

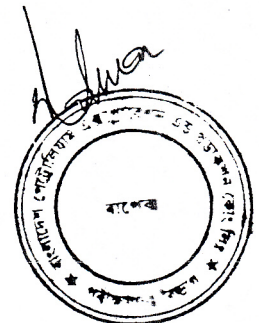
**APPROVED
CHARGES FOR LABORATORY SERVICES**

2006

**BANGLADESH PETROLEUM EXPLORATION AND PRODUCTION COMPANY LIMITED
(A Company of Petrobangla)**

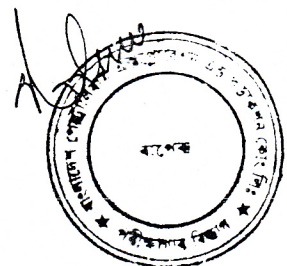
**LABORATORY DIVISION
HOUSE NO.39, ROAD NO.116
GULSHAN-1, DHAKA-1212.**

TEL: 9895978.



PETROPHYSICAL SERVICE CHARGES

| Sl no | Description | Unit of measure | Core Laboratories Charge in US\$ 2004 | Approved charges for BAPEX Lab (1997) in US\$ | Approved charges for BAPEX Lab in US\$ 2006 |
|---|--|-----------------|---------------------------------------|---|---|
| A. PREPARATION: | | | | | |
| 1 | Drilled core plug | Sample | 30.00 | 10.00 | 20.00 |
| 2 | Slabbing core out of liner per cut | Meter | 49.20 | 26.24 | 35.00 |
| 3 | Cutting Fiberglass liner to view core | Meter | 32.80 | 19.68 | 25.00 |
| 4 | Brief lithological description including texture & graphic display | Meter | 82.00 | 33.62 | 50.00 |
| 5 | Ultraviolet light digital core imaging | Meter | 82.00 | 32.80 | 50.00 |
| 6 | Core photograph color | Meter | 82.00 | 20.00 | 30.00 |
| 7 | Solvent extraction Toluene and / or Methanol | Per Plug | 25.00 | 15.00 | 20.00 |
| 8 | Preserve/Saturate plug under/with brine/oil | Per plug | 50.00 | 10.00 | 20.00 |
| B. ROUTINE CORE ANALYSIS: | | | | | |
| 9 | Helium Porosity | Per Plug | 65.00 | 25.00 | 40.00 |
| 10 | Air Permeability | Per Plug | 65.00 | 25.00 | 40.00 |
| 11 | Grain Density | Per Plug | 50.00 | 25.00 | 35.00 |
| 12 | Bulk Density | Per Plug | --- | 10.00 | 15.00 |
| 13 | Residual Saturation Retort Method | Sample | 62.00 | 25.00 | 40.00 |
| 14 | Residual Saturation by Dean-Stark Method | Per Plug | 60.00 | 25.00 | 40.00 |
| C. SIDE WALL CORE ANALYSIS: | | | | | |
| 15 | Helium Porosity | Sample | 65.00 | 25.00 | 40.00 |
| 16 | Permeability | Sample | 65.00 | --- | 40.00 |
| 17 | Grain Density | Sample | 50.00 | 10.00 | 25.00 |
| 18 | Bulk Density | Sample | --- | 10.00 | 15.00 |
| 19 | Fluid Content (Retort Method) | Sample | 60.00 | 20.00 | 40.00 |
| D. SPECIAL CORE ANALYSIS (PLUG SIZE) | | | | | |
| CAPILLARY PRESSURE TESTS | | | | | |
| MERCURY INJECTION | | | | | |
| 20 | Complete curve (0-200 psi) | Per Plug | -- | 150 | 200 |
| 21 | Calculation of pore size distribution | Per plug | -- | 100 | 150 |
| E. ELECTRIC RESISTIVITY MEASUREMENT: | | | | | |
| 22 | Rock Resistivity | Sample | 250.00 | 40.00 | 100.00 |
| 23 | Water Resistivity | Sample | -- | 15.00 | 25.00 |
| F. WELL SITE SERVICES: | | | | | |
| 24 | Geologist /Chemist | Per day | 1,200.00 | 250.00 | 400.00 |
| 25 | Technician | Per day | 750.00 | 150.00 | 200.00 |
| 26 | Travel charge for Crew (5 round trips) | Per round | -- | 100.00 | 150.00 |
| G. REPORTS: | | | | | |
| 27 | Data / Image CD-rom | Copy | 50.00 | -- | 35.00 |
| 28 | Paper print of core imaged, UP to A ₄ | Page | 10.00 | -- | 5.00 |



