**Administrative Order**
**No. 48**
**July 23, 1993**

**SUBJECT : Standard Costs and Fees for Various Services of the Mines Sector.**

Pursuant to Executive Order NO. 192 and Memorandum Circular No. 121 of the Office of the President, the following fees and charges for services rendered by the mines and geosciences sector are hereby revised and/or updated:

| | | FEES/CHARGES |
|---|---|---|
| A. | MINING AGREEMENTS (In Pesos, unless otherwise indicated) | |
| A.1. | For registering mining documents | |
| A.1.a. | Per Power of Attorney | 100.00 |
| A.1.b. | Transfer or other assignments | 150.00 |
| A.1.c. | All other instrument affecting mining rights P.D. 1856, as amended | 150.00 |
| A.2. | For filing of Mineral Production Sharing Agreement (MPSA) | |
| A.2.a. | Filing Fee | 100.00/proposal |
| A.3. | For processing of Mineral Production Sharing Agreement (MPSA) proposal | |
| A.3.a. | Processing Fee | 5,000.00 |
| A.4. | For processing of interim Mines Permit Under Mineral Production Sharing Agreement (MPSA) | |
| A.4.a. | Processing Fee for interim Mines Permit under Mineral Production Sharing Agreement (MPSA) | 100.00/application |

| | | |
|---|---|---|
| A.5. | For filing of application for approval of assignments, Operating Agreement and Service Contracts | 6.00/hectare |
| A.6. | For application for exploration permit | |
| A.6.a. | Exploration Permit Fee under DENR Adm. Order No. 57 | 50.00/ha./year |
| A.7. | Letter request for certification (Legal) | 40.00 |
| A.8. | Docketing Charges | |
| A.8.a. | For filing a protest, adverse claim or any other opposition P.D. 1856, as amended | 10.00 |
| A.8.b. | For filing a petition or complaint, falling under category of Mines Special | 200.00 |
| | Additional per P.D. 1856, as amended | 10.00 |
| A.8.c. | For filing of counter - adverse, claim, counter-protest or counter-opposition | 200.00 |
| | Additional per P.D. 1856, as amended | 10.00 |
| A.8.d. | For filing a petition or request, for reconsideration or reinstatement of rejected or cancelled application for lease contract | 200.00 |
| | Additional per P.D. 1856, as amended | 10.00 |
| A.9. | Preparation of Appeal records | |

| | | |
|---|---|---|
| A.9.a. | For preparation and forwarding of appeal records | 100.00 |
| | Additional per P.D. 1856, as amended | 10.00 |
| A.10. | Financial and/or Technical Assistance Agreement (FTAA) | |
| A.10.a. | Filing fee, processing fee P.D. 1856 or Phil. currency equivalent | $ 500.00 - |
| A.10.b. | Occupation fee | |
| | Non-reservation | 10.00/ha./year |
| | Reservation | 100.00/ha./year |
| A.10.c. | Regulatory fee for exploration | |
| | Onshore | 10.00/has./year (For first year plus =P5.00 yearly increment for succeeding years) |
| | Offshore | 50.00/has./year |
| A.10.d. | Registration fee | 100.00/FTAA |
| | P.D.1856, as amended, for registration fee | 10.00 |

B. Processing of Application for Survey Order, Verification of Survey Returns and Field Verification/Investigation of Mineral Production Sharing Agreement (MPSA) and other Mineral Lands Surveys

B.1. Application for Survey Order

B.1.a. Processing Fee - =P50.00/block or 81 hectares, plus =P20.00 for the succeeding blocks or a fraction thereof.

B.1.b. Projection Fee - =P100.00 for the first 100 hectares, plus P=20.00 for the succeeding 100 hectares or a fraction thereof.

B.1.c. Filing Fee - =P30.00

B.1.d. P.D. 200 - =P10.00

B.2. Verification of Survey Returns

B.2.a. =P200.00 per claim/application, plus =P4.00 per prescribed set of original and duplicate computation sheets of not more than 15 stations per sheet.

B.2.b. For resubmitted (correction) and/or additional survey returns with fieldnoted and/or computation, =P4.00 per new set of original and duplicate prescribed computation sheets of not more that 15 stations per sheet; Provided, that the minimum charges shall be =P250.00 for the first resubmittal, plus =P250.00 for every subsequent resubmittal.

B.3. For field verification/investigation of mining conflicts.

B.3.a. Boundary survey of MPSA application or other mineral lands survey, =P1,000.00 per man per day shall be charged, provided that the minimum charge is =P10,000.00.

B.3.b. In addition to the above charges, the applicant or interested party shall pay for the transportation of bureau personnel from official station to the area and return and other incidental expenses incurred therein.

| | | |
|---|---|---|
| C. | MINING INVESTIGATION AND VERIFICATION AND OTHER SERVICES | FEES/CHARGES |
| C.1. | Valuation of Mining Claims | 500.00/man/day provided that the min. charge is =P3,000.00 |
| C.2. | Investigation of conflicts, renewal or extension of mining | |

| | | |
|---|---|---|
| | lease, permit or license | 500.00/man/day provided that the min. charge is =P3,000.00 |
| C.3. | Verification of ore stockfile and umpiring of ore shipments | 500.00/man/day provided that the min. charge is =P3,000.00 |
| C.4. | Verification of exploration work done by permittees within gov't. reservations | 500.00/man/day provided that the min. charge is =P3,000.00 |
| C.5. | Verification of explosives magazines and blasting schemes | 500.00/man/day provided that the min. charge is =P3,000.00 |
| C.6. | Acquisition of small scale mining permit (SSMP) within mineral reservations. | |
| | C.6.a. Filing of application | 500.00/application |
| | C.6.b. Processing of application | 100.00/hectare/ calendar year |
| C.7. | Registration/Licensing of securities as referred by the Securities and Exchange Commission | 1,500.00 |
| C.8. | Rock Mechanics Laboratory Services | |
| | C.8.a. Unconfined comprehensive (rock ore) | |
| | Without Strain Measurements | 175.00 |
| | With Strain Measurements | 300.00 |
| | C.8.b. Discontinuity shear strength (Rock Cores or chucks of size Nx or 6 cm x 6 cm) | 500.00 |

| | | |
|---|---|---|
| C.8.c. | Triaxial | |
| | Nx | 1,000.00 |
| | Ax | 1,000.00 |
| C.8.d. | Tensile (Brazilian) | 100.00 |
| C.8.e. | Cutting charges (per square Decimeter) | 50.00 |

C.9. Processing of Applications:

| | | |
|---|---|---|
| C.9.a. | License to Possess Explosives Purchaser's | 200.00 |
| C.9.b. | Amendment to license to possess explosives purchaser's | 150.00 |
| C.9.c. | Purchase/Transfer/Import explosives | 75.00 |
| C.9.d. | Foreman's (Blaster's) license | 200.00 |
| C.9.e. | Temporary safety inspector's permit (including renewal) | 100.00 |
| C.9.f. | Temporary safety engineer's permit (including renewal) | 150.00 |
| C.9.g. | Permanent safety inspector's permit (including renewal) | 150.00 |
| C.9.h. | Permanent safety engineer's permit (including renewal) | 200.00 |
| C.9.i. | Alien's local employment | 300.00 |
| C.9.j. | Electrical Wiring Installation | 100.00 |
| C.9.k. | Machinery Installation | 100.00 |
| C.9.l. | Mine, Quarry, and Mill Permits | 150.00 |

In addition to the charges under items C.1 to C.5 the applicant or interested party shall pay for transportation of Bureau personnel from official station to the area and return, as well as the expenses for freight, labor, materials, analysis of sample and other requirements that may be needed in the preparation of the report.

