



NISOC

نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض

احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک



I&C POWER CONSUMPTION SUMMARY

شماره پیمان:

053 - 073 - 9184

پروژه

بسته کاری

صادر کننده

تجهیزات

رشته

نوع مدرک

سریال

نسخه

BK

GCS

PEDCO

120

IN

LI

0007

D03

شماره صفحه: 1 از 8

طرح نگهداشت و افزایش تولید 27 مخزن

I&C POWER CONSUMPTION SUMMARY

نگهداشت و افزایش تولید میدان نفتی بینک

D03	AUG.2023	IFA	P.Hajisadeghi	M.Fakharian	A.M.Mohseni	
D02	DEC.2022	IFA	P.Hajisadeghi	M.Fakharian	M.Mehrshad	
D01	APR.2022	IFA	P.Hajisadeghi	M.Fakharian	M.Mehrshad	
D00	FEB.2022	IFC	P.Hajisadeghi	M.Fakharian	M.Mehrshad	
Rev.	Date	Purpose of Issue / Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval

Class: 1

CLIENT Doc. Number: F0Z-708973

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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REVISION RECORD SHEET

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3	X	X				67					
4	X	X	X	X		68					
5	X	X	X	X		69					
6		X	X	X		70					
7				X		71					
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REFERENCE DOCUMENTS:

I/O LIST FOR CONTROL SYSTM
 I/O LIST FOR ESD SYSTEM
 I/O LIST FOR F&G SYSTEM
 SPECIFICATION FOR INSTRUMENTATION
 SPECIFICATION FOR CONTROL SYSTEM
 SPECIFICATION FOR ESD SYSTEM
 SPECIFICATION FOR ESD SYSTEM
 SPECIFICATION FOR INSTRUMENT AND CONTROL OF PACKAGE UNIT SYSTEM(PU)

BK-GCS-PEDCO-120-IN-LI-0002
 BK-GCS-PEDCO-120-IN-LI-0003
 BK-GCS-PEDCO-120-IN-LI-0004
 BK-GNRAL-PEDCO-000-IN-SP-0001
 BK-GNRAL-PEDCO-000-IN-SP-0002
 BK-GNRAL-PEDCO-000-IN-SP-0003
 BK-GNRAL-PEDCO-000-IN-SP-0012
 BK-GNRAL-PEDCO-000-IN-SP-0004

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INST./CONTROL UPS 110 VAC POWER CONSUMPTION TABLE

- Table (1) is represents AC UPS power consumption for inst./control system. The estimation is based on the design of control systems, comprising of various equipment located in Control Room/Field.

ITEM	DESCRIPTION		PANEL QTY (Note 1)	BACK UP TIME	ESTIMATED I/O (NOTE 3)	POWER CONSUMPTION (W) (Note 1)(AS PER APPENDIX A,B)	FEEDER QTY	TOTAL POWER CONSUMPTION (W)
1	DCS SYSTEM PANEL (AS PER APPENDEX "A")	Power Supply for CPUs (2 No. redundant)	1	2 hr.	400	500	2 Nos. (Redundant)	1100
		220/24 VDC Power Supply		2 hr.		400	2 Nos. (Redundant)	
		Socket - 110 VAC		-		200	-	
2	DCS MARSHALING PANEL (AS PER APPENDEX "B")	220/24 VDC Power Supply (2 No. redundant)	3	2 hr.	-	700	2 Nos. (Redundant)	900
		Socket - 110 VAC		-		200	-	
3	ESD SYSTEM PANEL (AS PER APPENDEX "A")	Power Supply for CPUs (2 No. redundant)	1	2 hr.	200	500	2 Nos. (Redundant)	1280
		220/24 VDC Power Supply		2 hr.		580	2 Nos. (Redundant)	
		Socket - 110 VAC		-		200	-	
4	ESD MARSHALING PANEL (AS PER APPENDEX "B")	220/24 VDC Power Supply	2	2 hr.	-	380	2 Nos. (Redundant)	580
		Socket - 110 VAC		-		200	-	
5	ELECRO GAS COMPRESSOR UCP A/B/C SYSTEM AND MARSHALING CABINET		3	2 hr.	3x200	1500	2 Nos. (Redundant)	4500
6	DEHYDRATION PACKAGE(UCP/BMS)		2	2 hr.	20	1500	2 Nos. (Redundant)	3000
7	PAGING SYSTEM		1	2 hr.	-	1000	2 Nos. (Redundant)	1000
8	AIR COMPRESSOR UCP A/B		2	2 hr.	2x100	1000	2 Nos. (Redundant)	2000
9	AIR DRAYER LOCAL LCP		2	2 hr.	-	800	2 Nos. (Redundant)	1600
10	NITROGEN PACKAGE UCP A/B		1	2 hr.	100	1000	2 Nos. (Redundant)	1000
11	OPERATOR WORKSTATION (INCLUDING DCS, ESD, PACKAGE OWSs)		4	2 hr.	-	741	1 No. (Socket)	2964
12	DCS ENGINEERING WORKSTATION		1	2 hr.	-	713	1 No. (Socket)	713
13	ESD ENGINEERING WORKSTATION		1	2 hr.	-	713	1 No. (Socket)	713
14	F&G OPERATOR/ ENGINEERING WORKSTATION		1	2 hr.	-	713	1 No. (Socket)	713
15	PRINTER		3	2 hr.	-	600	3 No. (Socket)	1800