GEOLOGICAL SERVICE CHARGES

A. BIOSTRATIGRAPHIC SERVICE:

| Sl no | Description | Unit of measure | Core Laboratories Charge in US\$ 2004 | Approved charges for BAPEX Lab (1997) in US\$ | Approved charges for BAPEX Lab in US\$ 2005 |
|-------|---|-----------------|---------------------------------------|---|---|
| 1 | Micro paleontology (Foraminiferal Analysis) | Per Sample | - | 40.00 | 50.00 |
| 2 | Palynology Spore Polen | Per Sample | - | 40.00 | 50.00 |
| 3 | Palynology and micro- paleontology combined | Per Sample | - | 80.00 | 100.00 |
| 4 | Palynology sample preparation | Per Sample | - | 10.00 | 15.00 |
| 5 | Micro paleontology sample preparation | Per Sample | - | 10.00 | 15.00 |
| 6 | Lithostratigraphy for sample preparation | Per meter | - | 46.00 | 58.00 |

B. SEDIMENTOLOGICAL SERVICES:

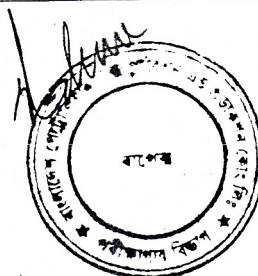
| | | | | | |
|----|---|------------|-----------------------------------|--------|-----------------------------------|
| 1 | Technician preparation (impregnation with red or blue dye e-poxy for porosity) | Per Sample | | 20.00 | 25.00 |
| a) | Standard size slide (17×46mm) | | a. 40.00 | -- | a.30.00 |
| b) | Medium size slide (39×75mm) | | b. 50.00 | -- | b. 37.00 |
| c) | Large size slide (50×75mm) | | c. 60.00 | -- | c. 45.00 |
| d) | Standard size slide (27×46mm) stressed preparation | | d. 500.00 | -- | d. 375.00 |
| 2 | Detailed petrographic Description including description of Mineralogy, texture and porosity with color photographs | Per Slide | 300.00 | 200.00 | 225.00 |
| 3 | Grain size analysis including computing statistical results | Per Sample | 200.00 | 100.00 | 150.00 |
| 4 | Basic Geological secription of core, characterization of Lithology and textures presented on graphic display | Per Meter | 82.00 | 16.00 | 60.00 |
| 5 | Determination of depositional environment on the basis of textural characteristic of Sandstone grains | Per Sample | -- | 75.00 | 90.00 |
| 6 | Heavy mineral analysis quality and quantitative study | Per Sample | -- | 75.00 | 90.00 |
| 7 | X-ray analysis (without identification) of prepared slide | Per Slide | -- | 20.00 | 25.00 |
| 8 | X-ray analysis with slide preparation and identification of bulk sample | Per Sample | 250.00 | 100.00 | 180.00 |
| 9 | Bulk Sample and clay mineral analysis (sand, sit and clay size fraction analyzed separately oriented and glycolated with determination of clay mineral relative abundances) | Per Sample | 550.00 | 250.00 | 300.00 |
| 10 | Data interpretation for report | | Add 25% of total analysis charges | -- | Add 15% of total analysis charges |



GEOCHEMICAL SERVICE CHARGES

A.SAMPLE PREPERATION:

| Sl no | Description | Unit of measure | Core Laboratories Charge in US\$ 2004 | Approved charges for BAPEX Lab (1997) in US\$ | Approved charges for BAPEX Lab in US\$ 2006 |
|--|---|-----------------|---------------------------------------|---|---|
| 1 | Washing and removal of contamination crushing and grinding of rock samples | | | 6.00 | 10.00 |
| 2 | Lithological description | | | 4.00 | 10.00 |
| 3 | Picking by hand per lithology | | | 3.00 | 10.00 |
| 4 | Kerogen preparation for spore color, vitrinite reflectance and kerogen studies | | | 25.00 | 40.00 |
| B. KEROGEN ANALYSIS: | | | | | |
| 5 | Microscope examination of kerogen type, percentage, spore coloration 'A' | | | 40.00 | 60.00 |
| 6 | Vitrinite reflectance measurement (including plug preparation) | | | 50.00 | 70.00 |
| C. SOLUBLE ORGANIC MATTER CHARACTERIZATION: | | | | | |
| 7 | Extraction and determination of bitumin concentration | | | 40.00 | 60.00 |
| 8 | Capillary gas chromatography of saturate fractions to give carbon preference index and several geochemically significant compound ratios (price for each fractions) | | | 75.00 | 200.00 |
| 9 | Capillary gas chromatography of Aromatic fractions detailed analysis by fused silica capillary GC | | | 80.00 | 200.00 |
| 10 | Gaschromatography Mass spectrometry of saturate fractions for correlation source and maturity assessment based on biological markers | | | 300.00 | 400.00 |
| 11 | Gaschromatography Mass spectrometry of Aromatic fractions for correlation and maturity assessment based on significant compound ratios | | | 300.00 | 400.00 |
| D. CRUDE OIL CHARATERIZATION: | | | | | |
| 12 | API Gravity at 60 ⁰ F | | | 15.00 | 20.00 |
| 13 | API Gravity calculated | | | 10.00 | 15.00 |
| 14 | Specific Gravity | | | 15.00 | 20.00 |
| 15 | Kinetic Viscosity at 60 ⁰ F, 100 ⁰ F, 122 ⁰ F | | | 15.00 | 20.00 |
| 16 | Viscosity index | | | 50.00 | 75.00 |
| 17 | Ash content % wt. | | | 20.00 | 40.00 |
| 18 | Pour point | | | 15.00 | 30.00 |
| 19 | Flash point, Fire point (pensky marten) | | | 25.00 | 50.00 |
| 20 | Water content % volume | | | 20.00 | 30.00 |
| 21 | Fractional distillation 7000 ⁰ F | | | 50.00 | 75.00 |
| 22 | Anniline point | | | 25.00 | 30.00 |
| 23 | Refractive index | | | 20.00 | 30.00 |
| 24 | Chromatographic separation of oils | | | 30.00 | 50.00 |
| 25 | Asphaltenes % wt | | | 30.00 | 50.00 |
| 26 | Complete basic crude oil analysis including all above mentioned test performed on the same sample | | | 500.00 | 1000.00 |
| 27 | Capillary gas chromatography of saturate fractions | | | 75.00 | 200.00 |
| 28 | Capillary gas chromatography of Aromatic fractions | | | 80.00 | 200.00 |
| 29 | Whole oil gas chromatography | | | 100.00 | 200.00 |



E. NATURAL GASES:

| | | | | | |
|----|--|--|--|--------|--------|
| | Seep and sub-surface gas analysis (including N ₂ CO ₂ and gas wetness) | | | | |
| 30 | Methane through C ₆ ⁺ | | | 75.00 | 200.00 |
| 31 | Methane through C ₃₀ | | | 200.00 | 300.00 |

E-1: MOTOR GASOLINE:

| | | | | | |
|----|--------------------------------|--|--|-------|-------|
| 32 | Appearance | | | 8.00 | 10.00 |
| 33 | Color | | | 10.00 | 15.00 |
| 34 | Distillation Recovery Volume % | | | 50.00 | 75.00 |
| 35 | Reid vapour pressure | | | 30.00 | 50.00 |
| 36 | Specific Gravity API Gravity | | | 15.00 | 20.00 |

E-2: KEROSONE:

| | | | | | |
|----|--|--|--|-------|-------|
| 37 | Viscosity Centistokes | | | 15.00 | 30.00 |
| 38 | Distillation | | | 50.00 | 75.00 |
| 39 | Specific Gravity API Gravity | | | 10.00 | 15.00 |
| 40 | Color Lavibomd | | | 10.00 | 15.00 |
| 41 | Flash Point (pensky Marten) | | | 20.00 | 30.00 |
| 42 | Freezing point | | | 20.00 | 30.00 |
| 43 | Conductivity | | | 25.00 | 30.00 |
| 44 | Chromatographic separation (Aromatics, Oil line saturates) | | | 30.00 | 50.00 |
| 45 | Anniline point | | | 25.00 | 30.00 |

