

ANNEX “A”

**SECRETARY’S
CERTIFICATE**


SECRETARY'S CERTIFICATE

I. **RODERICK R.C. SALAZAR III**, of legal age, Filipino, with office address at 4th Floor Cityland 10, Tower I, 6815 Ayala Avenue, Makati City, being the duly elected and qualified Corporate Secretary **RAPU-RAPU MINERALS, INC.** (the "Corporation"), a corporation duly organized and existing under the laws of the Philippines with office address at 4th Floor Cityland 10, Tower I, 6815 Ayala Avenue, Makati City, after having been sworn in accordance with law, do hereby certify that at the special meeting of the Board of Directors held on August 11, 2000, the following resolution was unanimously approved:

"RESOLVED, that the Board of Directors of Rapu-Rapu Minerals, Inc. (the 'Corporation') authorize, as it hereby docs, the Corporation to enter into a Mineral Production Sharing Agreement (MPSA) with the Republic of the Philippines and Ungay Malobago Mines, Inc. in respect of APSA-V-026 over certain mining claims situated in Rapu-Rapu, Albay;

"RESOLVED FURTHER, that any one (1) of the Chairman of the Board, Ian Culbert, the President, Mr. Jose P. de Guzman, or the Corporate Secretary and Director, Mr. Roderick R.C. Salazar III, be, as each of them hereby is, authorized to sign, execute and deliver for and on behalf of the Corporation said MPSA under such terms and conditions as each of them may deem to be in the best interest of the Corporation."

IN WITNESS WHEREOF, I have hereunto set my hand this 14th day of August 2000 at Makati City.

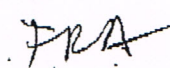

RODERICK R.C. SALAZAR III

REPUBLIC OF THE PHILIPPINES)
MAKATI CITY) SS

SUBSCRIBED AND SWORN, to before me this 14th day of August 2000, affiant exhibiting to me his Community Tax Certificate No. 14398841 issued on January 3, 2000 at Makati City.

Doc. No. 324;
Page No. 66;
Book No. L;
Series of 2000.

RRMIE/11/00-SCHAG-NSI


FLORINDA R. ANDRES
NOTARY PUBLIC

UNTIL DECEMBER 31, 2000

IBP # 504742 / 3-3-00 / QC CHAPTER
PTR # 8878509 / 3-2-00 / MKTI CITY

ANNEX “B”

LOCATION MAP

PLAN
OF
MINERAL PRODUCTION SHARING
AGREEMENT

As Prepared For

RAPU-RAPU MINERALS, INC.

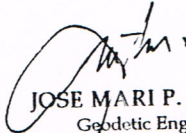
Situated in The

Barangay Of: Karogkog, Sta. Barbara
Municipality Of: Rapu-rapu
Province Of: Albay
Island Of: Luzon

Containing an Area of: 1,585.8083 Hectares

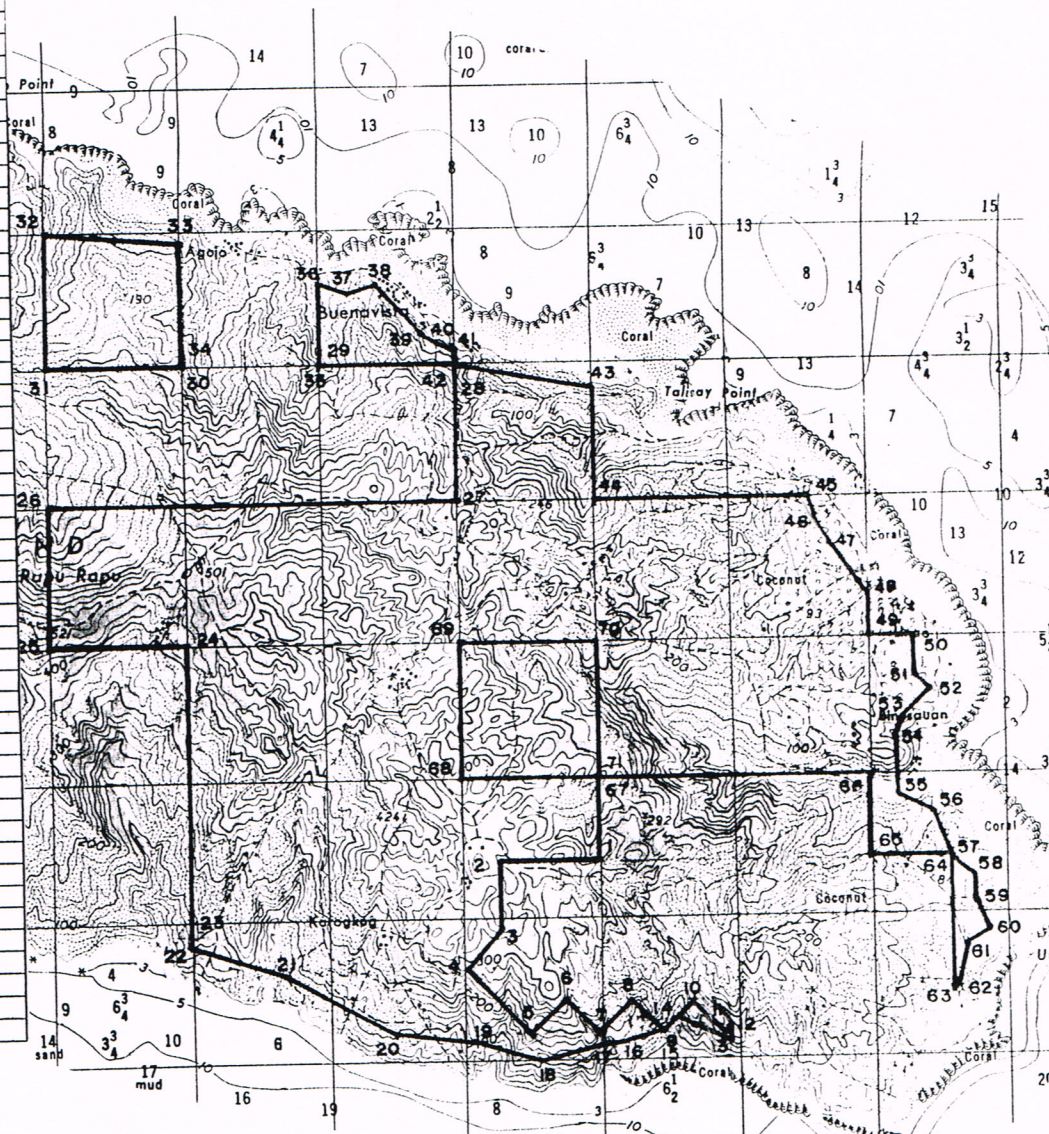
Scale: 1:50,000

Prepared By:


JOSE MARI P. AYTON
Geodetic Engineer
GE No. 4251 03-28-1995
PTR No. 3066260 05-15-2000

Technical Description

Cor. No.	Latitude	Longitude
1	13° 11' 12.30"	124° 11' 30.00"
2	13° 11' 12.30"	124° 11' 8.578"
3	13° 10' 56.785"	124° 11' 8.579"
4	13° 10' 49.391"	124° 11' 1.035"
5	13° 10' 35.585"	124° 11' 15.123"
6	13° 10' 42.488"	124° 11' 22.167"
7	13° 10' 35.586"	124° 11' 29.211"
8	13° 10' 42.489"	124° 11' 36.255"
9	13° 10' 35.586"	124° 11' 43.299"
10	13° 10' 42.488"	124° 11' 50.343"
11	13° 10' 35.585"	124° 11' 57.387"
12	13° 10' 36.567"	124° 11' 58.40"
13	13° 10' 33.50"	124° 11' 58.40"
14	13° 10' 39.00"	124° 11' 46.80"
15	13° 10' 35.586"	124° 11' 43.299"
16	13° 10' 33.50"	124° 11' 35.50"
17	13° 10' 33.50"	124° 11' 30.00"
18	13° 10' 30.00"	124° 11' 17.00"
19	13° 10' 33.50"	124° 11' 4.00"
20	13° 10' 35.00"	124° 10' 45.00"
21	13° 10' 48.50"	124° 10' 20.00"
22	13° 10' 55.00"	124° 10' 00"
23	13° 11' 00"	124° 10' 00"
24	13° 12' 00"	124° 10' 00"
25	13° 12' 00"	124° 09' 30"
26	13° 12' 30"	124° 09' 30"
27	13° 12' 30"	124° 11' 00"
28	13° 13' 00"	124° 11' 00"
29	13° 13' 00"	124° 10' 30"
30	13° 13' 00"	124° 10' 00"
31	13° 13' 00"	124° 09' 30"
32	13° 13' 30"	124° 09' 30"
33	13° 13' 27.00"	124° 10' 00"
34	13° 13' 00"	124° 10' 00"
35	13° 13' 00"	124° 10' 30"
36	13° 13' 17.50"	124° 10' 30.00"
37	13° 13' 16.00"	124° 10' 36.00"
38	13° 13' 18.00"	124° 10' 43.00"
39	13° 13' 6.00"	124° 10' 52.50"
40	13° 13' 4.50"	124° 10' 56.00"
41	13° 13' 3.00"	124° 11' 00"
42	13° 13' 00"	124° 11' 00"
43	13° 12' 54.00"	124° 11' 30"
44	13° 12' 30"	124° 11' 30"
45	13° 12' 30.00"	124° 12' 17.50"
46	13° 12' 26.00"	124° 12' 18.50"
47	13° 12' 19.50"	124° 12' 22.00"
48	13° 12' 8.00"	124° 12' 30.00"
49	13° 12' 00"	124° 12' 30.00"
50	13° 12' 00"	124° 12' 40.00"
51	13° 11' 51.00"	124° 12' 40.00"
52	13° 11' 48.00"	124° 12' 44.00"
53	13° 11' 42.00"	124° 12' 37.00"
54	13° 11' 37.50"	124° 12' 35.50"
55	13° 11' 25.00"	124° 12' 35.50"
56	13° 11' 22.00"	124° 12' 44.00"
57	13° 11' 12.30"	124° 12' 48.00"
58	13° 11' 8.00"	124° 12' 53.00"
59	13° 11' 2.00"	124° 12' 53.00"
60	13° 10' 56.00"	124° 12' 56.00"
61	13° 10' 53.00"	124° 12' 51.00"
62	13° 10' 43.453"	124° 12' 48.38"
63	13° 10' 43.036"	124° 12' 48.01"
64	13° 11' 12.30"	124° 12' 48.00"
65	13° 11' 12.30"	124° 12' 30"
66	13° 11' 30.00"	124° 12' 30"
67	13° 11' 30.00"	124° 11' 30"
68	13° 11' 30.00"	124° 11' 00"
69	13° 12' 00"	124° 11' 00"
70	13° 12' 00"	124° 11' 30"
71	13° 11' 30.00"	124° 11' 30"