TABLE 1

TOTAL POWER CONSUMPTION (W)	23863
TOTAL POWER CONSUMPTION CONSIDERING SPARE CAPACITY (W)	28635.6

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Note 1 : Shall Be Finalized After Purchase Through Vendor Final Documents.

Note 3: UPS power for HVAC Panel shall be supplied by vendor. Only 400VAC , 3 phase will be supplied by EPC contractor.

Note 3: Power Consumption of panels have been estimated considering project I/O count. Refer to " I/O List For Control System Doc.No.BK-GCS-PEDCO-120-IN-LI-0002 , I/O List For ESD System Doc.No.BK-GCS-PEDCO-120-IN-LI-0003 , I/O List For F&G System Doc.No.BK-GCS-PEDCO-120-IN-LI-0003

Note 4 : UPS of CCTV panel is not considered.It will be provided by vendor.

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INST./CONTROL NON- UPS 230 VAC POWER CONSUMPTION TABLE

- Table (2) is represents AC UPS power consumption for inst./control system. The estimation is based on the design of control systems, comprising of various equipment located in Control Room.

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ITEM	DESCRIPTION	UNIT POWER CONSUMPTION (W) (Note 1)	QTY. (Note 1)	TOTAL POWER CONSUMPTION (W) + 500 W for 1 Socket per system
1	Cabinet Utilities For DCS (Heater, Fan, Light)	200	4	1300
2	Cabinet Utilities For ESD (Heater, Fan, Light)	200	3	1100
3	Cabinet Utilities For F&G (Heater, Fan, Light)	200	3	1100
4	Cabinet Utilities For Gas Compressor UCP(Heater, Fan, Light)	200	3	1100
5	Cabinet Utilities For Dehydration BMS(if any) (Heater, Socket, Fan, Light)	200	1	700
6	Cabinet Utilities For Total Flooding UCP(Heater, Socket, Fan, Light)	200	1	700
7	Cabinet Utilities For Paging Cabinet (Heater, Socket, Fan, Light)	200	1	700
8	Cabinet Utilities For Air Compressor UCP(Heater, Socket, Fan, Light)	200	2	900
9	Cabinet Utilities For Nitrogen package UCP(Heater, Socket, Fan, Light)	200	2	900
10	Control Desk Sockets	500	7	3500
TOTAL POWER CONSUMPTION				12000

TABLE 2

TOTAL POWER CONSUMPTION (W)	12000
TOTAL POWER CONSUMPTION CONSIDERING SPARE CAPACITY (W)	14400

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Note 1 : Shall Be Finalized After Purchase Through Vendor Final Documents.

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INST./CONTROL UPS 24 VDC POWER CONSUMPTION TABLE

- Table (3) is represents 24V DC UPS power consumption for F&G system. The estimation is based on the design of F&G systems, comprising of various equipment located in Control Room/Field.

ITEM	DESCRIPTION	PANEL QTY (Note 1)	BACK UP TIME	ESTIMATTED I/O (NOTE 4)	POWER CONSUMPTION (W) (Refer to appendix A,B)	FEEDER QTY	TOTAL POWER CONSUMPTION FOR QUIESCENCE MODE(W) (Note 3)	TOTAL POWER CONSUMPTION FOR ALARM MODE (W) (Note 3)
1	F&G SYSTEM PANEL	1	24hr.	265	1400 (for Quiescence- Refer to appendix A)	2 Nos. (Redundant)	1600	2700
			5 MIN		2500 (for alarm mode- Refer to appendix A)			
2	F&G MARSHALLING PANEL	2	24hr.		200 (for Quiescence- Refer to appendix B)			
1	FACP system	1	24hr.	-	400 (for Quiescence)	2 Nos. (Redundant)	540	-
2	FACP Detectors		24hr.		140 (for Quiescence mode)			
			5 MIN		500 (for alarm mode)		-	900
3	FIRE PROTECTION AND TOTAL FLOODING SYSTEM UCP	1	5 MIN	50	800	2 Nos. (Redundant)	-	800

TOTAL POWER CONSUMPTION FOR 5 MIN BACK UP TIME (W) (Note 3)	4400
TOTAL POWER CONSUMPTION FOR 24 HOURS BACK UP TIME (W) (Note 3)	2140
TOTAL POWER CONSUMPTION CONSIDERING SPARE CAPACITYFOR 5 MIN BACK UP TIME (W)	5280.0
TOTAL POWER CONSUMPTION CONSIDERING SPARE CAPACITY FOR 24 HOURS BACK UP TIME (W)	2568.0

Note 1 : Shall Be Finalized After Purchase Through Vendor Final Documents.

