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|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------|--------------------|----------------|------------|----------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| <br><b>NISOC</b> | نگهداشت و افزایش تولید میدان نفتی بینک<br>فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض<br>عمومی و مشترک |                    |                    |                |            |                |               | <br>شرکت توسعه و پتروایران<br>  |                    |
|                                                                                                  | DATA SHEETS FOR DC CHARGER OF WELL PADS                                                                  |                    |                    |                |            |                |               |                                                                                                                                                                                                                                                                                         |                    |
| شماره پیمان:<br>۰۵۳ - ۰۷۳ - ۹۱۸۴                                                                 | پروژه<br>BK                                                                                              | بسته کاری<br>SSGRL | صادرکننده<br>PEDCO | تسهیلات<br>110 | رشته<br>EL | نوع مدرک<br>DT | سریال<br>0003 | نسخه<br>D03                                                                                                                                                                                                                                                                             | شماره صفحه: ۱ از ۷ |

## طرح نگهداشت و افزایش تولید ۲۷ مخزن

### DATA SHEETS FOR DC CHARGER OF WELL PADS

#### نگهداشت و افزایش تولید میدان نفتی بینک

|      |          |                           |              |             |              |                 |
|------|----------|---------------------------|--------------|-------------|--------------|-----------------|
|      |          |                           |              |             |              |                 |
| D03  | Apr.2023 | AFC                       | H.Shakiba    | M.Fakharian | M.Mehrshad   |                 |
| D02  | Apr.2022 | IFA                       | H.Shakiba    | M.Fakharian | M.Mehrshad   |                 |
| D01  | Mar.2022 | IFA                       | H.Shakiba    | M.Fakharian | M.Mehrshad   |                 |
| D00  | Jan.2022 | IFC                       | H.Shakiba    | M.Fakharian | M.Mehrshad   |                 |
| Rev. | Date     | Purpose of Issue / Status | Prepared by: | Checked by: | Approved by: | CLIENT Approval |

Class: 1

CLIENT Doc. Number: F0Z-707390

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



NISOC

نگهداشت و افزایش تولید میدان نفتی بینک  
فعالیت‌های روزمینی در بسته‌های کاری تحت‌الارض

عمومی و مشترک

DATA SHEETS FOR DC CHARGER OF WELL PADS



شماره پیمان:

۰۵۳ - ۰۷۳ - ۹۱۸۴

| نسخه | سریال | نوع مدرک | رشته | تسهیلات | صادرکننده | بسته کاری | پروژه |
|------|-------|----------|------|---------|-----------|-----------|-------|
| D03  | 0003  | DT       | EL   | 110     | PEDCO     | SSGRL     | BK    |

شماره صفحه: ۲ از ۷

# REVISION RECORD SHEET

| Page | D00 | D01 | D02 | D03 | D04 |
|------|-----|-----|-----|-----|-----|
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|                                                                                                  | <b>DATA SHEETS FOR DC CHARGER OF WELL PADS</b>                                                           |           |           |         |      |          |       |      |                                                                                                                                                                            |
| شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴                                                                    | پروژه                                                                                                    | بسته کاری | صادرکننده | تسهیلات | رشته | نوع مدرک | سریال | نسخه | شماره صفحه: ۷ از ۳                                                                                                                                                         |
|                                                                                                  | BK                                                                                                       | SSGRL     | PEDCO     | 110     | EL   | DT       | 0003  | D03  |                                                                                                                                                                            |