D. Lease of Drilling Equipment

D.1. Schedule of Rent for lease of drill machines, pumps and drilling accessories enumerated below, the lessee shall pay monthly rental fee to the DENR, as follows:

D.1.a. Drilling Machine

| | | |
|---|---|---|
| D.1.a.1. | X-ray Drill | 2,500.00 |
| D.1.a.2. | Longyear Model "24" Wireline Drill | 5,800.00 |
| D.1.a.3. | Longyear Model "24" Conventional Drill | 4,800.00 |
| D.1.a.4. | Longyear Model "34" Wireline Drill | 7,800.00 |
| D.1.a.5. | Longyear Model "34" Conventional Drill | 6,500.00 |
| D.1.a.6. | Longyear Model "38" Wireline Drill with Automatic Chuck | 8,500.00 |
| D.1.a.7. | Longyear Model "44" Wireline Drill with Automatic Chuck | 9,500.00 |
| D.1.a.8. | Boyles Model "17" Wireline Drill | 8,800.00 |

D.1.b. Drill Pumps

| | | |
|---|---|---|
| D.1.b.1. | Longyear Model 315 Pump | 800.00 |
| D.1.b.2. | Longyear Model 535 Pump | 3,200.00 |
| D.1.b.3. | Longyear Model 520 Pump | 2,600.00 |

D.1.c. Drill

| | | |
|---|---|---|
| D.1.c.1. | One (1) pc. AQ Rod, 10 ft. | 67.00 |
| D.1.c.2. | One (1) pc. BQ Rod, 10 ft. | 80.00 |
| D.1.c.3. | One (1) pc. NQ Rod, 10 ft. | 95.00 |

| | | |
|---|---|---|
| D.1.c.4. | One (1) pc. HQ Rod, 10 ft. | 129.00 |
| D.1.c.5. | One (1) pc. AW Rod, 10 ft. | 76.00 |
| D.1.c.6. | One (1) pc. BW Rod, 10 ft. | 115.00 |
| D.1.c.7. | One (1) pc. NW Rod, 10 ft. | 131.00 |
| D.1.c.8. | One (1) pc. HW Rod, 10 ft. | 134.00 |
| D.1.c.9. | One (1) pc. EWL Rod, 10 ft. | 60.00 |
| D.1.c.10. | One (1) pc. XRT Rod, 10 ft. | 50.00 |

D.1.d. Casings

| | | |
|---|---|---|
| D.1.d.1. | One (1) pc. AW Casing, 10 ft. | 36.00 |
| D.1.d.2. | One (1) pc. BW Casing, 10 ft. | 79.00 |
| D.1.d.3. | One (1) pc. NW Casing, 10 ft. | 94.00 |
| D.1.d.4. | One (1) pc. HW Casing, 10 ft. | 130.00 |
| D.1.d.5. | One (1) pc. EWL Casing, 10 ft. | 60.00 |
| D.1.d.6. | One (1) pc. RW Casing, 10 ft. | 60.00 |

D.1.e. Miscellaneous Accessories

| | | |
|---|---|---|
| D.1.e.1. | One (1) set Triped Sheave Wheel, 24"0 with clevis and bolt | 868.00 |
| D.1.e.2. | One (1) set Triped Sheave Wheel, 18"0 with clevis and bolt | 605.00 |
| D.1.e.3. | One (1) pc. Heavy Duty Water Swivel Assy. with lifting hail | 338.00 |
| D.1.e.4. | One (1) pc. lifting Plug with rod box adapter | 125.00 |
| D.1.e.5. | One (1) pc. Snatch Block 6"0 | 67.00 |
| D.1.e.6. | One (1) set BX Casing Clamp | 136.00 |
| D.1.e.7. | One (1) set NX Casing Clamp | 152.00 |
| D.1.e.8. | One (1) set HQ Safety Foot Clamp Assy. complete with clamp jaws | 388.00 |

D.2. Bond

To guarantee the faithful compliance with the terms and conditions of the lease, and to answer for any loss and/or damaged of the equipment during the term of the lease, the lessee shall file with the Mines and Geosciences Bureau, a bond which may either be in cash or with a surety satisfactory to the Director the amount of which shall be, as follows:

=P200,000.00 - For x-ray diamond drill, pump and accessories

=P450,000.00 - For Longyear Model 24 drill (conventional) pump and accessories

=P500,000.00 - For Longyear Model 24 wireline drill pump and accessories

=P700.000.00 - For Longyear Model 34 drill machine (conventional) pump and accessories

=P750.000.00 - For Longyear Model 34 wireline drill, pump and accessories

=P900,000.00 - For Longyear Model 38 drill (automatic chuck, wireline) pump and accessories

=P1,000,000.00 - For Longyear Model 44 drill (automatic chuck, wireline) pump and accessories

=P 90,000.00 - For additional Longyear 535 pump

=P 75,000.00 - For additional Longyear 520 RQ pump

=P 20,000.00 - For additional Longyear 315 RQ pump

D.3. Cash Deposits

The lessee shall replace and/or repair all parts rendered unusable thru breakage, loss or abnormal wear during the term of the lease. All parts missing at the time the equipment is returned shall be replaced within one month from the time such equipment are returned. For this purpose, the lessee shall make the cash deposit at the rates specified as follows:

=P 15,000.00 - For x-ray diamond drill, pump and accessories

=P 30,000.00 - For Longyear Model 24 drill (conventional) pump and accessories

=P 35,000.00 - For Longyear Model 24 wireline drill pump and accessories

=P 40.000.00 - For Longyear Model 34 drill machine (conventional) pump and accessories

=P 45.000.00 - For Longyear Model 34 wireline drill, pump and accessories

=P 55,000.00 - For Longyear Model 34 drill (automatic chuck, wireline) pump and accessories

