
	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
شماره پیمان:  ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">MTO FOR EARTHING &amp; LIGHTNING SYSTEMS</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>MT</td><td>0001</td><td>D00</td></tr></table>	MTO FOR EARTHING & LIGHTNING SYSTEMS								پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	EL	MT	0001	D00	شماره صفحه ۱: از ۶
MTO FOR EARTHING & LIGHTNING SYSTEMS																										
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BK	GCS	PEDCO	120	EL	MT	0001	D00																			

## طرح نگهداشت و افزایش تولید ۲۷ مخزن

## MTO FOR EARTHING & LIGHTNING SYSTEMS

### نگهداشت و افزایش تولید میدان نفتی بینک



D00	Oct. 2022	IFI	H.Shakiba	M.Fakharian	M.Mehrshad	
Rev.	Date	Purpose of Issue/Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval

Class:3

CLIENT Doc. Number: F8Z-709073

#### 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

 <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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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	EL	MT	0001	D00											

### REVISION RECORD SHEET



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 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>	 HIRGAN ENERGY 																
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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	EL	MT	0001	D00											

### Bill of Material

Overall Earthing System (BK-GCS-PEDCO-120-EL-PY-0001)						
Item	Description	Unit	Earthing	Lightning	Spare	Total
1	Bare Round Earthing Copper Conductor 70 mm <sup>2</sup>	m	960	0	40	1000
2	Bare Round Earthing Copper Conductor 240 mm <sup>2</sup>	m	275	0	25	300
3	Earthing Copper Wire, G/Y PVC Insulated 16 mm <sup>2</sup>	m	1110	0	4090	1200
4	Earthing Copper Wire, G/Y PVC Insulated 35 mm <sup>2</sup>	m	755	0	45	800
5	Earthing Copper Wire, G/Y PVC Insulated 70 mm <sup>2</sup>	m	555	0	45	600
6	Earthing Copper Wire, G/Y PVC Insulated 300 mm <sup>2</sup>	m	30	0	20	50
7	Stainless Steel 316L/Copper Earthing Rod with 19 mm Diameter and 2x1.5 m Length (One End Sharp, One End Flat) With All Accessories.	Set.	4	0	1	5
8	Stainless Steel 316L /Copper Earthing Rod with 19 mm Diameter and 2x1.5m Length (One End Sharp, One End Flat) With All Accessories. &Test Earth Pit	Set.	6	0	0	6
9	Copper Clamp for Connecting Round Conductor Size of 70 mm <sup>2</sup> to Earth Rod	No	7	0	1	8
10	Copper Clamp for Connecting Round Conductor Size of 300 mm <sup>2</sup> to Earth Rod	No.	3	0	1	4
11	Tinned Copper Earth Bar with disconnect link on both end with 10 Holes, HDG Fixing Base , "Ω" Base,	Set.	11	0	1	12
12	Crimp Type Earthing Terminal Lug 300 mm <sup>2</sup> , Tinned Copper Type (With Suitable Bolt & Nut With 1-Spring,2-Flat Washers, Size M12, tin plated or bronze)	No.	3	0	2	10
13	Crimp Type Earthing Terminal Lug 240 mm <sup>2</sup> , Tinned Copper Type (With Suitable Bolt & Nut With 1-Spring,2-Flat Washers, Size M12, tin plated or bronze)	No.	8	0	2	10
14	Crimp Type Earthing Terminal Lug 70 mm <sup>2</sup> , Tinned Copper Type (With Suitable Bolt & Nut With 1-Spring,2-Flat Washers, Size M12, tin plated or bronze)	No.	31	0	4	35
15	Crimp Type Earthing Terminal Lug 35 mm <sup>2</sup> , Tinned Copper Type (With Suitable Bolt & Nut With 1-Spring,2-Flat Washers, Size M12, tin plated or bronze)	No.	41	0	4	45
16	Crimp Type Earthing Terminal Lug 16 mm <sup>2</sup> , Tinned Copper Type (With Suitable Bolt & Nut With 1-Spring,2-Flat Washers, Size M12, tin plated or bronze)	No.	48	0	2	50
17	Exothermic Mould for T Connection 240/300/240 mm <sup>2</sup>	Set.	1	0	0	1
18	Exothermic Mould for T Connection 240/240/240 mm <sup>2</sup>	Set.	1	0	0	1
19	Exothermic Mould for T Connection 240/70/240 mm <sup>2</sup>	Set.	2	0	0	2
20	Exothermic Mould for T Connection 240/35/240 mm <sup>2</sup>	Set.	1	0	0	1
21	Exothermic Mould for T Connection 240/16/240 mm <sup>2</sup>	Set.	1	0	0	1
22	Exothermic Mould for T Connection 70/70/70 mm <sup>2</sup>	Set.	5	0	0	5
23	Exothermic Mould for T Connection 70/35/70 mm <sup>2</sup>	Set.	4	0	0	4