ANNEX “C”

**TWO-YEAR
EXPLORATION
WORK PROGRAM**

(ref: Annex A of Environmental Work Program)

Republic of the Philippines
Department of Environment and Natural Resources
MINES AND GEOSCIENCES BUREAU
North Avenue, Diliman, Quezon City

TWO- YEAR EXPLORATION WORK PROGRAM

1.0 Name and Address of Company/Proponent

Company : **RAPU- RAPU MINERALS, INC.**
Address : Rapu Rapu Minerals, Inc.
Suite 23 Legaspi Suites, 178 Salcedo St. Makati
Tel. No 813 4131 • Fax No. 893 9349

Mineral Commodity Applied

Gold, Copper, Silver and other associated minerals

2.0 Location of Project

The mineral prospect of the Rapu-Rapu Minerals Inc. application covers an area located within the Barangays of Carogcog, Sta. Barabara in the municipality of Rapu-Rapu Island, in the Province of Albay, Bicol Region. It is about 45 aerial kilometers east of Legaspi City and approximately 420 kilometers southeast of Manila.

Geographic Coordinates

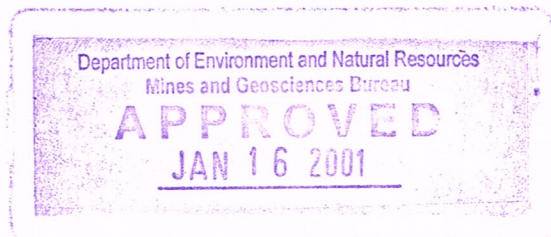
The tenement lies within Latitude 13° 10' 30" to 13° 13' 30" N and from Longitude 124° 09' 30" to 124° 13' 00"E, more or less. Please refer to the attached Map Scale 1:50,000 with technical descriptions.

3.0 Area size of coverage (Hectares)

The project area applied for MPSA under No. APSA-V-0192 by Rapu-Rapu Minerals Inc. comprises a total land area of **1,585,8083** has more or less.

4.0 Project Area Description

4.1 Terrain/Physiography



The topography of the area is moderate to rugged with dominantly northwest trending ridges. Elevation within the claim area varies from 40 to 350 meters above sea level.

The Island of Rapu-Rapu experiences two (2) pronounce seasons. The wet season caused by northeast monsoon start from October to February while the dry season occurs for the rest of the year.

4.2 **Accessibility**

The Philippine Airlines provides daily B 737 service to Legaspi from Manila with a flying time of approximately 45 minutes. A daily scheduled ferry and motorized commercial boats provide access to Rapu-Rapu town from Legaspi City. Travel time is approximately 2 1/2 hours depending on vessel type and weather conditions. Small fishing vessels may be chartered in Poblacion, Rapu-Rapu to provide access to outlying villages on the coast of Rapu-Rapu Island. Travel time from Poblacion to Barangay Malobago takes about 40 minutes. The field base camp located at Barangay Pagcolbon is linked from Barangay Malobago by a well maintained

4.3 **Drainage System**

The major creeks and the tributary system within the applied area have dominantly dendritic pattern draining generally southeastward into the Albay Gulf. A dominant trellis pattern of the drainage system is apparently due to the schistosity and faulting of the rocks in the area. Water is available from the creeks the whole year round.

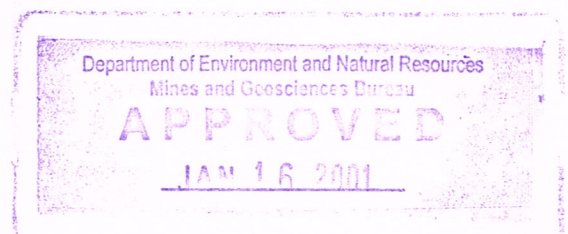
4.4 **Vegetation**

Elsewhere, the forest has largely removed by "kaingin" (slash and burn) agricultural practices. Second and third growth trees common in the vicinity grew in the interior and along creeks and steeply dipping slopes. The rest of the area is largely vegetated by cogon grass and shrubs.

4.5 **Land Use**

Most of the application area is classified as alien disposable land where only small portion of the land is planted with coconut, banana, abaca and other fruit-bearing trees. The central northern portion of the applied area is within the declared Timberland, Block-1 under LC Project No. 17.

The Hixbar area is classified as mineral land since mining and exploration activities from the 30's until the 90's.



There is presently no updated land use plan available. The Municipality of Rapu Rapu is currently preparing the Land Re-Classification of the island. In this connection the Zoning Ordinance, a prerequisite, has to be passed by the concerned legislative body.

5.0 Description of Exploration Work Program

The activities will consist of surface and subsurface investigation for the purpose and/or main objective of determining or ascertaining the existence, quality, quantity and kind of mineral resources present on the area applied.

Surface activities as indicated on the exploration work program consist of geological mapping/sampling, stream sediments sampling, geochemical soil survey and topographic survey. Sub-surface investigation like test pitting, trenching and diamond drilling will be implemented on areas that show significant mineralization.

The exploration period will start upon approval of the MPSA that shall have a term of two (2) years from the effectivity date of MPSA. Renewable for another two (2) years each but in no case shall exceed a total of eight (8) years depending on the sufficiency of data or information obtained for feasibility study and compliance of the terms and conditions of MPSA contract.

The manpower requirement for the project shall be more or less, Geologist - 1, Geological Mapper -1, Laborer -15, Surveyor - 1, Draftsman/Computer - 1 and Survey Aide -4. Their services will be as required depending on the needs on the particular aspect of the exploration activities.

5.1 Research Work

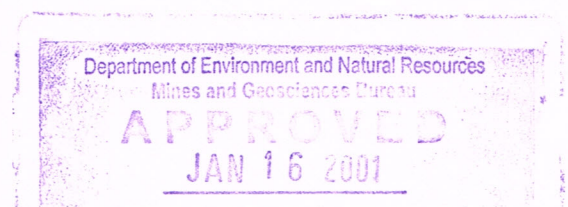
5.1.1 Survey of previous work/s on the area.

All geological data from the previous exploration program undertaken within the applied area are necessary for future geological evaluation. Such additional data will be utilized in the geological interpretation during the implementation of the work program.

5.1.1.1 Nature or Type of Study or Undertakings

All geological data pertaining to the history of mining at Hixbar Area, drill exploration at Hondo and regional survey conducted by TVI will be examined and further studied.

The Hixbar Claims were intensively explored on surface and underground in the late 1960's and 1970's. A resource



evaluation exercise conducted by the Hixbar Mining Company in 1978 reported probable ore reserves blocked out by drilling and some underground workings in three areas of Hixbar deposit.

TVI undertook a comprehensive exploration program in Hixbar and Hondo areas that includes drilling, geophysical and geochemical surveys combined with regional mapping.

Steam sediment sampling was undertaken along the drainage system of the entire island. Geophysical survey was concentrated at Hixbar Mine, the Ungay Malobago Prospect and in the northern Barangays Viga and Buenavista.

5.1.1.2 Duration

TVI and Benguet have transferred the bulk of the previous geological data to Rapu-Rapu Minerals Inc. Review of available data will form part of the ongoing exploration activities.

5.1.1.3 Coverage

Research work will cover previous geological data on underground and open pit mining at Hixbar. The ore reserve calculation conducted by Hixbar Mining Co, if available, will be utilized in the evaluation of the underground work data such as ore projection etc.

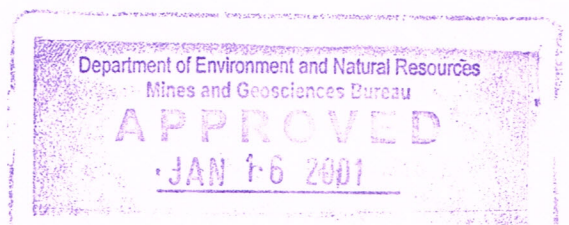
The results of the geophysical data conducted by TVI, White Eagle Overseas Oil Inc. and the drilling data, if also available, will be evaluated to assist geological interpretation for future drilling target.

5.1.1.4 Results/Conclusion

The geological data available at present includes the Summary Report of the Rapu-Rapu Project compiled by TVI and the geological maps produced by Benguet Corporation.

The Summary Report of TVI collates all previous geological data of White Eagle Overseas Oil Inc; Geotechnics Philippine Inc. Dowa Engineering Co; Ltd and Benguet Corporation.

Results of exploration work done by TVI and Benguet Corporation were encouraging as revealed by traces of gold in rock, soil and stream sediment samples and arrived at a conclusion that a more detailed geological investigation be pursued.



5.1.2 Data Compilation /Collation

Compilation and collation of all available geological data will be done in Legaspi office. All data will be compiled as separate documents that will be included as attachment in the regular submission of report with MGB.

5.1.2.1 Geochemical/Geophysical Data

The geophysical data includes the 75-line kilometer self potential (S.P) survey conducted by White Eagle Overseas Oil Inc over Hixbar and Hondo areas. The results are unavailable.