=P 65,000.00 - For Longyear Model 44 drill (automatic chuck, wireline) pump and accessories

=P 8,000.00 - For additional Longyear 535 pump

=P 6,000.00 - For additional Longyear 520 RQ pump

=P 4,000.00 - For additional Longyear 315 RQ pump

=P 20,000.00 - For Demobilization of drilling equipment and accessories

## E. PETROLOGICAL, MINERALOGICAL , GEOCHRONOLOGICAL AND OTHER SERVICES

| | | |
|---|---|---|
| E.1. | MEGASCOPIC LABORATORY | FEES/CHARGES |
| E.1.a. | Identification of Rocks, minerals and ores (including textural, description, mineral composition, rock name, used and recommendation), per sample | 40.00 |
| E.1.b. | Qualitative Chemical Analysis | |

E.1.b.1. Staining test; per mineral per sample 50.00

E.1.b.2. Microchemical test; per mineral per sample 50.00

E.2. PETROGRAPHY LABORATORY

E.2.a. Sample Preparation

E.2.a.1. Preparation of thin section; per sample

| | | |
|---|---|---|
| E.2.a.1.1. | Rock and mineral samples | 150.00 |
| E.2.a.1.2. | Grain mounts | 150.00 |
| E.2.a.1.3. | Mounted cutting/ ditch samples | 200.00 |

E.2.a.2. Preparation of polished section; per sample

| | | |
|---|---|---|
| E.2.a.2.1. | Unmounted rock and mineral samples | 150.00 |
| E.2.a.2.2. | Mounted rock and mineral samples | 200.00 |

E.2.a.3. Preparation of polished thin section, per sample

| | | |
|---|---|---|
| E.2.a.3.1. | Rock and mineral samples | 200.00 |
| E.2.a.3.2. | Grain mounts | 200.00 |
| E.2.a.3.3. | Mounted cutting ditch sample | 260.00 |

E.2.a.4. Preparation of doubly polished thin section,/wafer, per sample 300.00

E.2.a.5. Cutting and polishing of rock slabs, per square decimeter or fraction thereof -

E.2.a.5.1. For soft rock like marble, limestone, serpentinite or other rock softer than marble

- cutting only 70.00
- polishing only 80.00

E.2.a.5.2. For rock harder than marble

- cutting only 90.00
- polishing only 110.00

E.2.a.6. Drying, Crushing, Grinding and Sieving; per 500 grams or a fraction thereof -

| | | |
|---|---|---|
| E.2.a.6.1. | Drying oven | 10.00 |
| E.2.a.6.2. | Crushing, jaw crusher | 30.00 |
| E.2.a.6.3. | Grinding, vibrating disc mill | 30.00 |
| E.2.a.6.4. | Sieving/screconing; per mesh size | |
| | Coarse (14 - 150 mesh) | |
| | dry sample | 20.00 |
| | wet sample | 30.00 |
| | Fines (170 - 400 mesh) | |
| | dry sample | 30.00 |
| | wet sample | 40.00 |
| E.2.a.6.5. | Splitting, Jones splitter | 10.00 |

E.2.a.7. Specific Gravity Determination 70.00

E.2.b. Microscopic Analysis

E.2.b.1. Qualitative analysis; per sample (including rock name, textural description, mineral composition also paragenesis and environment of deposition if discernible)

| | | |
|---|---|---|
| E.2.b.1.1. | Standard Analysis | 250.00 |
| E.2.b.1.2. | Rock names and mineral composition only | 150.00 |

E.2.b.2. Qualitative Analysis; per sample

| | | |
|---|---|---|
| E.2.b.2.1. | Mineral count; per mineral per sample | 60.00 |
| E.2.b.2.2. | Grain size determination | 80.00 |
| E.2.b.2.3. | Micro hardness; per mineral | 100.00 |
| E.2.b.2.4. | Refractive Index | 90.00 |

E.2.c. Fluid Inclusion

| | | |
|---|---|---|
| E.2.c.1. | Sample Preparation | 100.00 |
| E.2.c.2. | Fluid Inclusion petrography (including abundance size, shape, nature of inclusion, etc.) | 250.00 |
| E.2.c.3. | Temperature determinations; per inclusion Homogenization | |
| | Runs 30 - 300 C | 50.00 |
| | 300 - 500 C | 70.00 |
| | above - 500 C | 100.00 |
| | Determination of salinity (by salt dissolution) | 20.00 |
| | Freezing Runs (exclusive of liquid nitrogen) | |
| | Determination of freezing temperature | 250.00 |
| | Determination of salinity | 20.00 |

E.2.d. Photomicrography; per exposure (service fee only, exclusive of film development and printing costs) 15.00

E.3. PALEONTOLOGY GEOCHRONOLOGY LABORATORY

E.3.a. Sample Preparation

| | | |
|---|---|---|
| E.3.a.1. | Rock slab/blocks (3 x 2 x 1 cm) | 150.00 |
| E.3.a.2. | Thin section; per section | 150.00 |
| E.3.a.3. | Wash sample; per 200 gms. sample | 150.00 |

| | | | |
|---|---|---|---|
| E.3.a.4. | Oriented Fossils; per orientation | | 200.00 |

E.3.b. Paleontological analysis or spot/random and controlled samples; per sample

| | | |
|---|---|---|
| E.3.b.1. | Picking/isolation of fossils | 60.00 |
| E.3.b.2. | Faunal indentification and listing | 60.00 |
| E.3.b.3. | Age determination | 30.00 |
| E.3.b.4. | Paleoecology | 30.00 |

E.3.c. Photomicrography

| | | |
|---|---|---|
| E.3.c.1. | Thin sections; per exposure (service fee only, exclusive of film, developing and printing costs) | 15.00 |
| E.3.c.2. | Whole specimen; three (3) trials for three (3) positions (service fee only, exclusive of film, developing and printing costs) | 150.00 |

E.4. PETROCHEMISTRY LABORATORY

E.4.a. Sample Preparation

| | | |
|---|---|---|
| E.4.a.1. | Drying, splitting, crushing, sieving of rock, soil and stream sediments, per sample | 30.00 |

