point
E) Tanker dock facilities		



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شماره پیمان:

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CALCULATION NOTE FOR INDOOR AREA LIGHTING SYSTEM

نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه
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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	Control	Control	300	511
		Auxiliary	300	398
		UPS	50	259
		Battery	50	153
		Management	500	444
		Instrument	500	464
		Office 1	500	406
		Office 2	500	475
		In Charge + Archive	500	372
2	Switchgear	Capacitor	50	177
		CO2	50	181
		Transformer	20	111
		Diesel Generator	50	116
3	CCTV GCS	-	500	417
4	CCTV DU	-	500	417
5	CCTV PU	-	500	597
6	Compressor	Shelter	200	180
7	Chemical Package	Shelter	200	217
8	Utility	Shelter	200	166
9	Fire Water Pump	Shelter	200	238

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8.0 LIGHTING CALCULATION – DETAIL REPORT

DIALUX report has been attached in “Attachments”

Attachment “A” -GCS New Control Building

Attachment “B” -GCS Exiting Switchgear

Attachment “C” -Outdoor Area (Gas Compressor Shelter, Chemical Injection Packages & Storage Shelter, Fire Water Pump House, Utility Shelter)