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MTO FOR EARTHING & LIGHTNING SYSTEMS																										
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### Overall Earthing System (BK-GCS-PEDCO-120-EL-PY-0001)

Item	Description	Unit	Earthing	Lightning	Spare	Total
24	Exothermic Mould for T Connection 70/16/70 mm <sup>2</sup>	Set.	4	0	0	4
25	Exothermic Welding Powder Suitable for 3 Ways Connections 240/300/240 including disc and starter	No.	6	0	0	6
26	Exothermic Welding Powder Suitable for 3 Ways Connections 240/240/240 including disc and starter	No.	4	0	0	4
27	Exothermic Welding Powder Suitable for 3 Ways Connections 240/70/240 including disc and starter	No.	17	0	1	18
28	Exothermic Welding Powder Suitable for 3 Ways Connections 240/35/240 including disc and starter	No.	6	0	0	6
29	Exothermic Welding Powder Suitable for 3 Ways Connections 240/16/240 including disc and starter	No.	2	0	0	2
30	Exothermic Welding Powder Suitable for 3 Ways Connections 70/70/70 including disc and starter	No.	34	0	1	35
31	Exothermic Welding Powder Suitable for 3 Ways Connections 70/35/70 including disc and starter	No.	30	0	1	31
32	Exothermic Welding Powder Suitable for 3 Ways Connections 70/16/70 including disc and starter	No.	32	0	1	32
33	Installation tools kit for thermo weld connection comprising flint gun, glove, scraper & brush	Set	1		0	1

### Earthing & Lightning Layout for Building & Shelter (BK-GCS-PEDCO-120-EL-PY-0002)

Item	Description	Unit	Earthing	Lightning	Spare	Total
1	Bare Round Earthing Copper Conductor 70 mm <sup>2</sup>	m	50	0	10	60
2	Earthing Copper Wire, G/Y PVC Insulated 35 mm <sup>2</sup>	m	15	0	5	20
3	Earthing Copper Wire, G/Y PVC Insulated 70 mm <sup>2</sup>	m	595	0	55	650
4	Earthing Copper Wire, B/Y PVC Insulated 70 mm <sup>2</sup>	m	55	0	15	702
5	Stainless Steel 316L/Copper Earthing Rod with 19 mm Diameter and 2x1.5 m Length (One End Sharp, One End Flat) With All Accessories.	Set.	0	24	1	25
6	Stainless Steel 316L/Copper Earthing Rod with 19 mm Diameter and 1 m Length (One End Sharp, One End Flat) With All Accessories.	Set.	12	0	1	13
7	Stainless Steel 316L/Copper Earthing Rod with 19 mm Diameter and 1 m Length (One End Sharp, One End Flat) With All Accessories & Test Pit	Set.	2	0	0	2
8	Stainless Steel 316L/Copper Earthing Rod with 19 mm Diameter and 2x1.5 m Length (One End Sharp, One End Flat) With All Accessories & Test Pit	Set.	0	4	0	4
9	Copper Clamp for Connecting Round Conductor Size of 70 mm <sup>2</sup> to Earth Rod	No	14	0	1	15
10	Copper Clamp for Connecting Round Conductor Size of 70 mm <sup>2</sup> to Earth Rod	No	0	28	3	31
11	Tinned Copper Earth Bar with disconnect link on both end with 10 Holes, HDG Fixing Base , "Ω" Base,	Set.	6	0	1	7