E.4.b. Analysis of rocks, ores, mineral and similar materials after partial decomposition (numbers enclosed in () indicate detection limits of chemical analysis, in ppm)

| | | |
|---|---|---|
| E.4.b.1. | Direct measurement by Flame Atomic Absorption Spectrometer (FAAS) after digestion of sample by aqua regia; per element Ag(1) Cd(1) Co(3) Cu(2) Fe(50) Mn(50) Ni(3) Pb(10) Zn(2) First element | 45.00 |
| | Per additional element in the same solution | 15.00 |
| | Mo(2) | 50.00 |
| | Mo(0.4) | 50.00 |
| E.4.b.2. | FAAS after hydride and vapor generation, per element As(1) Bi(0.1) Hg(0.1) | 90.00 |
| E.4.b.3. | FAAS Measurement after acidic fusion Cr Li Ni | |
| | (First element) | 60.00 |
| | Second/additional element | 15.00 |
| E.4.b.4 | FAAS after hydride and vapor generation per element As(1), Bi(0.1) Sb(0.1) Hg(0.1) | 90.00 |
| E.4.b.5. | FAAS measurement after acidic fusion Cr, Li, Ni | |
| | (First element) | 60.00 |
| | Second/additional | 15.00 |
| E.4.b.6. | Colorimetry with dithiel: W (4) | 150.00 |
| E.4.b.7. | FAAS measurement after NH4I fusion Sn (1) | 150.00 |
| E.4.b.8. | Granite Furnace AAS (GF-AAS) after organic extraction Ag(0.1) Cd(0.1) Se(0.2) Te(0.1) Tl(0.1) | |
| | First element | 300.00 |
| | All five elements | 600.00 |

E.4.c. Analysis of rocks, ores, minerals and similar materials after total decomposition. Number in () indicate detection limit or chemical analysis, in ppm

| | | |
|---|---|---|
| E.4.c.1. | Complete silicate analysis per element | |
| | $SiO_2$ $Al_2O_3$ $TiO_2$ | 90.00 each |
| | $Fe_2O_3$ T MnO | 90.00 each |
| | MgO CaO $Na_2O$ | 90.00 each |
| | $K_2O$ FeO | 90.00 each |
| | $P_2O_5$ | 150.00 |
| | LOI | 30.00 |
| | $H_2O$- | 30.00 |
| | $H_2O$+ | 80.00 |
| | all the above elements except for FeO and $H_2O$+ | 750.00 |
| E.4.c.2. | FAAS measurement for minor & trace elements | |
| | Ag(1) Be(1) Cd(10) Co(5) | 90.00 each |
| | Cr(5) Cu(2) Li(1) Ni(10) | 90.00 each |
| | Mo(10) Pb(10) Rb(10) Zn(2) | 90.00 each |
| | uBa(25) Sr(20) V(10) | 90.00 each |
| E.4.c.3. | FAAS measurement after hydride and vapor generation per element | |
| | As(1) Be(0.1) Sb(0.1) Hg(0.1) | 90.00 each |
| E.4.c.4. | FAAS after MIBK extraction per element | |
| | Au(0.05) Ga(0.02) | 180.00 each |
| E.4.c.5. | GF-AAS analysis after extraction; per element; | |
| | Au(0.001) Pd(0.002) Te(0.1) | |
| | Tl(0.1) Se(0.2) | 300.00 each |
| E.4.c.6. | GF-AAS analysis after fire assaying, per element | |
| | Au(0.002) Pt(0.005) | |
| | Pd(0.003) Rh(0.5ppb) | |
| | First element | 800.00 |
| | Next element in the same button | 100.00 |

| | | |
|---|---|---|
| E.4.c.7. | Qualitative Analysis for Pt | 200.00 |

E.4.d. Chemical Analysis of ground and surface water, in mg/L

| | | |
|---|---|---|
| E.4.d.1. | Major cation and anions; | |
| | Na K Mg Ca | 70.00 each |
| | Cl $SO_4$ $HCO_3$ | 70.00 each |
| | $SiO_2$ | 70.00 each |
| | F by ISE | 100.00 |
| | I by ISE | 100.00 |
| | $uNO_3$ by spectro | 100.00 |
| | $HPO_4$ by spectro | 100.00 |
| | CN by ISE | 500.00 |
| E.4.d.2. | Others, per element | |
| | pH | 30.00 |
| | Total Dissolved Solids | 50.00 |
| | Total Hardness | 70.00 |
| | Total Alkalinity | 70.00 |
| | Total Acidity | 70.00 |
| | Turbidity (NTU) | 70.00 |
| | Suspended Solids | 50.00 |
| E.4.d.3. | Trace elements after AAS measurement per element; detection limits in ( ) in mg/L: | |
| | Ag(O.,02) | 60.00 |
| | Ag(0.002) | 90.00 |
| | Ag(0.0002) | 120.00 |
| | As(0.005) | 90.00 |
| | Al | 70.00 |
| | Au | 180.00 |
| | Ba | 80.00 |
| | Be | 80.00 |
| | Bi | 90.00 |
| | Cd (0.01) | 80.00 |
| | (0.002) | 90.00 |
| | (0.0002) | 200.00 |
| | Co | 80.00 |
| | Cr | 80.00 |
| | Cu | 80.00 |
| | Fe | 80.00 |

| | |
|---|---|
| Hg | 90.00 |
| Li | 80.00 |
| Mn | 80.00 |
| Mo (10) | 80.00 |
| (0.01) | 200.00 |
| Ni | 80.00 |
| Pb (0.2) | 80.00 |
| (0.005) | 90.00 |
| (0.0005) | 200.00 |
| Rb | 80.00 |
| Se | 200.00 |
| Sr | 80.00 |
| Te | 200.00 |
| V | 80.00 |
| Zn | 80.00 |

Discount rate for

| | |
|---|---|
| 15 Elements/Sample | 10% |
| 22 Elements/Sample | 15% |
| 44 Elements/Sample | 30% |

## E.5. X-RAY LABORATORY

### E.5.1. X-ray Difractometry (XRD)

E.5.1.a. Sample preparation, per sample 40.00

E.5.1.a.1. Drying, Crushing, grinding (-200 to -300 mesh)

E.5.1.a.2. Clay Orientation:

| | | |
|---|---|---|
| E.5.1.a.2.1. | Air dried | 40.00 |
| E.5.1.a.2.2. | Heated | 50.00 |
| E.5.1.a.2.3. | Glycolated | 30.00 |

E.5.1.b. RD Run/Interpretation per sample 300.00

### E.5.2. X-ray Fluorescence Spectrometry (XRF)

E.5.2.a. Sample prep., per sample

| | | | |
|---|---|---|---|
| | E.5.2.a.1. | Drying, Crushing, grinding (-200 to -300 mesh) | 40.00 |
| | E.5.2.a.2. | Briqueting of powdered sample | 20.00 |
| | E.5.2.a.3. | Glass Bead/fused sample | 75.00 |

E.5.2.b. XRF Run/Interpretation, per sample, Qualitative

| | | |
|---|---|---|
| E.5.2.b.1. | Lik Analyzing Crystal | 300.00 |
| E.5.2.b.2. | EDDT Analyzing Cystal | 350.00 |
| R.5.2.b.3. | XRF Run/Element, Quantitative Analysis charge depends upon cost of standards | |