| Technical Data For Industrial Battery & Battery Charger for 110 VDC of Wellpads |                                          |                                                                                                                                                                                                           |             |
|---------------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Item                                                                            | Description                              | Required                                                                                                                                                                                                  | Vendor Data |
| <b>1-General</b>                                                                |                                          |                                                                                                                                                                                                           |             |
| 1.1                                                                             | Name of Project / Plant                  | Binak Oilfield in Bushehr Province                                                                                                                                                                        |             |
| 1.2                                                                             | Manufacturer                             | By Vendor                                                                                                                                                                                                 |             |
| 1.3                                                                             | Manufacturer Model                       | By Vendor                                                                                                                                                                                                 |             |
| 1.4                                                                             | Average Ambient Temperature (Min/Max)    | Min ~ Max: -5 ~ +52°C                                                                                                                                                                                     |             |
| 1.5                                                                             | Max.Design Temperature:                  | 52 °c                                                                                                                                                                                                     |             |
| 1.6                                                                             | Max. Sun Temperature:                    | + 85 °c                                                                                                                                                                                                   |             |
| 1.7                                                                             | Max.Relative Humidity:                   | 100%                                                                                                                                                                                                      |             |
| 1.8                                                                             | Mean Sea Level:                          | 12.5 m above Sea Level                                                                                                                                                                                    |             |
| 1.9                                                                             | Seismic Factor:                          | 0.3g                                                                                                                                                                                                      |             |
| 1.10                                                                            | Max. Wind Velocity(Max)                  | 120 km/hr                                                                                                                                                                                                 |             |
| 1.11                                                                            | Standard(s)                              | IEC,IPS-M-EL-174(2), IPS-E-EL-100(1)                                                                                                                                                                      |             |
| 1.12                                                                            | Quantity                                 | 6 Complete set (2×100% Charger) with commissioning and two years Spare Parts, Two battery bank(2×92cell), Battery Stand with special tools for Batteries, switch-fuse For Battery Banks: Exd IIC-T3 type. |             |
| 1.13                                                                            | Service                                  | 110 VDC for LV Switchgear                                                                                                                                                                                 |             |
| 1.14                                                                            | Tag Number                               | WellXX-110-CHG-001 & WellXX-110-CHG-002                                                                                                                                                                   |             |
| 1.15                                                                            | Applicable SLD                           | BK-SSGRL-PEDCO-110-EL-SL-0002                                                                                                                                                                             |             |
| 1.16                                                                            | Applicable Specification                 | BK-GNRAL-PEDCO-000-EL-SP-0005                                                                                                                                                                             |             |
| 1.17                                                                            | Location                                 | Indoor                                                                                                                                                                                                    |             |
| <b>2-Environment</b>                                                            |                                          |                                                                                                                                                                                                           |             |
| 2.1                                                                             | Area classification                      | Safe Area                                                                                                                                                                                                 |             |
| 2.2                                                                             | Site Elevation                           | 12.5 m                                                                                                                                                                                                    |             |
| 2.3                                                                             | Ambient Temperature                      | Min/Max: -5/52°C                                                                                                                                                                                          |             |
| 2.4                                                                             | Relative humidity                        | 100%                                                                                                                                                                                                      |             |
| 2.5                                                                             | Atmosphere                               | Tropical & Dusty                                                                                                                                                                                          |             |
| 2.6                                                                             | Building Temperature Control             | Not Required                                                                                                                                                                                              |             |
| 2.7                                                                             | Seismic Acceleration                     | 0.3g                                                                                                                                                                                                      |             |
| <b>3.AC Input</b>                                                               |                                          |                                                                                                                                                                                                           |             |
| 3.1                                                                             | Rectifiers Input Voltage                 | 380/400/440, 3Ph, Cable 4 Core, 50 Hz                                                                                                                                                                     |             |
| 3.2                                                                             | Max.allowable input voltage variation    | ±10%                                                                                                                                                                                                      |             |
| 3.3                                                                             | Max.allowable input frequency variation  | ±5%                                                                                                                                                                                                       |             |
| 3.4                                                                             | Network short circuit current (rms)      | 50KA                                                                                                                                                                                                      |             |
| 3.5                                                                             | Network short circuit current (Peak)     | By Vendor                                                                                                                                                                                                 |             |
| 3.6                                                                             | Max. short circuit clearing time         | 1 sec                                                                                                                                                                                                     |             |
| 3.7                                                                             | Max. power consumption                   | By Vendor                                                                                                                                                                                                 |             |
| 3.8                                                                             | Input THDi% ( acc to IEEE-519 )          | <10%                                                                                                                                                                                                      |             |
| <b>4.DC Output</b>                                                              |                                          |                                                                                                                                                                                                           |             |
| 4.1                                                                             | Rated voltage                            | 110 VDC                                                                                                                                                                                                   |             |
| 4.2                                                                             | Max. Allowable Voltage Variation         | ±1%                                                                                                                                                                                                       |             |
| 4.3                                                                             | Rated Output Current (Amp)               | 14.68 Amp                                                                                                                                                                                                 |             |
| 4.4                                                                             | Allowable Ripple voltage (r.m.s )        | <1%                                                                                                                                                                                                       |             |
| 4.6                                                                             | Rectifier control voltage (Full Control) | 12 Pulse                                                                                                                                                                                                  |             |
| 4.7                                                                             | Charger Topology                         | Hot Duty Standby                                                                                                                                                                                          |             |
| 4.8                                                                             | Rectifier Input Filter type              | R.F.I & Surge Arrester                                                                                                                                                                                    |             |
| 4.9                                                                             | Constant Voltage Control                 | Required                                                                                                                                                                                                  |             |
| 4.10                                                                            | Constant Current Control                 | Required                                                                                                                                                                                                  |             |
| 4.11                                                                            | Rectifier Over Load (%)                  | 110% Continues                                                                                                                                                                                            |             |
| 4.12                                                                            | Rectifiers Protection                    | Required                                                                                                                                                                                                  |             |
| 4.13                                                                            | MCCB for AC Inputs                       | Required                                                                                                                                                                                                  |             |
| 4.14                                                                            | MCCB for DC Output                       | Required                                                                                                                                                                                                  |             |