TVI undertook a comprehensive exploration program in 1995-1996, which included a detailed surface exploration program with combined TDEM, HLEM and ground magnetic survey geochemical sampling as well as detailed geological mapping. Results are included in the TVI's summary report. A geochemical map at 1:10,000 scale was also prepared by TVI.

Dowa's geological program includes coastal and underground mapping of Ungay –Malobago and Hixbar areas with additional IP geophysical survey covering the western part of the deposit.

5.1.2.2 Lithological Data

There are various lithological maps produced between 1972-1996 by Benguet and TVI. These are results of work conducted during the regional reconnaissance survey over Hixbar and Ungay- Malobago areas.

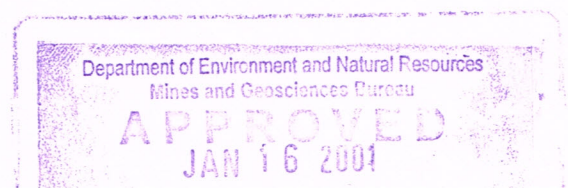
White Eagle Overseas Oil Inc. carried out Geological mapping at 1:10,000 and 1,4,000 scales over the Hixbar mining area and extending up to Hondo area in 1972.

5.1.2.3 Mineralization/ Alteration Studies

Extensive geological mapping were conducted during the regional survey of TVI and Benguet over Hixbar, Hondo and the adjoining areas at Sta Barbara, Viga and Buenavista. Regional survey includes alteration mapping on 1:5,000 scale base map. TVI and Benguet also accomplished Petrographic and mineragraphic analyses on some specific areas at Hixbar. These data are attached on TVI's Summary Report.

5.1.2.4 Various thematic maps covering the target areas.

Thematic maps include geological map showing lithologic and alteration patterns, stream sediment sampling map, cross



sectional map showing various underground works and geophysical maps (IP, TDEM, HLEM).

5.1.2.5 Estimated Cost

The reported total expenditures incurred by TVI on Rapu Rapu Project between 1994 and 1996 amounted to PhP 53,500,685 (US\$ 2,057,719). Review of available data will be carried out as part of the ongoing exploration activities. No additional costs will be incurred hereby.

5.2 Reconnaissance/Regional Survey or Studies

Regional geological studies will be necessary to improve the understanding of the general geology, structural control, and mineralization and alteration pattern of the island and for the purpose of extrapolation.

5.2.1 Remote Sensing Studies

5.2.1.1 Nature or Type of Survey or Study

The company planned to undertake Airborne EM and Magnetic survey over the prospect area.

5.2.1.2 Duration

Duration to accomplish fifty (50) line kilometers of airborne geophysical survey including mobilization will be two weeks more or less.

5.2.1.4 Coverage (Hectares)

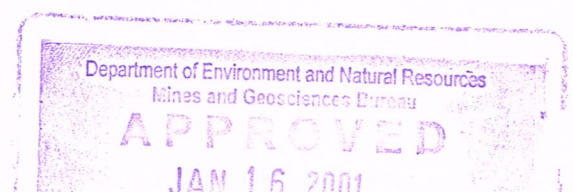
Approximately 50 line kilometers of airborne EM and Magnetic survey will cover the 1,719.431has prospect area to give information about the general geology, structural control, mineralization and alteration pattern of the application area.

5.2.1.5 Estimated Cost

The cost estimate of US\$ 100 per line kilometer incorporates mobilization of the transmitter/receiver units and helicopter, which amounts to **PhP 242, 500.00**.

5.2.1.6 Output

Output will be in the form of maps and related reports. This shall be the basis for further detailed surveys and subsurface investigations.



5.2.2 Regional Geological Survey

5.2.2.1 Coverage (hectares)

Regional geological studies will be necessary to understand the general geology, structural control, mineralization and alteration pattern of the island. Geological mapping will cover creeks and tributaries, road cuts, foot trails, shoreline outcrops and abandoned excavations (test pits, trenches, adits, and tunnels). Regional geological mapping, rock/chips sampling will be conducted over the entire applied area covered by APSA-V-0192 comprising of 1719 has more or less.

5.2.2.2 Duration

The regional geological mapping will take a period of one (1) month more or less depending on the weather condition in the area.

5.2.2.3 Manpower Complement

Regional geological mapping will be supervised by one (1) Senior Geologist assisted by (1) geologic aide and six (6) field laborers.

5.2.2.4 Estimated Cost

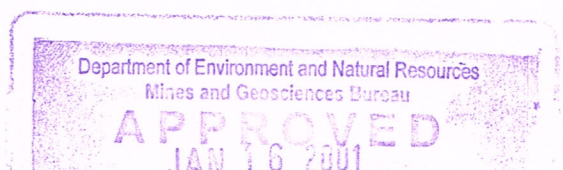
Estimated cost for this program is **P 85,000.00**

5.2.2.5 Output (number, type, scale map and technical report)

Expected output will be identification of significant geological data such as lithology, alteration, mineralization and structural controls. All the geological data gathered will be incorporated in plans. These data will be used for detailed geological investigation and sub-surface evaluation.

5.2.3 Regional Geochemistry Survey

No work is scheduled under this section.



5.2.4 Geophysical Survey

No work is scheduled under this section.

5.3 Semi-Detailed Survey

Semi- Detailed survey will be undertaken on the basis of the results that will be obtained during the reconnaissance work. Such follow-up semi-detailed work is expected during the 2nd half of the first year of the Exploration Work Program.

5.3.1 Geological Mapping/Alteration Studies

5.3.1.1 Coverage

Geological mapping/alteration studies will be conducted over the entire **1,719.4310 hectares**

5.3.1.2 Duration

The semi- detailed survey will take a period of 2-3 months. Mapping will cover creeks, tributaries, road cuts/trails, shoreline outcrops and abandoned excavations (TP, trench, dog holes, adits).

5.3.1.3 Manpower Complement

The semi-detailed survey would involve six (6) field laborers, one (1) Sr. Geologic Aide and a Senior Geologist.

5.3.1.4 Estimated Cost

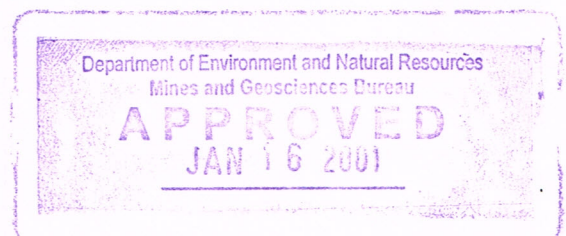
Estimated cost for this program is **P 200,000.00**

5.3.1.5 Output

Expected output will be the identification of geological data such as rock types, alteration and mineralization and structural controls which will be utilized to plan targets for the next detailed geological studies and sub-surface evaluation.

5.3.2 Geochemical Survey

No work is scheduled under this section.



5.3.2 Geophysical Survey

5.3.2.1 Nature or Type

Fixed Loop Time Domain electromagnetic (TDEM) and gradient IP geophysical survey array will be carried out over a portion of the application area, still to be identified through regional surveys.

5.3.3.2 Coverage

The geophysical survey will be utilized along 20,000 linear meters (20 km) on 50m x 50m grid totaling an area of approximately 100 hectares.

5.3.3.3 Manpower Complement

This exploration activity will be contracted out, although one (1) Geologic Aide and ten (10) laborers will form the company's work force for this activity.

5.3.3.4 Detailed Cost Estimation

The cost estimation amounts to PhP 870,000.00 for 40 working days, mobilization and hire of equipment and contractor personnel plus approximately P100,000.00 local labor costs, totaling **P 970, 000.00.**

5.3.3.5 Output

Expected output are maps/graphs determining mineralization and alteration pattern which will be utilized in designing and planning of sub-surface exploration such as test pitting, trenching and diamond drilling.

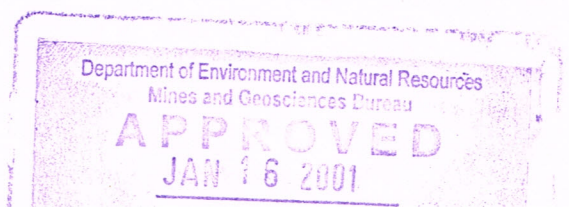
5.3.3 Subsurface Investigation

5.3.4.1 Nature or Type

Trenching and Test Pitting

5.3.4.2 Number and Overall Length or Depth

Number of test pits and trenches shall be decided as exploration activities and results advance. Test pits shall be 1 m X 1 m wide with variable depth and trenches shall be 1 meter wide with variable depth and length depending on the thickness of the gossan/massive sulphide or mineralized felsic outcrop. An



overall length/depth of 250m trenching and test pitting is allowed during the first year exploration phase. Individual length, depth, area of test pits and trenches shall be decided as the exploration activity advances.

5.3.4.3 Estimated Number of Samples

Approximately 125 samples will be taken during this exploration phase.

5.3.4.4 Mode of Analysis/Target Elements

Assaying for Gold will be carried out using Fire Assay Method and AAS, base and trace metals (Cu, Zn, As, Pb) are subject to AAS Method. All samples taken will be shipped to Intertek Testing Services Manila for analysis.

5.3.4.5 Detailed Cost Estimate

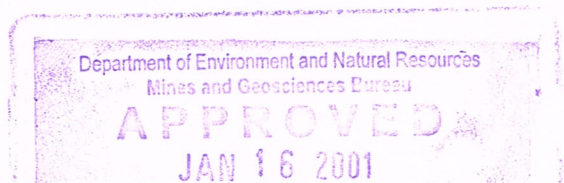
The estimated budget amounts to **PhP 210,000.00** including assay costs of PhP 90,000.00.