E.5.3. Electron Probe upon Micro-Analysis (EPMA)

E.5.3.a. Sample preparation, per Sample-section

| | | |
|---|---|---|
| E.5.3.a.1. | Polished section | 100.00 |
| E.5.3.a.2. | Mounted Polished Section | 125.00 |
| E.5.3.a.3. | Thin Section | 90.00 |
| E.5.3.a.4. | Carbon coating | 60.00 |
| E.5.3.a.5. | Ion Coating (Charge is variable depending on the element to be used for coating and the surface area to be coated) | |

E.5.3.b. Electron microscopy/photography (high magnification aeroview, back scattered electron, secondary electron beam, characteristic x-ray), per photograph

| | |
|---|---|
| per element | 300.00 |
| per additional photograph | 75.00 |

E.5.3.c. Line Profile Analysis;
per 10 mm line per element 350.00

| | | |
|---|---|---|
| E.5.3.d. | Qualitative Point Analysis; per point | 300.00 |
| E.5.3.e. | Quantitative Point Analysis; per element per point | 450.00 |

## E.6. GEMSTONE LABORATORY

### E.6.a. Gemstone Preparation; per piece

| | | |
|---|---|---|
| E.6.a.1. | Cabochon: Oval, round, triangle, kite, square, pear & four-sided forms; with hardness up to 7 (Moh's Scale) | |
| | 7 - 18 mm diameter | 35.00 |
| | 19 - 32 mm diameter | 55.00 |
| | with hardness 7 to 9 (Moh's Scale) | |
| | 7 - 18 mm diameter | 80.00 |
| | 19 - 32 mm diameter | 100.00 |
| E.6.a.2. | Cabochon; heart, clover, star, cross, hexagon, octagon and more than four-sided forms; with hardness up to 7 (Moh's Scale) | |
| | 7 - 18 mm diameter | 55.00 |
| | 19 - 32 mm diameter | 80.00 |
| | with hardness from 7 - 9 | |
| | 7 - 18 mm diameter | 100.00 |
| | 19 - 32 mm diameter | 130.00 |
| E.6.a.3. | Other shape and forms; teardrop; halfmoon, shark's tooth sphere, cone, cylindrical, and others, | |

| | | | |
|---|---|---|---|
| | | with hardness up to 7 (Moh's Scale) | |
| | | 7 - 18 mm diameter | 105.00 |
| | | 19 - 32 mm diameter | 160.00 |
| | E.6.a.4. | Faceting (64 index gear) | |
| | | E.6.a.4.1. Standard brilliant cut (round) with hardness up to 7 | 105.00 |
| | | with hardness from 7 to 9 (Moh's Scale) | 235.00 |
| | | E.6.a.4.2. Brilliant oval cut or Emerald cut; with hardness up to 7 (Moh's Scale) | 130.00 |
| | | with hardness from 7 to 9 (Moh's Scale) | 300.00 |
| | E.6.a.5. | Gemstone drilling | |
| | | E.6.a.5.1. First 10 mm or less | 15.00 |
| | | E.6.a.5.2. For every 1 mm in excess of 10 mm thereafter, or a fraction thereof | 10.00 |
| | E.6.a.6. | Tumbling gemstone; per kilo minimum of three kilos) | 550.00 |
| E.7. | MINERALOGY LABORATORY | | |
| | E.7.a. | Sample Preparation | |
| | | E.7.a.1. Drying, crushing, grinding, sieving | see E-2 - a.6 |
| | E.7.b. | Differential Thermal Analysis (DTA) per sample | 300.00 |
| | E.7.c. | Physical Tests, per sample | |
| | | E.7.c.1. Water of plasticity | 50.00 |

| | | | |
|---|---|---|---|
| E.7.c.2. | Pyrometric cone equivalent (PCE) | | 150.00 |
| E.7.c.3. | Swelling test | | |
| | E.7.c.3.1. | Unactivated | 40.00 |
| | E.7.c.3.2. | Activated with soda | 70.00 |
| E.7.c.4. | Oil-bleaching test | | |
| | E.7.c.4.1. | Unactivated | 50.00 |

E.8. ISOTOPE GEOCHRONOLOGY LABORATORY

| | | |
|---|---|---|
| E.8.a. | 14C - Age determination per sample | 6,000.00 |
| E.8.b. | K-Ar Age Determination per sample | 9,000.00 |
| E.8.c. | Rb-Sr Age Determination sample (Fees and charges subject to the discretion of the Director of Mines and Geosciences Bureau upon recommendation of the PETROLAB Manager and the Chief, LGD) | |

E.9. PALEOMAGNETIC GEOCHRONOGY LABORATORY

E.9.a. Sample Preparation per sample

| | |
|---|---|
| E.9.a.1. Mounting | 50.00 |
| E.9.a.2. Coring | 150.00 |
| E.9.a.3. Cutting | 100.00 |
| E.9.a.4. Grinding | 100.00 |

E.9.b. Paleomagnetic Analysis; per sample

| | | |
|---|---|---|
| E.9.b.1. | Demagnetizing: Thermal | 150.00 |
| | Alternating Field | 150.00 |
| E.9.b.2. | Magnetic Declination | 100.00 |
| E.9.b.3. | Magnetic Inclination | 100.00 |

| | | | |
|---|---|---|---|
| | E.9.b.4. | Magnetic Moment | 100.00 |
| | E.9.b.5. | Magnetic Susceptibility | 100.00 |
| | E.9.b.6. | North, East & Vertical Component | 80.00 |
| E.9.b.7. | Bedding Correction | | 80.00 |
| E.9.b.8. | Sample Orientation Correction | | 80.00 |
| E.9.b.9. | Virtual Geo - magnetic Pole | | 120.00 |

E.10. SEDIMENTOLOGY LABORATORY

E.10.a. Sample Preparation for Grain Size Analysis; per sample — see E-2 - a.6

| | | |
|---|---|---|
| E.10.a.1. | Drying, Crushing, Grinding, Sieving | |
| E.10.a.2. | Dilution and Chemical Treatment with H2O2 | 300.00 |
| E.10.a.3. | Pipetting | 300.00 |
| E.10.a.4. | Determination of Weight Loss | 60.00 |

E.10.b. Mineral Separation per 100 gram sample or a fraction thereof

| | | |
|---|---|---|
| E.10.b.1. | By Hand Magnet | 70.00 |
| E.10.b.2. | By Isodynamic Magnet Separator per mineral | 100.00 |
| E.10.b.3. | By Heavy Media Separation per mineral | 300.00 |