|                                                                                                  |                                                                                                           |           |           |         |      |          |       |      |                                                                                                                                                                            |
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| <br><b>NISOC</b> | نگهداشت و افزایش تولید میدان نفتی بینک<br>فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض<br>عمومی و مشترک |           |           |         |      |          |       |      | <br> |
|                                                                                                  | <b>DATA SHEETS FOR DC CHARGER OF WELL PADS</b>                                                            |           |           |         |      |          |       |      |                                                                                                                                                                            |
| شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴                                                                    | پروژه                                                                                                     | بسته کاری | صادرکننده | تسهیلات | رشته | نوع مدرک | سریال | نسخه | شماره صفحه: ۴ از ۷                                                                                                                                                         |
|                                                                                                  | BK                                                                                                        | SSGRL     | PEDCO     | 110     | EL   | DT       | 0003  | D03  |                                                                                                                                                                            |

| Technical Data For Industrial Battery & Battery Charger for 110 VDC of Wellpads |                                                                                      |                                                                                             |             |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------|
| Item                                                                            | Description                                                                          | Required                                                                                    | Vendor Data |
| 4.15                                                                            | Ultra Fast Fuse to Protect Thrusters                                                 | Required                                                                                    |             |
| 4.16                                                                            | Charger Output Fuse                                                                  | Required                                                                                    |             |
| 4.17                                                                            | AC Input Voltmeter                                                                   | Required                                                                                    |             |
| 4.18                                                                            | AC Input Ammeter                                                                     | Required                                                                                    |             |
| 4.19                                                                            | Charger DC Voltmeter                                                                 | Required                                                                                    |             |
| 4.20                                                                            | Charger DC Ammeter                                                                   | Required                                                                                    |             |
| 4.21                                                                            | Charger DC LC Filter                                                                 | Required                                                                                    |             |
| 4.22                                                                            | Load Current Ammeter                                                                 | Required                                                                                    |             |
| 4.23                                                                            | Charger Selector Switch                                                              | Required                                                                                    |             |
| 4.24                                                                            | Battery Low DC Alarm (Indicator & Dry Contact)                                       | Required                                                                                    |             |
| 4.25                                                                            | Load Low DC Alarm (Indicator & Dry Contact)                                          | Required                                                                                    |             |
| 4.26                                                                            | Load Hi DC Alarm (Indicator & Dry Contact)                                           | Required                                                                                    |             |
| 4.27                                                                            | Batteries Disconnected (Indicator)                                                   | Required                                                                                    |             |
| <b>5.Battery Charger Cabinet</b>                                                |                                                                                      |                                                                                             |             |
| 5.1                                                                             | Type                                                                                 | Flat Face                                                                                   |             |
| 5.2                                                                             | Construction                                                                         | Floor Mounted, Free Standing                                                                |             |
| 5.3                                                                             | Ingress protection class                                                             | IP42                                                                                        |             |
| 5.4                                                                             | Access for maintenance                                                               | Front                                                                                       |             |
| 5.5                                                                             | Body material                                                                        | Carbon Steel Sheet                                                                          |             |
| 5.6                                                                             | Thickness of body material                                                           | Min.2 mm                                                                                    |             |
| 5.7                                                                             | Finish color                                                                         | RAL 7032                                                                                    |             |
| 5.8                                                                             | Cable entrance                                                                       | Bottom and Cable Gland                                                                      |             |
| 5.9                                                                             | Bottom closing method                                                                | By Vendor                                                                                   |             |