Note 2: Deleted

Note 3: DC charger shall supply 2KW + Spare, for 24H back up time but also it shall be capable to prepare 4.3KW+ Spare, as a peak power consumption in alarming conditions for 5 Min back up time. it shall be considered during battery sizing in related documents.

Note 4: Power Consumption of panels have been estimattted considering project I/O count. Refer to " I/O List For Control System Doc.No.BK-GCS-PEDCO-120-IN-LI-0002 , I/O List For ESD System Doc.No.BK-GCS-PEDCO-120-IN-LI-0003 , I/O List For F&G System Doc.No.BK-GCS-PEDCO-120-IN-LI-0003.

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(APPENDIX "A")

ITEM	DESCRIPTION		QTY	UNIT POWER CONSUMPTION (W) (Note 1)(1.5 contingency)	TOTAL POWER CONSUMPTION (W)
1	DCS SYSTEM PANEL (As per last DCS I/O List)	Interface Base Plates	8	8.25	66
2		Commucation Processor Module	7	3.6	25.2
3		DI Module 32 Channel	8	5.25	42
4		DO Module 32 Channel	5	10.2	51
5		AI Module 16 Channel	11	2.25	24.75
6		AO Module 8 Channel	8	9	72
7		Industrial Ethernet Switch	2	22.5	45
8		Spare	1 SET	70	70
TOTAL :				395.95	

ITEM	DESCRIPTION		QTY	UNIT POWER CONSUMPTION (W) (Note 1)(1.5 contingency)	TOTAL POWER CONSUMPTION (W)
1	ESD SYSTEM PANEL (As per last DCS I/O List)	Interface Base Plates	8	8.25	66
2		DI Module 24 Channel	4	15	60
3		DI-R : 39 DO Module 10 Channel	24	9	216
4		DO-R : 91 AI Module 6 Channel	24	6.75	162
5		AI-R : 59 Spare	1 SET.	70	70
				TOTAL :	574

ITEM	PANEL NAME	DETECTOR TYPE	24H / 5 MIN	QTY	UNIT POWER CONSUMPTION (W) (Note 1)(1.5 contingency)	TOTAL POWER CONSUMPTION FOR 24H (W)	TOTAL POWER CONSUMPTION FOR 5 MIN (W)	
1	F&G SYSTEM PANEL 24VDC (External) For field	Flame Detector :	24H	19	1	19	0	
		Flame Detector :	5 MIN	19	8	0	152	
2		Flammable Gas Detector :	24H	33	1	33	0	
		Flammable Gas Detector :	5 MIN	33	13	0	429	
3		Toxic Gas Detector :	24H	33	1	33	0	
		Toxic Gas Detector :	5 MIN	33	13	0	429	
4		Hydrogen Gas Detector :	24H	3	1	3	0	
		Hydrogen Gas Detector :	5 MIN	3	13	0	39	
5		Manual Call Point :	24H	19	0	0	0	
6		Heat Detector :	24H	3	3	9	0	
7		Linear Heat Detector :	24H	4	4.2	16.8	0	
8		Beacon :	5 MIN	30	1	0	30	
9	Horn :	5 MIN	10	6	0	60		
1	F&G SYSTEM PANEL (As per last F&G I/O List) 24VDC (Internal)	CPU	24H/5 MIN	2	285	570	570	
2		DI Module 24 Channel	24H/5 MIN	6	15	90	90	
3		AI-R : 88	DO Module 10 Channel	24H/5 MIN	34	9	306	306
4		DI-NR : 47	AI Module 6 Channel	24H/5 MIN	36	6.75	243	243
5		DO-NR : 130	Spare	24H/5 MIN	1	72	72	72
			TOTAL POWER CONSUMPTION FOR 24 HOURS BACK UP TIME :					

Note 1 : Shall Be Finalized After Purchase Through Vendor Final Documents. (As per Siemens base)



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سطح الارض

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(APPENDIX "B")

ITEM	DESCRIPTION		QTY	UNIT POWER CONSUMPTION (W) (Note 1)(1.5 contingency)	TOTAL POWER CONSUMPTION (W)
1	DCS MARSHALING PANEL	Barrier	123	2.55	313.65
2		Relay Coils	315	1	315
3		Spare	1 SET	70	70
				TOTAL :	698.65

1	ESD MARSHALING PANEL	Barrier	59	2.55	150.45
2		Relay Coils	156	1	156
3		Spare	1 SET	70	70
				TOTAL :	376.45

1	F&G MARSHALING PANEL	Relay Coils	130	1	130
2		Spare	1 SET	70	70
			TOTAL POWER CONSUMPTION FOR 24 HOURS BACK UP TIME : 200		

Note 1 : Shall Be Finalized After Purchase Through Vendor Final Documents. (As per Siemens base)