E.10.c. Analysis

| | | | |
|---|---|---|---|
| E.10.c.1. | Grain Size Analysis and Description; per sample | | 100.00 |
| E.10.c.2. | Identification of Transparent and Translucent detrital minerals: per sample | | |
| | E.10.c.2.1. | As received | 150.00 |
| | E.10.c.2.2. | Grain Mount | 110.00 |
| | E.10.c.2.3. | Polished Thin Section | 100.00 |

| | | |
|---|---|---|
| E.10.c.3. | Mineral Counting of translucent and transparent minerals; per mineral per sample | 100.00 |

F. FIRE ASSAYS, METALLURGICAL TESTS AND CHEMICAL ANALYSIS

F.1. FIRE OR WET ASSAY OF ROCKS, ORES, SANDS OR CONCENTRATES, BULLIONS, ALLOYS INCLUDING LIQUIDS OR SOLUTIONS

F.1.a. Fire Assays - Ore samples submitted for fire assays should weigh at least 250 grams in case of gold, silver or lead assays; and at least one (1) kilogram in case of platinum assay. Bullion drillings in excess of three (3) grams shall be returned to the owner upon request.

| | | |
|---|---|---|
| F.1.a.1. | Gold or Silver in ores, sand or concentrates, per sample | 180.00 |
| F.1.a.2. | Gold & Silver in ores, sands or concentrates, per sample | 225.00 |
| F.1.a.3. | Platinum in ores or alloys, per sample | 500.00 |
| F.1.a.4. | Fineness determination for gold, in bullion or alloys, per sample | 300.00 |
| F.1.a.5. | Fineness determination for silver, in bullions or alloy per sample | 180.00 |
| F.1.a.6. | Fineness determination for gold and silver in bullions, per sample | 440.00 |
| F.1.a.7. | Bullion sampling, per kilo | 1.00 |
| F.1.a.8. | Certification of weight of gold or silver bullions | 55.00 |

F.1.b. Wet assays (Per element submit at least one (1) kilo sample)

| | | |
|---|---|---|
| F.1.b.1. | Aluminum | 90.00 |
| F.1.b.2. | Antimony | 100.00 |
| F.1.b.3. | Barium | 90.00 |
| F.1.b.4. | Bismuth | 100.00 |
| F.1.b.5. | Calcium | 85.00 |
| F.1.b.6. | Available Lime | 85.00 |
| F.1.b.7. | Chlorine (as $Cl^-$) | 90.00 |
| F,1.b.8. | Chromium | 250.00 |
| F.1.b.9. | Cobalt | 90.00 |

| | | |
|---|---|---|
| F.1.b.10. | Copper | 90.00 |
| F.1.b.11. | Iron (Total) | 85.00 |
| F.1.b.12. | Iron (Metallic, $Fe^{o}$) | 100.00 |
| F.1.b.13. | Iron (Ferrous, $Fe^{++}$) | 100.00 |
| F.1.b.14. | Iron (Ferric, $Fe^{+++}$) | 185.00 |
| F.1.b.15. | Lead | 90.00 |
| F.1.b.16. | Magnesium | 85.00 |
| F.1.b.17. | Manganese | 90.00 |
| F.1.b.18. | Molybdenum | 100.00 |
| F.1.b.19. | Nickel | 90.00 |
| F.1.b.20. | Phosphorous | 90.00 |
| | $P_2O_5$, water soluble | 90.00 |
| | $P_2O_5$, citrate soluble | 90.00 |
| F.1.b.21. | Potassium (AA) | 80.00 |
| F.1.b.22. | Silica | 100.00 |
| | Free Silica | 100.00 |
| | Insoluble | 60.00 |
| F.1.b.23. | Sodium | 80.00 (AA) |
| F.1.b.24. | Sulfur | 90.00 |
| F.1.b.25. | Tin | 100.00 |
| F.1.b.26. | Titaniun | 90.00 |
| F.1.b.27. | Zinc | 90.00 |

F.1.c. Specific Gravity

| | | |
|---|---|---|
| F.1.c.1. | True | 60.00 |
| F.1.c.2. | Apparent | 40.00 |
| F.1.c.3. | Bulk Density | 40.00 |

F.1.d. Moisture, oven-dried ($105^{o}$) 50.00

F.1.e. Moisture, as received only 80.00

F.1.f. Combined $H_2O$ 70.00

F.1.g. Loss on Ignition 40.00

F.1.h. Determination by Atomic Absorption Spectrophotometry and Flame Photometry of copper, iron, lead, manganese, sodium, potassium, zinc, per element 80.00

## F.2. METALLURGICAL TESTS ON ORES, MINERALS, MILL OR INDUSTRIAL PLANT BY-PRODUCTS, ETC.

(For the following ore dressing processes, a maximum of five (5) kilos may be accepted)

| | | |
|---|---|---|
| F.2.1. | Crushing; per kilo or fraction of one kilo | 8.00 |
| F.2.2. | Grinding; per kilo or fraction of one kilo | 15.00 |
| F.2.3. | Screening; Dry, fine sample (Range: 150 mesh to 400 mesh) Per fraction, per kg. or fraction of 1 kg. | 12.00 |
| F.2.4. | Screening; Dry, Coarse sample, (Range: 14 mesh to 100 mesh) per fraction, per kg. or fraction of 1 kg. | 10.00 |
| F.2.5. | Screening; Wet Coarse or fine sample including filtering and drying | |
| F.2.5.a. | Coarse Sizing (Range: 14 mesh to 100 mesh) per fraction, per kg. or fraction of 1 kg. | 15.00 |
| F.2.5.b. | Fine Sizing (Range: 50 mesh to 400 mesh) per fraction, per kg. or fraction of 1 kg. | 18.00 |
| F.2.6. | Sedimentation or elutriation including filtering and drying, per test | 30.00 |
| F.2.7. | Grindability | |
| F.2.7.a. | Coal | 220.00 |
| F.2.7.b. | Ore | 450.00 |
| F.2.8. | Air- Classification, per test | 105.00 |
| F.2.9. | Heavy Media Separation, per gravity | 170.00 |
| F.2.10. | Jigging, per test | 170.00 |

| | | | |
|---|---|---|---|
| F.2.11. | Tabling, per test | | 170.00 |
| F.2.12. | Flotation | | |
| | F.2.12.a. | Bulk Flotation, per test | 170.00 |
| | F.2.12.b. | Differential Flotation, per test | 300.00 |
| F.2.13. | Calcining, per test | | 250.00 |
| F.2.14. | Roasting | | |
| | F.2.14.a. | Using electric furnace (batch), per test | 260.00 |
| | F.2.14.b. | Using small rotary kiln (continuous), per test | 300.00 |
| F.2.15. | Sintering, per test | | 300.00 |
| F.2.16. | Pelletizing | | |
| | F.2.16.a. | Using Pelletizing Drum (batch) per test | 150.00 |
| | F.2.16.b. | Using Pelletizing Disc (continuous), per test | 250.00 |
| F.2.17. | Briquetting, per test | | 140.00 |
| F.2.18. | Sponge, per test | | 250.00 |
| F.2.19. | Smelting, per test | | 700.00 |
| F.2.20. | Amalgamation, per test | | 380.00 |
| F.2.21. | Cyanidation, per test | | 630.00 |
| F.2.22. | Magnetic Separation | | |
| | F.2.22.a. | Dry, per test | 100.00 |
| | F.2.22.b. | Wet, per test | 125.00 |