5.4 Topographic Survey

5.4.1 Coverage

The coverage of the topographic survey will be mainly confined to the grid layout as basis for the geophysical TDEM, IP survey. The grid lines are 50 meters meter interval perpendicular to the trend of mineralization. Survey points are normally set at 50 meters spacing along the grid lines, although closer spacing is done on selected areas of mineralization. Other survey activities aside from topographical purposes are:

- a) To establish control points (stations) within the area to be explored.
- b) To lay out tie points for geological and geo-chemical surveys and be plotted on base maps.
- c) To survey the actual location of trenches, test pits, adits portals and headings, outcrop/float sample points, diamond drill hole collar, auger hole collar and other significant outcrop within the prospect area.
- d) To conduct detailed topographic survey of potential orebody, proposed mill site, mine waste dump, tailing pond



areas, surface property/claims and other sites for related civil works.

5.4.2 Scale and Contour Intervals

Topographic map for base map is 1:2,000 with contour interval of two meters.

5.4.3 Manpower Complement

The survey will be ongoing over the two-year exploration period including one (1) Senior Surveyor, one (1) Survey Aide and seven (7) support personnel (spot hires). One Geodimeter total Station survey instrument will be commissioned. The total estimated budget is **PhP 266,750.00**, more or less.

5.4.4 Output

Output will be in form of x,y,z data format from which contour plans and location maps as well as specific design plans produced in various required scales.

5.4 Detailed Survey/Studies

5.5.1 Detailed Geological Mapping

5.5.1.1 Nature or Type of Survey

Detailed geological mapping will be conducted using compass and tape traverse over suspected mineralized zone and along creeks, ridges and spurs road cuts and trails, outcrops and previous subsurface workings with emphasis on the lithology, alterations, mineralization and structures.

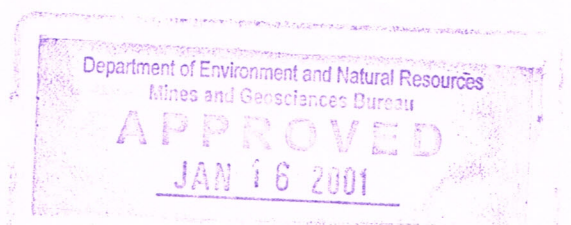
5.5.1.2 Coverage(hectares)

The detailed geological survey will be confined to possibly mineralized zones identified through regional and semi detailed geological and geophysical surveys. The exact coverage can be determined in succession of preliminary exploratory work.

5.5.1.3 Duration

A period of 5 months for detailed geological survey is envisaged.

5.5.1.4 Manpower Complement



This will involve six (6) men and one Senior Geologist or Geologic Aide, all staff who previously conducted the semi-detailed mapping.

5.5.1.5 Estimated Cost

The estimated budget is **PhP 200,000.00**.

5.5.1.6 Output

Mapping results will be drawn on 1:500 scale field maps and transferred into 1:2,000 base maps. This will form the bases for detailed geological model.

- a) Geologic potential of the property
- b) Determine the lateral extent of the mineralized zone
- c) Establish surface parameters needed for subsurface program/evaluation

5.5.2 Detailed Geo-chemical Survey

No work is scheduled under this section.

5.5.3 Subsurface Investigation

5.5.3.1 Drilling

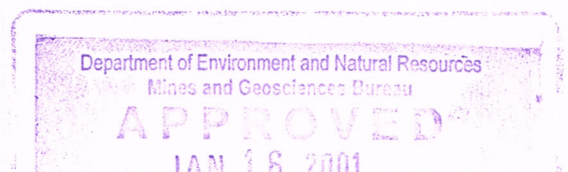
5.5.3.1.1 Type

Hand auger drilling will be carried out through the company's personnel. Diamond and Reverse Circulation (RC) drilling will be accomplished on contract basis on a per linear meter advance.

5.5.3.1.2 Number and Depth

A total 50 Hand Auger Drill holes with an aggregate depth of 250m is planned to assess the Gold and Copper potential.

Initially 1,000m Diamond Drilling is programmed with a target depth of up to 150 meters per hole to be completed in the first year upon approval of the MPSA. This first pass-drilling program will cover the former Hixbar Mine open pit to evaluate the remaining in situ Massive Sulfide and Oxide ore. Further Diamond Drilling and Reverse Circulation Drilling is scheduled for the second year of exploration to follow up other



potential targets identified during regional and more detailed exploration activities as well as to define the resource/reserve character of the Hixbar deposit.

Depth, direction, inclination and number of drill holes shall be decided as the exploration activity advances.

5.5.3.1.3 Estimated Number of Samples

About 1,000 drill samples will be taken within the first year of exploration, followed by approximately 3,000 Diamond and RC drill samples in year two. Samples will be taken as quarter splits from either HQ3 or PQ3 diameter diamond drill core, the remaining three quarter core will be placed in core boxes and stored at the field camp for further reference purposes. RC chip samples will be taken on site using riffle splitter. A representative quantity of 2kg RC drill samples will be sent for assaying. Number and area of drilling shall be decided as the exploration activity advances. Clearing of access route and drill site preparation will be done by hand tools and only where necessary by bulldozer. Assaying for Gold will be carried out using Fire Assay Method and AAS, base and trace metals (Cu, Zn, As, Pb) and Ag are subject to AAS method. All samples taken will be shipped to Intertek Testing Services Manila for analysis. Drill helpers are as per agreement supplied by the drilling contractor. Additional 2 to 5 laborers (per drill rig) to determine core recoveries, work progress and core handling will be the companies responsibility. One senior geologist will be supervising the entire drilling operation.

5.5.3.1.4 Estimated Cost

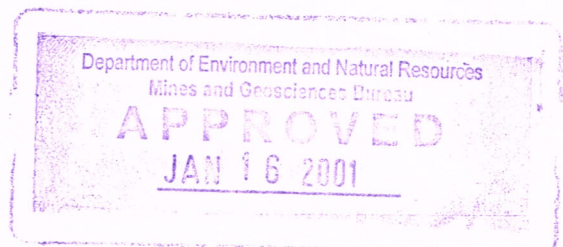
Estimated assaying cost is	PhP 3,091,875.00
Estimated Auger Drilling cost is	PhP 121,500.00
Estimated DDH Drilling cost is	PhP 12,367,500.00
Estimated RC Drilling cost is	PhP 3,395,000.00

5.5.3.2 Trenching and Test Pitting

5.5.3.2.1 Number

Number of test pits and trenches shall be decided as exploration activities and results advance.

5.5.3.2.2 Overall Length or Depth



Test pits shall be 1 m X 1 m wide with variable depth and trenches shall be 1 meter wide with variable depth and length depending on the thickness of the gossan/massive sulphide or mineralized felsic outcrop. Length, depth and area of test pits and trenches shall be decided as the exploration activity advances. An aggregate meterage of 250m of trenching and test pitting is allowed during the two-year exploration phase.

5.5.3.2.3 Estimated Number of Samples

A approximate number 150 trench and test pit samples will be taken. Assaying for Gold will be carried out using Fire Assay Method and AAS, base and trace metals (Cu, Zn, As, Pb) and Ag are subject to AAS method. All samples taken will be shipped to Intertek Testing Services Manila for analysis.

5.5.3.2.4 Estimated Cost

The estimated budget amounts to **PhP 210,000.00** including assay costs of PhP 90,000.00.

5.5.3.3 Tunneling and Aditting

No activities are scheduled under this section.

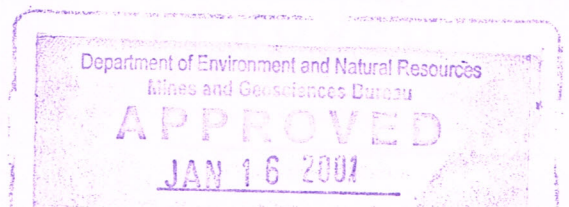
5.5.4 Resource/Reserve Estimation

Resource estimate amounting to PhP 291,000.00 is planned on the basis of initial diamond and hand auger drilling in the first year of exploration. In the second year of exploration resource/reserve estimate costs of PhP 970,000.00 are allowed. Selected drill core samples will be sent for metallurgical test work as part of the resource/reserve estimate. The estimated budget for metallurgical test work is PhP 485,000.00. Total cost for resource/reserve estimate over the two-year exploration period upon approval of the MPSA amounts to **PhP 1,746,000.00**.

6.0 Estimated Exploration Cost:

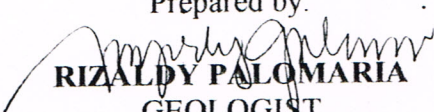
Year 1	PhP 14,840,306.00
Year 2	PhP 21,643,125.00

Grand Total	PhP 36,483,431.00



- 7.0 **Schedule of Activities (Gantt Chart)**
- 8.0 **Namria Map Attachment** - Scale 1:50,000 in addition to the map previously submitted.
- 9.0 **Signature of Mining Engineer that prepared the Exploration Work Program**

Prepared by:


RIZALDY PALOMARIA
GEOLOGIST

PTR No. 3735731

Licence No. 810

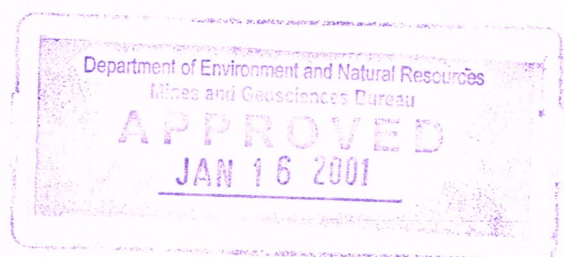
Date issued: March 2, 2000

TIN No. 162-931-328

Conforme:

Roderick D. Watt
Vice President of Operations
Rapu Rapu Minerals, Inc.

Done this 15th day of November 2000 at Makati City.