| 5.10                                                                            | Cooling method                                                                       | Natural                                                                                     |             |
| 5.11                                                                            | Space Heater                                                                         | Required                                                                                    |             |
| 5.12                                                                            | Illumination                                                                         | Required                                                                                    |             |
| 5.13                                                                            | Noise level                                                                          | 70dBA                                                                                       |             |
| 5.14                                                                            | Wiring                                                                               | Power and Control Min.2.5mm <sup>2</sup> , Metering Min.1.5mm <sup>2</sup>                  |             |
| 5.15                                                                            | Nameplate                                                                            | English Black in White Background                                                           |             |
| 5.16                                                                            | Earthling System                                                                     | IT                                                                                          |             |
| <b>Note1: Data shown are typical; manufacturer shall provide his own data</b>   |                                                                                      |                                                                                             |             |
| <b>Note2: The blank items shall be filled by battery manufacture</b>            |                                                                                      |                                                                                             |             |
| <b>6.Batteries</b>                                                              |                                                                                      |                                                                                             |             |
| 6.1                                                                             | Manufacturer                                                                         | SAFT                                                                                        |             |
| 6.2                                                                             | Manufacturer Model                                                                   | By Vendor                                                                                   |             |
| 6.3                                                                             | Standard                                                                             | IEC 60623, IEEE 1115 2014                                                                   |             |
| 6.4                                                                             | Quantity                                                                             | 1 Complete set (2×50% Battery Bank)                                                         |             |
| 6.5                                                                             | Service                                                                              | 110 VDC for LV Switchgear                                                                   |             |
| 6.6                                                                             | Applicable Specification                                                             | BK-GNRAL-PEDCO-000-EL-SP-0005                                                               |             |
| 6.7                                                                             | Location                                                                             | Indoor                                                                                      |             |
| 6.8                                                                             | Battery requirements                                                                 | By Vendor                                                                                   |             |
| 6.9                                                                             | Battery type                                                                         | Nickel-Cadmium (IEC60623)                                                                   |             |
| 6.10                                                                            | Battery charging method                                                              | Constant Voltage-Dual Rate and Current Limit with Float/Auto/Equalize/Initial Mode charging |             |
| 6.11                                                                            | Back-up time                                                                         | 8 Hr                                                                                        |             |
| 6.12                                                                            | Emergency Mode Voltage for each cell (Activated by Battery Room Fan Failure)         | 1.35 V ± 0.01 V                                                                             |             |
| 6.13                                                                            | Battery float charging voltage                                                       | 1.4~1.45 V/Cell                                                                             |             |
| 6.14                                                                            | Battery Equalize charging voltage ( 0-30Hr Timer and Reset Push Button are required) | 1.45~1.55 V/Cell                                                                            |             |
| 6.15                                                                            | Battery boost charging voltage ( 0-30Hr Timer and Reset Push Button are required)    | 1.55~1.65 V/Cell                                                                            |             |
| 6.16                                                                            | Battery initial charging voltage ( 0-30Hr Timer and Returnable Switch are required)  | 1.75 V/Cell                                                                                 |             |

|                                                                                                  |                                                                                                           |           |           |         |      |          |       |                                                                                                                                                                            |
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|                                                                                                  | <b>DATA SHEETS FOR DC CHARGER OF WELL PADS</b>                                                            |           |           |         |      |          |       |                                                                                                                                                                            |
| شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴                                                                    | پروژه                                                                                                     | بسته کاری | صادرکننده | تسهیلات | رشته | نوع مدرک | سریال | نسخه                                                                                                                                                                       |
|                                                                                                  | BK                                                                                                        | SSGRL     | PEDCO     | 110     | EL   | DT       | 0003  | D03                                                                                                                                                                        |