E-3: DIESEL FUEL

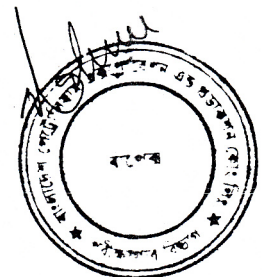
| | | | | | |
|----|-----------------------|--|--|--------|-------|
| 46 | Appearance | | | 10.00 | 15.00 |
| 47 | Color | | | 8.00 | 15.00 |
| 48 | Anniline point | | | 10.00 | 15.00 |
| 49 | Distillation | | | 20.00 | 50.00 |
| 50 | Flash point | | | 50.00 | 50.00 |
| 51 | Ash content % wt. | | | 20.00 | 40.00 |
| 52 | Pour point | | | 20.00 | 30.00 |
| 53 | Specific Gravity | | | 20.004 | 40.00 |
| 54 | Water content | | | 15.00 | 30.00 |
| 55 | Viscosity Centistokes | | | 20.00 | 40.00 |

E-4: RESIDUAL FUEL OIL

| | | | | | |
|----|-----------------------------|--|--|-------|-------|
| 56 | Specific Gravity | | | 15.00 | 20.00 |
| 57 | Flash point (pensky Marten) | | | 25.00 | 30.00 |
| 58 | Pour point | | | 20.00 | 30.00 |
| 59 | Water content | | | 20.00 | 30.00 |
| 60 | Viscosity Centistokes | | | 15.00 | 30.00 |
| 61 | Water and sediment | | | 20.00 | 30.00 |
| 62 | Sediment by extraction | | | 30.00 | 50.00 |

F. FORMATION WATER:

| | | | | | |
|----|--|--|--|--------|--------|
| 63 | Ion analysis (Ca, Mg, Cl, CO, HCO ₃ , So, Na, K, PH, Specific Gravity, Residue) | | | 100.00 | 200.00 |
| 64 | Trace Metal analysis(Fe, K, Mn, Na etc.) Per content | | | 8.00 | 20.00 |
| 65 | Total dissolve solid | | | 15.00 | 30.00 |
| 66 | Resistivity measured at room temp. | | | 15.00 | 25.00 |
| 67 | Resistivity measured at different temperature | | | 20.00 | 25.00 |



G. MISCELLANEOUS ANALYSIS CHARGES**OIL-WELL CEMENT ANALYSIS:**

| | | | | | |
|----|--|--|--|--------|--------|
| 68 | Hardening Initial setting time of Oil-Well cement by manually operated Autoclave | | | 100.00 | 200.00 |
| 69 | Specific Gravity API Method | | | 10.00 | 15.00 |
| 70 | Moisture Content API Method | | | 5.00 | 10.00 |
| 71 | Insoluble Residue (in acid), API Method | | | 10.00 | 15.00 |
| 72 | Total silica, API Method | | | 10.00 | 20.00 |
| 73 | Initial setting time-hardening time at room temperature and pressure | | | 20.00 | 30.00 |
| 74 | Compressive Strength, API Method | | | 20.00 | 25.00 |
| 75 | Tensile Strength, API Method | | | 20.00 | 25.00 |
| 76 | Bending Stress, API Method | | | 20.00 | 25.00 |

MISSCELLENEOUS CHARGES

| | | | | | |
|---|-----------------------------------|--------------|-----------------------------------|-------|-----------------------------------|
| 1 | Data interpretation for report | | Add 25% of total analysis charges | -- | Add 15% of total analysis charges |
| 2 | Core preservation | Per Meter | -- | -- | 16.00 |
| 3 | Core Observation | Per Meter | -- | 16.00 | 20.00 |
| 4 | Core Sample taking per 100 gm. | Per 100 gm. | --- | 20.00 | 25.00 |
| 5 | Oil & Condensate sample per 100ml | Per location | -- | 20.00 | 25.00 |
| 6 | Report preparation | Day | 500.00 | -- | 300.00 |

N.B. Conversion from US \$ to Taka as and when work will be done (As per Bangladesh Bank Rate).