ANNEX “D”

**ENVIRONMENTAL
WORK PROGRAM**



Republic of the Philippines
DEPARTMENT OF
ENVIRONMENT AND
NATURAL RESOURCES

MINES AND GEOSCIENCES BUREAU

North Avenue, Diliman, Quezon City
Fax # 920-16-35 Tel. 928-86-42



08 February 2001

MEMORANDUM

TO : **THE OFFICER-IN-CHARGE**
Mining Tenement Management Division

FROM : **THE CHIEF**
Mining Environment and Safety Division

SUBJECT : **ENVIRONMENTAL WORK PROGRAM (EWP) OF RAPU
RAPU MINERALS, INC. (MPSA V-0192)**

This refers to the submitted revised EWP for exploration of **Rapu Rapu Minerals, Inc.** in connection with its MPSA application denominated as **MPSA No. V-0192**. Please be informed that after a thorough review/evaluation, we hereby **approve** the said program.

Further, may we request you to please remind the proponent that the approved program is subject to environmental audit/monitoring by our Office/Regional Office in the near future. We remind also the proponent to furnish a copy of the approved EWP to the concerned Sangguniang Panlalawigan and to submit status reports as to compliance with the EWP to the Regional Office copy furnish our office every six months after its approval.

For your information and appropriate action.


MICHAEL V. CABALDA

cc **Rapu Rapu Minerals, Inc.**
Suite 23 Legaspi Suites,
178 Salcedo St., Makati City

Ref: GEN-CEO-A-0211-6

"MINING SHALL BE PRO-PEOPLE AND PRO-ENVIRONMENT IN
SUSTAINING WEALTH CREATION AND IMPROVED QUALITY OF LIFE."

2/14/2001

Republic of the Philippines
Department of Environment and Natural Resources
MINES AND GEOSCIENCES BUREAU
North Avenue, Diliman, Quezon City

ENVIRONMENTAL WORK PROGRAM

1.0 Name and Address of the Applicant/Permittee/Contractor

Applicant: **RAPU RAPU MINERALS, INC.**

Address : c/o Rapu Rapu Minerals, Inc.
Suite 23 Legaspi Suites, 178 Salcedo St. Makati
Tel. No 813 4131 • Fax No. 893 9349

Contact Person: Rizaldy Palomaria
120 Lakundula Drive
4500 Gogon
Legaspi City
Albay

Tel: 052 480 9528

2.0 Type and Nature of Project

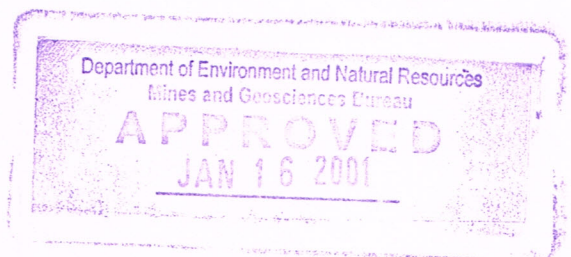
Type : Mineral Production Sharing Agreement (MPSA)
No. V-0192

The Project is categorized as Resource Extractive, i.e., Exploration Mining Ventures.

2.1 Project Description (objectives, schedule, and cost)

The objective is to conduct prospecting and exploration activities in an environmental, technical, responsible and acceptable manner. The activities will consist of surface and subsurface investigation for the purpose and/or main objective of determining or ascertaining the existence, quality, quantity and kind of mineral resources present on the area applied.

Surface activities as indicated in the exploration work program consist of geological mapping/sampling, geochemical survey, topographic survey, and geophysical survey. Should assay results indicate encouraging data that would warrant sub-surface investigation, then test pitting, trenching and diamond drilling would be implemented on areas that show significant mineralization.



The exploration period will start upon approval of the application. It shall have an initial term of two (2) years effective from the date of issuance of the MPSA, renewable for another two periods of (2) years each. However, under the provision of the Mining Act Law it shall not exceed eight (8) years. Extension of the exploration period will be depending on the sufficiency of data or information obtained for feasibility study purpose and the compliance of the terms and conditions of the MPSA contract.

Project Cost

The total cost of the project during the two (2) year exploration period is estimated at **PhP 36,483,431.00** broken down as follows:

Year 1	PhP	14,840,306.00
Year 2	PhP	21,643,125.00

Grand Total	PhP	36,483,431.00

Please refer to the attached Exploration Work Program for details (refer to Annex A)

2.2 Type and nature of mineral deposit(s) to be explored and mineral(s) to be derived

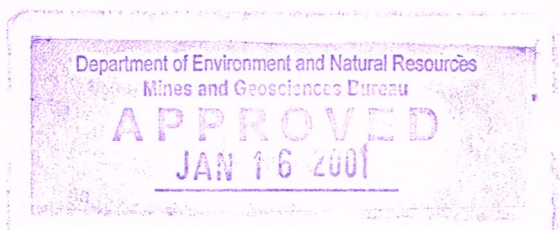
Mineral Deposits: Gold, Copper, Zinc, Silver and other associated minerals. The known deposits are of the Volcanic Massive Sulphide (VMS) base metal type.

3.0 General Location and Area to be covered by the Proposed Permit/Contract Area

3.1 Location and Accessibility

The tenement lies east of Legaspi City situated and bounded by geographic coordinates as follows:

Barangay of	:	Carogcog, Sta. Barbara
Municipality of	:	Rapu-Rapu
Province of	:	Albay
Island of	:	Rapu-Rapu



Geographic Coordinates:

The geographic coordinates is from Latitude 13° 10' 30" to 13° 13' 30" N and from Longitude 124° 09' 30" to 124° 13' 00"E, more or less. Please refer to the attached Map Scale 1:50,000 affixed with technical description of the area marked as Annex "B".

Accessibility:

The Philippine Airlines provides daily B 737 service to Legaspi from Manila with a flying time of approximately 45 minutes. A daily scheduled ferry and motorized banca (small outrigger boat) service provides access to Rapu-Rapu town from Legaspi City. Travel time is 2 to 4 hours depending on vessel type and weather conditions. Small fishing vessels may be chartered in Rapu-Rapu wharf/pier docks to provide access to outlying villages on the coast of Rapu-Rapu. Travel time from Rapu-Rapu pier dock to Barrio Malobago, the landing area for base camp at the Barrio of Pagcolbon, is 40 minutes to one (1) hour by motorized fishing banca. A limited road network within the application area has been established during the Hibxar Mining operation which connected the loading facility in Sta. Barabara with the Mine Site. In several consecutive exploration phases drill access was provided through approximately 3 – 5 m wide roads connecting the former Hixbar Mine site with exploration targets in Hondo, Deblois, Spanish Area and Ungay-Malobago. This road system can be still utilized providing maintenance repair works. Landed on Rapu Rapu Island, the western boundary of the application area can be accessed via Malobago and the Ungay-Malobago exploration site using the existing road system.

3.2 Total area covered by the MPSA

The MPSA comprises an area of **1,585.8083** hectares more or less.

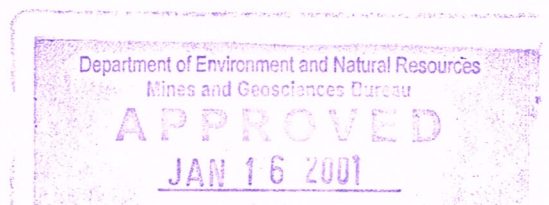
4.0 Description of the Existing Environment where work is proposed to be undertaken

4.1 Land Environment

4.1.1 Topography/physiography

The topography of the area is moderate to rugged with dominantly northwest trending ridges. Elevation within the claim area varies from 0 to 512 meters above sea level.

The project site on Rapu-Rapu Island is affected by the northeast monsoons, which brings frequent rainfall from



October to mid-February. A period of drier weather occurs from late February to the later part of May followed by the southwest monsoon between June and September. Typhoons commonly strike the Island of Rapu-Rapu during the monsoon periods.

4.1.2 **Land use/Capability/Vegetation**

Elsewhere the forest has largely denuded by “kaingin” (slash and burn) agricultural practices. Only small portions of the land area are covered with coconut, banana, abaca and other fruit-bearing trees. Secondary and third growth trees are common along creeks and steeply dipping slopes. Wide portions of the project area are bearing cogon grass and shrubs.

Most of the application area is classified as alien disposable land. The central northern portion of the applied area is within the declared Timberland, Block-1 under LC Project No. 17. The Hixbar area is classified as mineral land since mining and exploration activities from the 30’s until the 90’s.

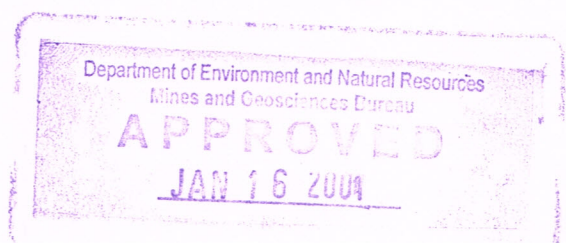
There is presently no updated land use plan available. The Municipality of Rapu Rapu is currently preparing the Land Re-Classification of the island. In this connection the Zoning Ordinance, a prerequisite, has to be passed by the concerned legislative body.

4.1.3 **Pedology**

The Rapu-Rapu Island is composed of rugged topography that is underlain by metamorphic rocks. The soils at the project site are classified as undifferentiated mountain soils at the upper area and Annam clay loam.

The area is shallow to deep, clayey and well drained. Run-off is rapid to very rapid. Erosion is moderate due to topography being steeper in slope and less vegetated. Soil fertility level is generally low to very low having low Ca/Mg content, low in available P and extractable K and marginal in organic matter content. The soil is normally classified as an Inceptisol for being young, high in soil activity and high base saturation percentage.

Future recorded pedology data will be included in the Quarterly report and will be submitted on a regular basis. A copy of the report will be furnished to Region V, MGB DENR-EMPAS offices.



4.2 **Water Environment**

4.2.1 **Water Quality**

Water quality samples will be collected regularly, at least once every month, at permanent designated locations along rivers or creeks where significant mineralization will be discovered. Water will be analyzed in regular intervals of its physical and hydro-chemical parameters such as, ph, total dissolved solids, total suspended solids, total hardness, total acidity, conductivity, temperature, alkalinity, sulphate, cadmium, calcium, magnesium, sodium, potassium. Analysis will also include the presence of other elements such as aluminum, iron, silica, copper, lead, zinc and mercury. If warranted, ground water samples from drill holes, water wells shall also be collected for similar purposes.