شماره صفحه: ۵ از ۷

**Technical Data For Industrial Battery & Battery Charger for 110 VDC of Wellpads**

| Item | Description                                                                                            | Required              | Vendor Data |
|------|--------------------------------------------------------------------------------------------------------|-----------------------|-------------|
| 6.17 | Battery nominal voltage                                                                                | 1.2 V/Cell            |             |
| 6.18 | Final discharge voltage per cell(V)                                                                    | 1.14 V/Cell           |             |
| 6.19 | Rated capacity of each cell at 20 °C                                                                   | Min 30 Ah             |             |
| 6.2  | Re-charging time to 90% Rated Capacity                                                                 | 8 Hours               |             |
| 6.21 | Required battery ampere-hour (C5)                                                                      | 30Ah , SBLE Type      |             |
| 6.22 | Total quantity of cells                                                                                | 184                   |             |
| 6.23 | No. of battery banks                                                                                   | 2                     |             |
| 6.24 | No. of batteries per each bank                                                                         | 92                    |             |
| 6.25 | Battery cell dimension (W × D × H )                                                                    | By Vendor             |             |
| 6.26 | Battery cell weight                                                                                    | By Vendor             |             |
| 6.27 | Batteries shall be performed from SAFT,ALCAD Batteries                                                 | Required              |             |
| 6.28 | All type of Batteries and Battery accessories shall be original and approved by Iranian representative | Required              |             |
| 6.29 | Rate of H2 production during charging                                                                  | Liter/Cell            |             |
| 6.3  | Required air volume of exchange in battery room                                                        | m <sup>3</sup> /Hours |             |
| 6.31 | Required air volume of electrolyte                                                                     | By Vendor             |             |
| 6.32 | Composition of electrolyte                                                                             | By Vendor             |             |
| 6.33 | Required volume of electrolyte                                                                         | Liter                 |             |
| 6.34 | Required Max. charging current                                                                         | By Vendor             |             |

**7.Data sheet for Battery**

|     |                          |           |  |
|-----|--------------------------|-----------|--|
| 7.1 | Battery Discharging Rate | Long Rate |  |
| 7.2 | Container                | Plastic   |  |
| 7.3 | Construction             | Vented    |  |

**8.Accessories & Special Tools**

|     |                |                                |  |
|-----|----------------|--------------------------------|--|
| 8.1 | Thermometer    | Required                       |  |
| 8.2 | Hydrometer     | Required                       |  |
| 8.3 | Voltmeter      | Required                       |  |
| 8.4 | Battery Racks  | Required (Seismic Factor:0.3g) |  |
| 8.5 | Flame Arrester | Required                       |  |
| 8.6 | Stand Type     | By Vendor                      |  |

**9.Load Profile Graph**


|     |                   |  |
|-----|-------------------|--|
| 9.1 | T1 :1 Min         |  |
| 9.2 | I1 :507 W         |  |
| 9.3 | T2 : 7Hr , 58 Min |  |
| 9.4 | I2 : 147 W        |  |
| 9.5 | T3 : 1 Min        |  |
| 9.6 | I3 : 507 W        |  |

**10.Data Sheet for Distribution Board**

|      |          |                                      |  |
|------|----------|--------------------------------------|--|
| 10.1 | Standard | IEC,IPS-M-EL-174(2), IPS-E-EL-100(1) |  |
| 10.2 | Quantity | 1 Complete set                       |  |
| 10.3 | Service  | DC Distribution Panel                |  |

|                                                                                                  |                                                                                                           |           |           |         |      |          |       |      |                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------|-----------|---------|------|----------|-------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><b>NISOC</b> | نگهداشت و افزایش تولید میدان نفتی بینک<br>فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض<br>عمومی و مشترک |           |           |         |      |          |       |      | <br> |
|                                                                                                  | <b>DATA SHEETS FOR DC CHARGER OF WELL PADS</b>                                                            |           |           |         |      |          |       |      |                                                                                                                                                                            |
| شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴                                                                    | پروژه                                                                                                     | بسته کاری | صادرکننده | تسهیلات | رشته | نوع مدرک | سریال | نسخه | شماره صفحه: ۶ از ۷                                                                                                                                                         |
|                                                                                                  | BK                                                                                                        | SSGRL     | PEDCO     | 110     | EL   | DT       | 0003  | D03  |                                                                                                                                                                            |