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MTO FOR EARTHING & LIGHTNING SYSTEMS																										
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### Earthing & Lightning Layout for Building & Shelter (BK-GCS-PEDCO-120-EL-PY-0002)



Item	Description	Unit	Earthing	Lightning	Spare	Total
12	Crimp Type Earthing Terminal Lug 70 mm <sup>2</sup> , Tinned Copper Type (With Suitable Bolt & Nut With 1-Spring,2-Flat Washers, Size M12, tin plated or bronze	No.	12	0	1	13
13	Crimp Type Earthing Terminal Lug 35 mm <sup>2</sup> , Tinned Copper Type (With Suitable Bolt & Nut With 1-Spring,2-Flat Washers, Size M12, tin plated or bronze	No.	1	0	1	2
14	Exothermic Mould for T Connection 70/70/70 mm <sup>2</sup>	Set.	3	6	1	10
15	Exothermic Welding Powder Suitable for 3 Ways Connections 70/70/70 including disc and starter	No.	19	34	2	55
16	Copper nickel Chrome Coated Air Terminal Class I, 19mm Diameter, 0.6m Length with, with all accessories Thread	Set.	0	19	1	20
17	Air Terminal Saddle Suitable for 0.6m Air Terminal, also Suitable for Connecting 25x3 mm <sup>2</sup> Flat tape to rod	Set.	0	19	1	20
18	Flat Copper Tape with 25 mm Width and 3 mm Thickness	m.	0	461	39	500
19	Clip Suitable for 25*3 mm <sup>2</sup> Flat Copper Tape fixing, with all accessories	No.	0	233	17	250
20	Test Link Suitable for 25*3 mm <sup>2</sup> Copper Tape and 70 mm <sup>2</sup> Round Wire, with all accessories	Set.	0	14	1	15
21	Installation tools kit for thermo weld connection comprising flint gun, glove, scraper & brush	Set	1		1	Set

### Earthing Layout for Desalting Unit (BK-GCS-PEDCO-120-EL-PY-0014)

Item	Description	Unit	Earthing	Lightning	Spare	Total
1	Earthing Copper Wire, G/Y PVC Insulated 70 mm <sup>2</sup>	m	50	0	0	50
2	Tinned Copper Earth Bar with disconnect link on both end with 10 Holes, HDG Fixing Base , "Ω" Base,	Set.	6	0	1	7
3	Exothermic Welding Powder Suitable for 3 Ways Connections 70/70/70 including disc and starter	Set.	1	0	0	1

### Earthing Layout for Production Unit (BK-GCS-PEDCO-120-EL-PY-0015)

Item	Description	Unit	Earthing	Lightning	Spare	Total
1	Earthing Copper Wire, G/Y PVC Insulated 70 mm <sup>2</sup>	m	50	0	0	50
2	Tinned Copper Earth Bar with disconnect link on both end with 10 Holes, HDG Fixing Base , "Ω" Base,	Set.	6	0	1	7
3	Exothermic Welding Powder Suitable for 3 Ways Connections 70/70/70 including disc and starter	Set.	1	0	0	1

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	BK	GCS	PEDCO	120	EL	MT	0001	D00	

1- This document shall be Based on below references:

- |  |                             |
|--|-----------------------------|
| - Calculation Note for Earthing & Lightning System   | BK-GCS-PEDCO-120-EL-CN-0006 |
| - Overall Earthing Layout                            | BK-GCS-PEDCO-120-EL-PY-0001 |
| - Earthing & Lightning Layout for Building & Shelter | BK-GCS-PEDCO-120-EL-PY-0002 |
| - Earthing Layout for Desalting Unit                 | BK-GCS-PEDCO-120-EL-PY-0014 |
| - Earthing Layout for Production Unit                | BK-GCS-PEDCO-120-EL-PY-0015 |