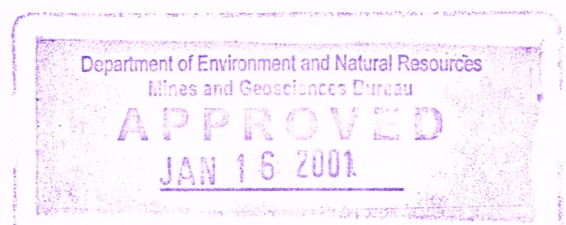
Water quality sampling shall also include potability tests for domestic use. These tests shall be conducted at least twice a year although this is dependent on the availability of suitable laboratory facilities in Legaspi City.

The aforementioned physical and hydro-chemical parameters shall be analyzed at the Mines and Geosciences Bureau laboratory Region-V, Legaspi City or if applicable in Diliman, Quezon City. The potability tests shall be coordinated with the Department of Health, Region V also in Legaspi City or the Provincial Hospital wherever is the nearest in view of the time limit of 6 hours required for water potability tests.

The environmental work program including results of the water quality tests shall be incorporated in the semi-annual status or accomplishment reports that will be submitted to the MGB/Regional office, EMPAS and other government offices concerned.

4.2.2 **Hydrology**

Regular water flow measurements and water quality sampling will be conducted at permanent designated stations along the rivers/creeks with significant mineralization. Water table measurement shall also be made on each diamond drill hole if applicable. These data are of specific needs for environmental applications, etc.



The major creeks and the tributary system within the applied area have dominantly dendritic pattern draining generally southeastward into the Albay Gulf. A dominant trellis pattern of the drainage system is apparently due to the schistosity and faulting of the rocks in the area. Water is available from the creeks the whole year round

4.3 **Climatology/Meteorology**

Collection of meteorological data shall be initiated during the exploration phase as these data may vary from month to month or year to year. Rainfall gauge can be installed in the conspicuous place or near the camp or field office. Rainfall measurement shall be recorded and filed.

These data are of specific needs for environmental applications, however, historical data of this nature can be researched from the Weather Bureau (PAGASA), Quezon City, and climatic data station of PAGASA in Legaspi City, Virac and Rapu Rapu.

Rainfall Records

The records obtained for Legazpi show an average annual rainfall of 3,348 mm with a standard deviation of 654 mm.

The rainfall records obtained for Virac show an average annual rainfall of 2,804 mm with a standard deviation of 786 mm.

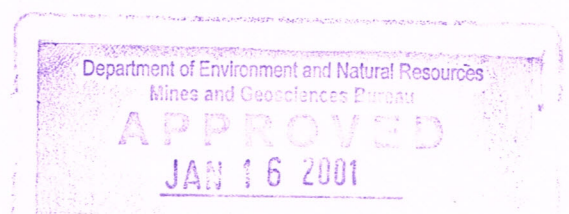
The rainfall records obtained for Rapu Rapu show an average annual rainfall of 3,496 mm with a standard deviation of 1,308 mm.

4.4 **Geological/Geomorphological Environment**

The Geology/Geomorphology of the exploration site comprises the following types:

Metamorphic Hills (MH) composed of the oldest underlying rocks known as the basement complex. These hills occurring in lowland areas consist predominantly of chlorite-epidote schists, quartzofeldspathic metasediments and micaschist. Minerals predominantly present are quartz, feldspar, chlorite, hornblend, mica and epidote with resulting soils of heavy texture.

Minor Alluvial Plains (MAP) are located in the upland areas. These were laid and confined along streams and tributaries scattered mostly in sedimentary areas. Materials mainly derived from from metamorphic



volcanic rocks with basaltic/andesitic litho-chemical composition. In upland collu-alluvial fan, the materials have shown the same derivative in lowland areas, only they occur directly on higher elevation (100 to 500 meters).

The Coastal Plain (CP) located in the coastal areas are mainly marine deposits. These are continuously accumulated by sea waves during low and high tides. Soil textures are mostly fine and loamy predominantly of rock particles that originated from pre-existing formations.

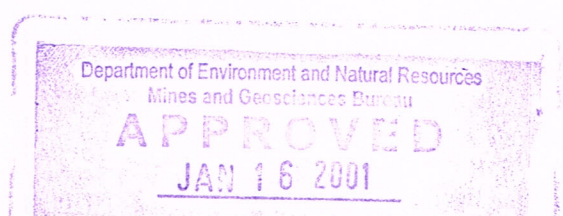
Geomorphological features of Rapu Rapu Island reflect a strong structural imprint influenced by regional fold patterns and bounding fault structures. The west-northwest elongation of the island, in particular follows the general structural trend of metamorphic foliation, fold axis, regional faults and lineaments.

The upland area in Karogkog, characterized by radial drainage pattern and nested conical hills at its summit region, appears to coincide with a radially symmetric antiformal structure. The moderate to gentle slopes at the summit becomes moderately steep to steep towards the coast and northern flanks around this local high.

I areas where the relief is much lower with undulating smooth and rounded ridges the drainage lines show a modified radial pattern. Slopes are typically gentle to moderate along hill slope areas, becoming steep to over-hanging along coastal cliff margins.

Landslide scars are ubiquitous, occurring as elongated and cusped-shaped features along steep hills lopes and upland areas, hollows at the head of tributaries, and along the outside bends of active streams and. Moderately thick soil profile, high rainfall and moderate to steep slope conditions are the primary contributory factors for the occurrence of mass movement processes in the area. Small slumps are particularly prevalent along road cuts and drill pad sites. Vegetation cover on hillslopes are dominated by grasses and isolated clumps of woody shrubs, which have limited soil retention capacity. Earth moving activities associated with road maintenance, and drill pad preparation can enhance sediment erosion at these sites. At drill pad sites, coco-fiber based geotextile mats will be utilized for erosion control and slope stabilization work.

The area is located in one of the most seismically active regions in the Philippines. Earthquake sources include the Philippine Trench and regional active faults, of which the Philippine Fault is the most notable. From historical records, a total of seven destructive earthquakes, intensity greater than VIII (Modified Mercalli Scale) or $M_s > 6.5$, has occurred in the region.



1988) are associated with subduction along the Philippine Trench (Thenhaus and others, 1994). Thickness of soil and alluvial cover, coupled with the predominantly coarse sand and gravel components of alluvial deposit, and relatively moderate depth (16m to 27m) of the static groundwater level suggests a low liquefaction potential in the project area. Exception is the alluvial coastal plain at the town proper of Rapu Rapu, which may experience minor and localized liquefaction phenomena during strong earthquake events. Limited lateral spreading may also occur along steep river embankments, particularly along the bank margins of alluvial terraces of Binosawan River.

4.5 Biological Environment

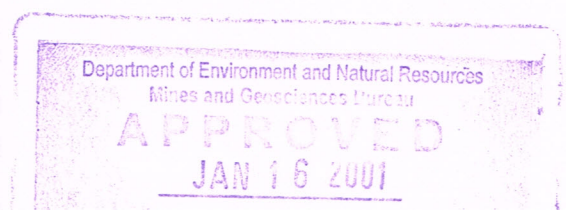
4.5.1 Terrestrial plants and animals

For environmental monitoring purposes, the recording of plants and animals observed in the application area shall be initiated during the exploration phase and records shall be kept which will include the following details:

- | | |
|--------------------|-----------------------------|
| 1. Species sighted | 4. Number |
| 2. Date and time | 5. Other/Specify |
| 3. Location | 6. Name of person recording |

An environmental baseline study has been carried out over the Ungay Malobago Prospect. Results of the aforementioned study will be partly of use for this application area and can be summarized as follows. The claim area, mined since WW II, was acquired by Benguet Corporation in the 1960s and then by TVI. Logging and the subsequent conversion of the land for other uses (kaingin and pasture) by their owners/trustees has resulted in a dramatic land use change. The forest was reduced to vestiges of low-volume riparian arboreal vegetation as grasslands already claiming the greater portions of the project site. The succession from natural cover to agricultural cover is becoming prevalent. The status of the grassland areas almost completely dominated by *Imperata cylindrica* is a result of annual burning of many areas.

Mammals observed in the area are domesticated dog (*Canis familiaris*), cat (*Felis doemstica*), carabaos (*Babbalus buffalus var. bhainsa*) and cattle. Stories have it that wild pig (*Sus scrofa*) and deers (*Cervus sp.*) used to roam the island of Rapu Rapu. The common house lizard, bubuli and variable monitor lizard (*Varanus salvator*) represent lizards. Toads (*Bufo sp.*),



Rapu. The common house lizard, bubuli and variable monitor lizard (*Varanus salvator*) represent lizards. Toads (*Bufo sp.*), tree frog (*Rana sp.*) and water frog (*Rana sp.*) represent the amphibians. Snakes include the common cobra (*Naja philippinensis*) and the reticulated python (*Python reticulatus*). Birds include maya (*Lonchura malacca*), quail (*Coturnix coturnix*), crow, hawk, bato-bato, kingfishers, pulangga, bakaw, yellow orioles and others. Crows are prominent. Nocturnal animals include the giant fruit bat (*Pteropus sp.*) and other volant mammals.

As for arthropods and other invertebrates, there are very limited representatives. Hermit crabs are the most dominant and dispersed species. Arachnids are represented by daddy-long-legs and several spiders. Lepidopterans include species of butterfly and moths. Hymenopterans include 4 species of ants and some bees. Dipterans include the common housefly and three wild and carnivorous species; and three species of *Aedes* mosquito. Beetles are numerous and vary with sizes and habitats. Hemipterans include bugs and water strider. There are likewise homopterans and grasshoppers.