F.2.23. Scrubbing, per test 40.00

F.2.24. Leaching

| | | |
|---|---|---|
| F.2.24.a. | Percolation leaching,per test | 420.00 |
| F.2.24.b. | Acid curing or agitation leaching, per test | 290.00 |
| F.2.24.c. | Leaching-precipitation-flotation, per test | 520.00 |
| F.2.24.d. | Pressure leaching, per test | 750.00 |

**(NOTE: Test includes determination of particle size, percent extraction, lixiviant consumption, lixiviant strength, leaching time, leach and temperature and pressure)**

F.2.25. Recovery of chrysotile asbestos, per sample, 350.00

**Per Sample**
**(NOTE: A minimum of five (5) kilo/sample of asbestos to be split and reduced to about 1 kilo for recovery tests)**

F.2.26. Tests on coal, coke, charcoal and other fuels

| | | |
|---|---|---|
| F.2.26.a. | Heavy media separation and washability of coal, per gravity | 250.00 |
| F.2.26.b. | Low and medium temperature carbonization, per test | 215.00 |
| F.2.26.c. | High temperature carbonization per test (above 700$^{O}$C) | 290.00 |
| F.2.26.d. | Drying (Determination of drying rates, per test | 145.00 |
| F.2.26.e. | Tumbler test for coke, per test | 140.00 |
| F.2.26.f. | Bulk density determination for coke | 50.00 |
| F.2.26.g. | Porosity, volume of cell spaces of lump coke | 70.00 |
| F.2.26.h. | Drop and shatter test for coal and coke | 175.00 |
| F.2.26.i. | Tumbler test for coal | 160.00 |
| F.2.26.j. | Free swelling index of coal | 80.00 |
| F.2.26.k. | Coking property | 80.00 |

(Remarks):

1. The above charges are exclusive of the appropriate chemical, petrographic, numerographic, and microscopic analysis.

2. For a combination of batch processes, charges will be estimated according to the type of processes involved, number of tests to be conducted and cost of chemical analysis. Sample to be submitted should weigh not less than ten (10) kilos.

3. Sample to be submitted for extensive detailed tests and/or pilot plant tests should weigh not less than 100 kilos. Charges will be estimated for each case and job performed on contractual basis.

## F.3. ANALYSIS OF WATER AND SOLID FUELS

F.3.A. Water analysis : (Submit a minimum of one (1) gallon)

| | | |
|---|---|---|
| F.3.1.a. | pH | 30.00 |
| F.3.2.b. | Dissolved Oxygen | 30.00 |
| F.3.3.c. | Bicarbonate | 70.00 |
| F.3.4.d. | Carbonate | 70.00 |
| F.3.5.e. | Total solids | 50.00 |
| F.3.6.f. | Total suspended solids | 50.00 |
| F.3.7.g. | Total dissolved solids | 50.00 |
| F.3.8.h. | Total acidity | 70.00 |
| F.3.9.i. | Total Alkalinity | 70.00 |
| F.3.10.j. | Total Hardness | 70.00 |
| F.3.11.k. | Sulfate | 70.00 |
| F.3.12.l. | Chloride | 70.00 |
| F.3.13.m. | Silica | 70.00 |
| F.3.14.o. | Iron | 80.00 |
| F.3.15.p. | Lime | 70.00 |
| F.3.16.q. | Magnesia | 70.00 |
| F.3.17.r. | Sodium | 70.00 |
| F.3.18.s. | Potassium | 70.00 |

F.3.B. Coal and Charcoal : (Submit a minimum of one-half kilo sample)

| | | |
|---|---|---|
| F.3.1.a. | Proximate analysis (FC, VCM, Ash and $H_2O$) | 150.00 |
| | FC Only | 150.00 |
| | VCM Only | 50.00 |

| | | |
|---|---|---|
| | Ash Only | 50.00 |
| | $H_2O$ Only | 50.00 |
| F.3.2.b. | Heating Value of Coal and sulfur | 350.00 |
| F.3.3.c. | Specific Gravity | 60.00 |
| F.3.4.d. | Coal Ash analysis (The Charge per element to be determined in ash is the same as the charge in b), Section 166, However, coal ashing per 500 grams Coal Sample | 100.00 |
| F.3.5.e. | Sulfate sulfur | 90.00 |
| F.3.6.f. | Pyrite sulfur | 90.00 |
| F.3.7.g. | Organic sulfur (together with sulfate and pyritic sulfur | 90.00 |
| F.3.8.h. | Organic sulfur only | 270.00 |

G. GEOLOGICAL INVESTIGATION AND VERIFICATION

G.1. Marine Geophysical Survey

| | | |
|---|---|---|
| G.1.a. | Single-Channel seismic reflection | 2,000.00/km. |
| G.1.b. | Single-Channel seismic reflection + echo-sounder | 2,500.00/km. |
| G.1.c. | Echo-sounder | 750.00/km. |
| G.1.d. | Side-Scan Sonar | 2,000.00/km. |
| G.1.e. | Side-Scan Sonar + echo-sounder | 2,500.00/km. |
| G.1.f. | Survey vessel | 30,000.00/day (actual survey) |

| | | |
|---|---|---|
| G.1.g. | RPS EXPLORER | 20,000.00/day (mobilization/ demobilization) |

Note: Including Radio Positioning (Mini-ranger)
* excluding fuel and scientific staff

G.2. Marine Geological Survey

| | | |
|---|---|---|
| G.2.a. | Piston Coring | 1,000.00/sample |
| G.2.b. | Grab Sampling | 500.00/sample |

G.3. For Geophysical Services

| | | Man/day Rate | Total Daily Rate |
|---|---|---|---|
| G.3.a. | Induced polarization | 1,300.00 | 9,100.00 |
| G.3.b. | Resistivity survey | 1,300.00 | 9,100.00 |
| G.3.c. | Self Potential | | |
| | G.3.c.1. Vertical loop | 1,300.00 | 9,100.00 |
| | G.3.c.2. Potable Soil | 1,300.00 | 9,100.00 |
| G.3.d. | Seismic Surveys | | |
| | G.3.d.1. 12 - channel | 2,000.00 | 12,000.00 |
| | G.3.d.2. 12 - channel | 2,000.00 | 12,000.00 |
| G.3.e. | Magnetics | | |
| | G.3.e.1. Precision Type | 1,300.00 | 8,000.00 |
| | G.3.e.2. Fluxgate | 1,300.00 | 8,000.00 |

In addition to the charges under item 3, the applicant or interested party shall pay for transportation of Bureau personnel from official station to the area and return as well as the expenses for freight, labor, materials and analysis of the samples.