| Technical Data For Industrial Battery & Battery Charger for 110 VDC of Wellpads                |                                       |                                                   |             |
|------------------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------|-------------|
| Item                                                                                           | Description                           | Required                                          | Vendor Data |
| 11.Mechanical specification                                                                    |                                       |                                                   |             |
| 11.1                                                                                           | Mounting type                         | Floor Mounted, Free Standing                      |             |
| 11.2                                                                                           | Body martial                          | Carbon Steel Sheet                                |             |
| 11.3                                                                                           | Thickness                             | Min.2 mm                                          |             |
| 11.4                                                                                           | Access for maintenance                | Front                                             |             |
| 11.5                                                                                           | Protection class                      | IP42                                              |             |
| 11.6                                                                                           | Illumination                          | Required                                          |             |
| 11.7                                                                                           | Space heater                          | Required                                          |             |
| 11.8                                                                                           | Weight                                | By Vendor                                         |             |
| 11.9                                                                                           | Dimensions                            | By Vendor                                         |             |
| 11.10                                                                                          | Name plate                            | English Black in White Background                 |             |
| 11.12                                                                                          | Finished color                        | RAL 7032                                          |             |
| 12.Electrical Specification                                                                    |                                       |                                                   |             |
| 12.1                                                                                           | Rated incoming voltage                | 110 VDC                                           |             |
| 12.2                                                                                           | Rated insulation voltage              | By Vendor                                         |             |
| 12.3                                                                                           | Wiring                                | Power and Control Min.2.5mm²,Metering Min.1.5mm², |             |
| 13.Incoming                                                                                    |                                       |                                                   |             |
| 13.1                                                                                           | Incoming Cables Size & Tag no.        | BK-GCS-PEDCO-120-EL-SL-0006                       |             |
| 13.2                                                                                           | Entry Side                            | Bottom by Cable Gland                             |             |
| 13.3                                                                                           | Cable Entry                           | Via Removable Gland Plate                         |             |
| 13.4                                                                                           | Incoming Circuit breaker              | MCCB                                              |             |
| 14.3                                                                                           | Terminal Type and quantity            | By Vendor                                         |             |
| 13.5                                                                                           | Circuit breaker construction          | Fix                                               |             |
| 14.Outgoing                                                                                    |                                       |                                                   |             |
| 14.1                                                                                           | Outgoing cable size and tag no.       | BK-SSGRL-PEDCO-110-EL-CN-0005                     |             |
| 14.2                                                                                           | Entry side                            | Bottom by Cable Gland                             |             |
| 15.Data Sheet for Distribution Board                                                           |                                       |                                                   |             |
| 15.1                                                                                           | Cable entry                           | Via Removable Gland Plate                         |             |
| 15.2                                                                                           | Outgoing circuit breaker              | MCB                                               |             |
| 15.3                                                                                           | Circuit breaker constructor           | Fix                                               |             |
| 16.Indicating lights , Alarms and Accessories                                                  |                                       |                                                   |             |
| 16.1                                                                                           | Battery Low DC alarm                  | Required ,With Dry Contacts                       |             |
| 16.2                                                                                           | Load Low DC alarm                     | Required ,With Dry Contacts                       |             |
| 16.3                                                                                           | Load Hi DC alarm                      | Required ,With Dry Contacts                       |             |
| 16.4                                                                                           | Batteries disconnected                | Required                                          |             |
| 16.5                                                                                           | Battery voltmeter                     | Required                                          |             |
| 16.6                                                                                           | Battery ammeter                       | Required                                          |             |
| 16.7                                                                                           | Load voltmeter                        | Required                                          |             |
| 16.8                                                                                           | Load ammeter                          | Required                                          |             |
| 16.9                                                                                           | Cable gland                           | Required                                          |             |
| 16.10                                                                                          | Removable gland plate                 | Required                                          |             |
| 17.Tests ( Factory Acceptance test and Site Acceptance Test shall be performed By the Vendor ) |                                       |                                                   |             |
| 17.1                                                                                           | Visual Inspection & Dimensional Check | Required                                          |             |
| 17.2                                                                                           | Performance and Function Test         | Required                                          |             |
| 17.3                                                                                           | Sequence , Operation and Logic Test   | Required                                          |             |
| 17.4                                                                                           | Dielectric Strength Test              | Required                                          |             |
| 17.5                                                                                           | Output Voltage and Ripple Check       | Required                                          |             |
| 17.6                                                                                           | Charger Voltage Adjustment Test       | Required                                          |             |
| 17.7                                                                                           | THDi% Check                           | Required                                          |             |
| 17.8                                                                                           | Output Regulation / Adjustments Test  | Required                                          |             |
| 17.9                                                                                           | Alarms Check                          | Required                                          |             |