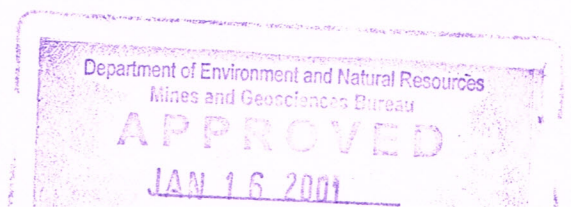
4.5.2 Marine plants and animals (including protists)

Aquatic fauna includes the common eel (*Anguila marmorata*), guppy, and goby. Benthic community is dominated by naiads of dragonflies, mayflies and damsel flies. Water snails are present. Shrimp (*Penaeus sp.*), freshwater crab, and hermit crab represent mollusks.

The records under item nos. 4.5.1 and 4.5.2 shall be incorporated in the semi-annual status/accomplishment report to be submitted to MGB/Regional office, EMPAS and other government office concerned.

4.6 Socio-economic Environment

The total population of Rapu-Rapu Islands comprises more or less 30,000 residents accounted from 36 barangays as recorded from the last statistics conducted in 1996. The Poblacion Rapu-Rapu, which is located on the main Island, has the second largest population next to Batan Island with 8,000 to 9,000 residents. The municipality is ranked 4th class in the whole Province of Albay with an average income generation of less than 1 Ph Million per year.



Eighty percent of the population on the island are engaged in fishing and the rest generate their income from farming. Abaca and coconut are the most common agricultural livestock in the interlands. Health service is provided in Poblacion in form of the Municipal Hospital. Remote situated Barangays experience health service in form of medical missions.

Electric power supply in the island is insufficient and is normally supplied by diesel powered - generator sets. Natural springs are sources for potable water facilities. Except from Poblacion and the present exploration site at the Ungay Malobago prospect with road network, only foot trails connect the Barangays and settlements.

There are no Indigenous Peoples located within the claim area.

5.0 Description of Exploration Work

5.1 Description of exploration method(s) and equipment to be used

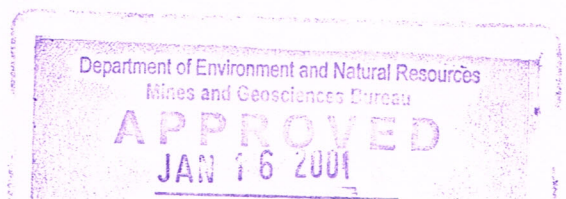
5.1.1 Reasearch

Recent and historic geological information obtained from previous mining and exploration groups who operated and studied Hixbar, Hondo, Ungay-Malobago as well as the rest of Rapu Rapu Island will be compiled and reviewed.

5.1.2 Reconnaissance / Regional Geological Mapping

Approximately fifty (50) line kilometers of Airborne EM and Magnetic survey are planned over the prospect area to give information about the general geology, structural control, mineralization and alteration pattern of the application area. No environmental hazards are associated with this program.

Further regional reconnaissance studies include geological mapping survey as an effective method in delineating mineralized areas. It will becarried out over the 1,585.8083 hectares application area along the creeks, trails, road cuts and outcrop. Detailed mapping will be conducted on selected areas after identifying the significant occurrences of mineralization. The result will be used to plan targets for sub surface evaluation such as test pitting, and diamond and Reverse Circulation (RC) drilling.



Field geologists and geological mappers will be aided with magnetic compass, measuring tape, sample pick and Global Positioning System (GPS) a modern surveying instrument

5.1.3 Geophysical methods:

Fixed Loop Time Domain electromagnetic (TDEM) and gradient IP geophysical survey array will be carried out over a portion of the application area, still to be identified through regional surveys. This is a confirmatory activity to justify sub-surface investigation. The geophysical survey will be utilized along 20,000 linear meters (20 km) on 50m x 50m grid totaling an area of approximately 100 hectares. Results will be illustrated in maps showing the geological environment which, correlated with other data obtained, will be the basis for planning of the succeeding exploration activities.

5.1.4 Surveying Activities:

Surveying is an integrated part of exploration. The survey crew will establish intervisible control stations on proponent knoll and ridges where visibility is clear from all direction. The station is made of pre-fabricated concrete monument and is provided with a tripod or range pole as target for line of sight. The location is selected where cutting of trees will be minimal.

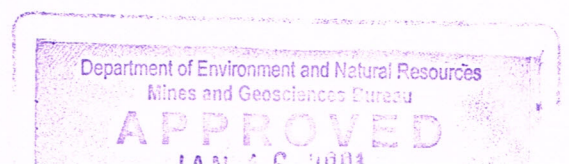
This control station will be used as reference point to locate gridlines, test pits, drill holes, the point of geological mapping, trail and road locations, etc.

Topographic survey will be conducted on area where significant mineralization will be discovered to be determined as the exploration progresses.

The survey instrument to be used is Total Station complete with accessories utilizing digital computation of coordinates and elevations from and to occupied stations.

5.1.5 Others and/or Sub-surface Investigation

Subsurface investigation such as test pitting, trenching and diamond or Reverse Circulation (RC)-drilling will be carried-out upon the completion of the detailed mapping, geochemical survey and interpretation of results which will be decided as exploration work progresses.



5.1.5.1 Test Pitting/Trenching:

The use of test pits or trenching will depend on the exposition of outcrop/mineralization and ground condition. The location should be carefully planned/designed in such a manner that will provide the required geological information and with minimal surface disturbance on vegetation, surface, drainage and erosion. The test pits, dimension is about 1 meter square with variable depth or down to bed rock while the trenches dimension is about 1 meter wide with variable length and depth or down to bedrock.

The tools and implements to be used are crow bar, shovel, bucket, pulley, nylon rope and sample pick.

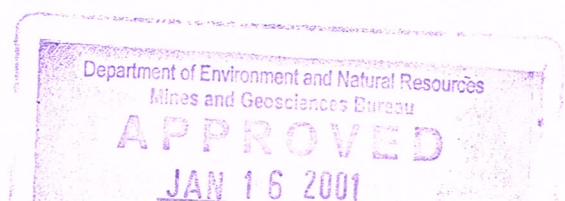
The four walls/sides of the test pit/trenches shall be mapped and channel sampled.

5.1.5.2 Core Drilling/ Reverse Circulation Drilling

The use of diamond drilling with variable depth for each hole, location, intervals, direction and number shall be determined as the exploration activity progresses. The objective is to determine the depth, and lateral extent of mineralization.

The access route and location shall be carefully planned with the objective of minimizing surface disturbance, by considering the following criteria:

1. The required width of access road for a drill machine is only 5 meters.
2. The multi purpose-drilling machine is track mounted and measures about 3.5 x 7.0 meters. It is equipped with winch mechanism, pulley, cable rope attached to the winding drum and it can travel by itself with its accessories loaded on its side.
3. The drill machine can travel as high as 30% slope or gradient of road.



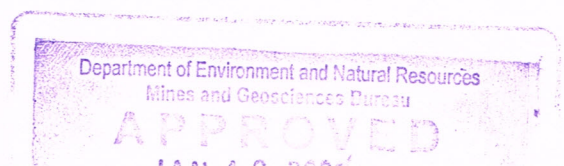
4. The space requirement for a drill site is 10 meters wide x 15 meters long.
5. The drilling rig is equipped with tiltable drill mast made of strong steel mounted to the machine.
6. Clearing of obstruction for access route and excavation of drill site to mount the drill machine will be prepared by bulldozer. Wherever applicable, excavation will be done by hand tools.
7. Either the multi-purpose-drilling machine will use compressed air in case of reverse circulation method or circulating drill fluids in case of core drilling. The device will be using diesel, oil, lubricant, whereas drilling mud and cement are consumables supporting the core drilling progress.

Auxiliary compressor and booster will support RC drilling if applicable.

8. In case of diamond coring, the drilling machine will be using water that will be sourced out through either gravity or pump and will be contained in a water tank near the drill site. Circulating water from the drill hole will be screened to collect sludge and cuttings before directed to a storage tank measuring 1.5m in diameter and 1 meter in height or to an excavated sump, usually with a dimension of 1 meter square opening x 1 meter height depending on the volume required. The water will be recycled back to the machine by means of a portable water pump.

5.2 Preliminary processing of samples

All samples from soil sampling, test pitting, trenching and drilling shall be kept in a core house. The core samples will be placed in core boxes properly labeled and stored in the shelves. Drying, screening and quartering of samples will be done on site. Manual splitting of core samples will also



be done there. Quarter core samples will be sent to a recognized laboratory for analysis. Half core samples of significant ore grades will be sent for metallurgical test work. The remaining quarter core samples and the other three quarter core samples shall be retained in the core house for safekeeping and future reference. RC drill samples and/or reject samples shall be retained placed in plastic bags, properly labeled, sealed and placed in the core house for safe keeping and future reference.

Sample preparation equipment to be used is gas stove, drying pan, diamond blade core cutter, sieve, sledgehammer and other protective gadgets with necessary accessories.

5.3 **Namria Map** - Scale 1:50,000 showing the location of the area applied, drainage system, topography, coordinates and other environmental features.

5.4 **Estimated Exploration Costs**

The initial annual budget for the two-year exploration work program is as follows:

Year 1	PhP	14,840,306.00
Year 2	PhP	21,643,125.00

Grand Total	PhP	36,483,431.00

Please refer to the attached Exploration Work Program for details. In addition, please see attached Ghannt Chart

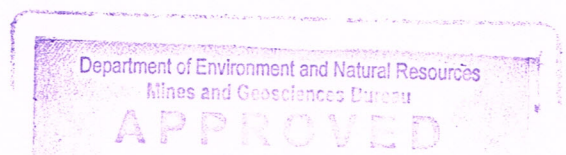
The annual budget will be updated as a matter of standard operating procedure.

6.0 **Identification of Potential Environmental Effects**

6.1 **On land**

6.1.1 **Surface disturbance off the mineral property**

Surface disturbance off the mineral property is expected to be minimal. The exploration crew vehicle will only travel up to the existing road. A rehabilitation of the existing road going to Hixbar will be included during the two- (2) year exploration program. This will give access to other exploration activities/work that will further warrant the possible existence of a mineral deposit within the applied area. The field camp will be set up or from existing facilities, will be rented if applicable within the vicinity of the project area.