H. CERTIFICATION OF DOCUMENTS

| | | |
|---|---|---|
| H.1. | For each certificate of correctness | 10.00 |

| | | |
|---|---|---|
| H.2. | Letter Certification | 20.00 |

I. FOR PUBLICATION

| | | |
|---|---|---|
| I.1. | Information Circular | |
| | Remote Sensing and satellite Surveying by Alfredo Magpantay, 1978, (5 pp.) | 10.00 |
| | Feldspar in the Philippines by Amable J. Cruz, 1978, (33 pp.) | 30.00 |
| | Gypsum in the Philippines by Amable J. Cruz, 1981, (22 pp.) | 20.00 |
| | Semi-precious gemstone and exotic minerals which may serve as indegenous raw materials for the Philippine jewelry by Amable J. Cruz, 1981, (9 pp.) | 10.00 |
| | Report on the Ground Truth Geologic Date Gathering in Nueva Ecija, Ilocos Norte and vicinity for the Lands at Imagery Interpretation of the area by P.D. Cabrera, july 1981, (9 pp. map) | 10.00 |
| | Gravimetric Determination of zinc by B.L. Trinidad and Maria Luz Bihis, March 1982 (11 pp.) | 15.00 |
| I.2. | Report of Investigation | |
| | Geological Studies of the effects of the August 1968 series of earth-quakes by Noel Caagusan, April 1969, (64 pp.) | 45.00 |
| | The use of local binder in exploratory pelletizing test by R.F. Sempio and A.c. Flores, May 1969 (26 pp.) | 20.00 |

| | |
|---|---|
| Faunal succession in Eastern Luzon Valley by P.D. Santiago | 15.00 |
| Formation of dowsonite by decomposition of sodium aluminate and solution with carbon dioxide by R. Cada I. Ishijima and Y. Saeki Feb, 1972, (2 pp.) | 10.00 |
| Chemical Determination of free silica by M.L. Bihis and B.L. Trinidad, June 1972, (9 pp.) | 10.00 |
| Mineral Resources of Kalinga-Apayao Province, July 1974, (20 pp. maps) | 15.00 |
| Geology and Mineral Resources of Nueva Vizcaya Province, October 1974 (13 pp. maps) | 15.00 |
| The Geology and Mineral Resources of Pangasinan, October 1974 (28 pp. maps) | 20.00 |
| Geology and Mineral Resources of Sorsogon Province, November 1974 (28 pp. maps) | 20.00 |
| Geology and Mineral Resources of Benguet Province, December 1974 (35 pp. maps) | 30.00 |
| Geology and Mineral Resources of Mindoro Province, December 1974 (44 pp. maps) | 35.00 |
| Geology and Mineral Resources of South Cotabato by Leonardo R. Antonio, August 1976 (20 pp. maps) | 15.00 |
| Geology and Mineral Resources of La Union Province, by Leonardo R. Antonio, Sept. 1976 (80 pp. maps) | 50.00 |

| | |
|---|---|
| Geology and Mineral Resources of Laguna Province, April 1976 (19 pp. maps) | 15.00 |
| Geology and Mineral Resources of Abra Province, Philippine Bureau of Mines, April 1976 (14 pp. maps) | 15.00 |
| Geologic-geochemical survey of Caramoan Peninsula, Camarines Sur by F.E. Miranda, Dec. 1976 (69 pp. maps) | 45.00 |
| The phosphotungstate method in determining vanadium in magnetic sands by M.L. Bihis, C. Vargas, and A. Apacible, Oct. 1976 (14 pp.) | 20.00 |
| Rapid Method of Water Analysis, M.L. Bihis and P. Quiambao, Nov. 1976, (25 pp.) | 15.00 |
| Geology and Mineral Resources of Bataan province, June 1977 (20 pp. maps) | 15.00 |
| Geology and Mineral Resources of Agusan Province, August 1977 (20 pp. maps) | 15.00 |
| Refractory materials in the Philippines by Alfredo L. Magpantay, 1978 (15 pp.) | 15.00 |
| Geology and Minerals Resources of Camarines Norte and part of Quezon Province by Federico E. Miranda and Pedro C. Caleon, 1979, (101 pp. maps) | 70.00 |
| Geology and Mineral Resources of | |

| | |
|---|---|
| Zambales Province, by Map and Mineral Resources Compilation Team, June 1979, (101 pp. maps) | 70.00 |
| Geology and Mineral Resources of Iloilo Province by Map and Mineral Resources Compilation Team, Jan. 1980, (20 pp. maps) | 15.00 |
| Silicate Rock Analysis by Maria Luz Bihis and Beatriz L. Trinidad, 1980, (25 pp. ) | 25.00 |
| Geology and Mineral Resources of Aklan-Capiz Province, by Map and Mineral Resources Compilation Team, January 1980, (13 pp. maps) | 15.00 |
| Silica resources of the Philippines. Amable J. Cruz and Elpidio N. Bautista, Sept. 1980, (41 pp.) | 95.00 |
| Geology and Mineral Resources of Surigao del Norte, by Geological Survey Section, Regional | 15.00 |
| Mineral Resources of Cavite City by Map and Mineral Resources Compilation Team, Sept. 1980, (4 pp. maps) | 10.00 |
| Geology and Mineral Resources of Camarines Sur, by Map and Mineral Resources Compilation Team, May 1981, (47 pp. maps) | 35.00 |
| Geology of Sta. Ines Iron Deposits, Antipolo, Rizal, by L.R. Antonio et. al., July 1981 (15 pp.) | 15.00 |
| Geology and Mineral Resources of Ilocos Sur by Map and Mineral | |

| | |
|---|---|
| Resources Compilation Team, July 1981, (13 pp.) | 15.00 |
| Geology and Mineral Resources of Camarines Province by Map and Mineral Resources Compilation Team, Feb. 1982, (25 pp.) | 25.00 |
| Comprehensive report on "Coal Chemicals from Low Grade Coal" by Alicia S. Esguerra and Maria Luz Bihis, March 1982, (25 pp.) | 25.00 |
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III. This order shall take effect fifteen (15) days after its publication in a newspaper of general circulation.

**ANGEL C. ALCALA**
**Secretary**