|                                                                                                  |                                                                                                           |           |           |         |      |          |       |      |                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------|-----------|---------|------|----------|-------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><b>NISOC</b> | نگهداشت و افزایش تولید میدان نفتی بینک<br>فعالیت‌های رو زمینی در بسته‌های کاری تحت‌الارض<br>عمومی و مشترک |           |           |         |      |          |       |      | <br> |
|                                                                                                  | <b>DATA SHEETS FOR DC CHARGER OF WELL PADS</b>                                                            |           |           |         |      |          |       |      |                                                                                                                                                                            |
| شماره پیمان:                                                                                     | پروژه                                                                                                     | بسته کاری | صادرکننده | تسهیلات | رشته | نوع مدرک | سریال | نسخه | شماره صفحه: ۷ از ۷                                                                                                                                                         |
| ۰۵۳ - ۰۷۳ - ۹۱۸۴                                                                                 | BK                                                                                                        | SSGRL     | PEDCO     | 110     | EL   | DT       | 0003  | D03  |                                                                                                                                                                            |

| Technical Data For Industrial Battery & Battery Charger for 110 VDC of Wellpads                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                         |                                                                                                        |             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-------------|
| Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Description                                                                                             | Required                                                                                               | Vendor Data |
| 17.10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Autonomy Test                                                                                           | Required                                                                                               |             |
| 17.11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Current Limit Test                                                                                      | Required                                                                                               |             |
| 17.12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Short Circuit test                                                                                      | Required                                                                                               |             |
| 17.13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Other Tests shall be performed in Accordance with IEC60146 (Battery Charger Testing)                    | Required                                                                                               |             |
| 17.14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Hardware and Software for Communication, Programming or Setting up the CPU or MPU Boards (If Required), | Required                                                                                               |             |
| <b>18.Accessories And Special Tools</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                         |                                                                                                        |             |
| 18.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | MIMIC Panel With LED To Show Operation Condition (shall be finalized by vendor) .                       | Required                                                                                               |             |
| 18.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Commissioning and two years spare parts shall be provided                                               | Required                                                                                               |             |
| 18.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | The Accuracy of all meters shall be better than 1.5%                                                    | Required                                                                                               |             |
| 18.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | On load break switch-fuse For Battery Banks:Exd type IIC-T3                                             | Required                                                                                               |             |
| 18.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Training                                                                                                | The Supplier /Vendor shall be assumed the maintenance and repair training course at least for 5 People |             |
| 18.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Battery Room Fan failure (Activated by external Signal )                                                | Required                                                                                               |             |
| <b>19.Electromagnetic Compatibility (EMC)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                         |                                                                                                        |             |
| All DC-UPS units shall comply with the requirements for EMC as defined in IEC 62040-2, in order to ensure:Conducted emissions in both, the power supply input and output of the DC- UPS are controlled within acceptable limits;Any electromagnetic disturbance generated by the UPS and its individual components do not exceed a level which would affect the correct operation of both, radio and telecommunications equipment;<br><br>The complete set of battery & battery charger shall be considered for each well. Wellpads are BK-12, BK-15, BK-05, Well 007, Well 046 & BK-14<br>A serial link communication protocol shall be considered or sending alarms and indications to DCS. |                                                                                                         |                                                                                                        |             |