6.1.2 Surface disturbance on the mineral property

6.1.2.1 **Grid line for geophysical surveys and soil sampling** - No indiscriminate cutting of trees or vegetation along the line will be undertaken.

6.1.2.2 **Sump for storage of used water from the drill machine** - Care will be taken to avoid indiscriminate digging and storage of excavated material that would alter the ground surface..

6.1.2.3 **Road access for drill machine, its impact on cutting of trees, vegetation and soil compaction** - Construction of road access indiscriminately will entail surface excavation, cutting of trees along the route and soil compaction along the wheel tire pathways.

6.1.2.4 **Test pits** - Construction of test pit will entail excavation of topsoil down to the bedrock. Indiscriminate digging and disposal of excavated materials will alter ground surface and possible soil erosion and siltation. Unprotected test pit opening will pose hazards to the residents and animals in the area.

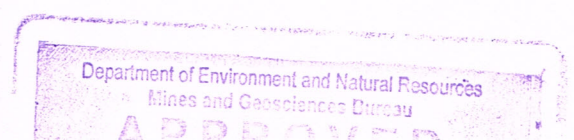
6.1.2.5 **Drill site, drill machine operation, using diesel, fuel, and lubricants, mud drilling, cement and smoke emissions.**

- Drill site preparation will entail excavation and if done indiscriminately will cause surface disturbance and possibly erosion; installation of water pipe line.

- Drill machine operation using diesel fuel, oil and lubricant and if done indiscriminately without regards to safety in handling/transporting and storing will cause spillage's, soil and water contamination.

- Mud drilling and cement are both similar. It is being pulverized and packed in a paper bags about 40-45 kilos. If handled insufficiently during transport/handling and storage possible spillage may cause contamination of solid surface and water.

- Smoke emission is normal for any engine in operation. If no adequate muffler or silencer is installed sufficiently



above the ground level, smoke will scatter indiscriminately and engine noise will hamper effective communication between workers.

6.1.2.6 **Construction of temporary camp facilities** - will entail putting up of roofing, walls and kitchen stall, toilet and garbage pit, drinking water container.

6.2 **Potential environmental effects of exploration activities on hydrology and water quality**

6.2.1 **Potential generation of acid rock drainage**

The possible sources of acid rock drainage could either be the result of indiscriminate and uncontrolled test pitting and drilling where sulphide debris in run off water might oxidize, since acid rock drainage is the result from oxidation of sulphide minerals upon contact or exposure to water and air.

6.2.2 **Potential siltation and pollution of surface waters**

The possible sources of siltation and pollution of water are the uncontrolled drainage from access road, drilling activities, excavated materials from test pits, campsite, and indiscriminate panning of heavy metals may cause water discoloration.

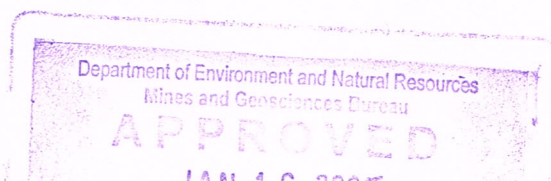
6.2.3 **Potential changes in hydrology**

Ground or surface water quality could be affected near or at the working area as a result of drilling and other exploration activities.

6.3 **Potential effect of Exploration activities on the Ecology**

If not controlled, exploration activities including line cutting for geophysical surveys, earthworks during test pitting, trenching and drilling, usage of petroleum products, reagents, and personnel could impact the quality of surface and ground water within and downstream of the Project site. These potential impacts are:

- a) Denudation with surface exposure and consequent soil erosion,
- b) Increased turbidity of the creeks and creek mouths and along the coast due to soil erosion from the earthworks,
- c) Acid mine drainage,
- d) Potential discharge of heavy metals,
- e) Potential contamination of water sources with oil and grease from drilling equipment and



- f) Potential contamination of water sources with sewerage and domestic waste.

The possible sources for negative effects on the ecosystem are line cutting, access and site preparation, the construction of camp facilities including administration building, contractors' quarters, and staff houses, bodega, generator house etc. This will entail cut-and-fill operations. Geologic hazards in the form of slope failure, mass movement, sedimentation, and flooding may be created in the absence of a sound earthworks and drainage design. This is not expected because the project proponent will undertake the necessary geo-technical and hydrological assessments with regards to the impact of exploration activities. Ongoing rehabilitation including limited cutting of vegetation during gridding activities, stockpiling of topsoil material during excavation, application of coco-fiber anti-erosion matting and immediate re-vegetation of abandoned exploration sites shall mitigate negative environmental effects in terms of erosion, siltation and water contamination.

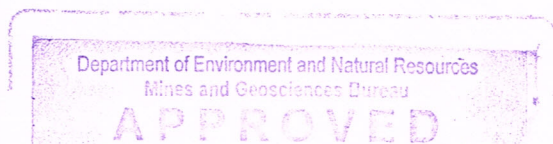
Modification of the natural drainage system will be limited to insertion of culverts along the road access. The change in landform can be implicated in the site preparation though a significant inevitable alteration of the topography is not likely during this exploration stage, since earth works for drill site and camp preparation are of limited size.

Acid Mine Drainage (AMD) shall be prevented through proper and instant rehabilitation of excavation areas with potentially AMD generating rock types. Dry storage of acid generating sample material will be mandatory to avoid AMD.

Proper handling and of petroleum product through trained and supervised personnel will be implemented to avoid contamination of soil and water as result of spillage. Petroleum products will be stored in adequate sealed drums, containers and tanks.

Containment of sewerage in underground septic tanks and solid waste management including garbage collection, containment and thermal treatment shall be maintained to provide clean environment within the exploration area.

Noise will be mainly generated by the operation of equipment like drilling machine vehicles or generators. Low noise level will be obtained by selecting quieter procedures or machines and implementing noise control features. Specific environmental management measures to mitigate the impact on the ecology are discussed in the context below.



6.4 **Potential effects on the Socio-economic structures due to the presence of exploration activities:**

- a) **Life style of locally hired employees** - most non-technical workers will be hired from the locality. As such, it is expected that their respective life style or mode of living will positively change or improve as a result of fix income during their period of employment.
- b) **Increase of revenue** - It is expected that an increase of revenue will be realized or deriving from income tax payment, payment of business permit, payment of community tax certificate of all employees, professional tax receipt, payment of SSS premium, etc.
- c) Small scale buy and sell ventures in the locality will flourish due to increase of demands for food supplies.

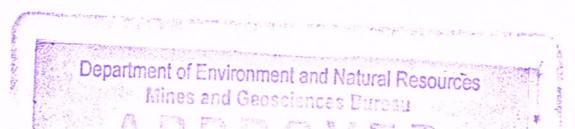
7.0 **Environmental Management Measures Including Total Costs**

7.1 **Progressive rehabilitation/restoration of areas subject of exploration and related activities.**

7.1.1 **Access route/road for drill machines off and on the mineral property that may start from the provincial road.**

The following criteria shall be considered if there is a need to construct access road so as to minimize landform disturbance and the mitigating measures to undertake to wit:

- 1. Check with local government agencies regarding resolutions, restrictions and government requirements related to access road constructions.
- 2. Check surface landowner and determine vegetation, plants and other improvements.
- 3. Settle and pay disturbances compensation if any.
- 4. Plan and use existing trails/road to maximize advantage of usage of the trail or road for both residents and exploration activities but with minimum level of construction and disturbances. Take advantage of land form/contour configuration and avoid vegetation disturbance if possible.



5. Avoid areas prone to erosion, watercourse, plants and other improvement if any.
6. Clear right-of-way, plants, wood and debris in an orderly manner, dispose debris by disposing and burning on a safe place.
7. Provide drainage or ditches but maintain natural drainage pattern to prevent siltation.
8. Any disturbed surface shall be re-vegetated with species common or suited in the vicinity
9. Drainage/ditches shall be inspected and cleaned especially every after heavy rain.
10. Affected slopes will be covered by coconut fiber mats to prevent soil erosion.

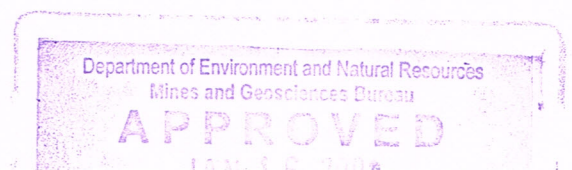
7.1.2 Grid line layout for geophysical surveys and geochem sampling

The following guidelines shall be followed in laying out grid lines such as but not limited to:

- a. Avoid unnecessary brush cutting and blazing of trees. Cut grid lines sufficient for line of sight.
- b. Upon completion of survey, remove any materials that may endanger lives of wild life, animals and local residents.
- c. Avoid throwing of cigarette butts that may cause forest fire.
- d. For geochem sampling point, the hole shall be back filled after getting the required sample.

7.1.3 Sump for used water from the drill hole

The storage could be either a portable water tank or a sump to be excavated. The excavated materials or soil shall be properly stock piled safely around the opening and be provided with sufficient base so as not to be eroded. Same materials shall be used as topsoil and as back fill materials for same sump upon abandonment of the drill site. The sump should be of adequate size and capacity to avoid over flowing and spillage. The clean water overflow from the sumps shall be returned to the water source. The sumps shall be



allowed to dry out and then back filled with suitable material before being covered with topsoil and re vegetated.

7.1.4 Test Pits/Trenches

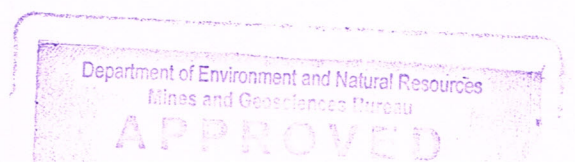
Careful planning is necessary to identify sites that will provide the required information with minimal disturbance and to ensure safety both for animals and local residents. The safety measures shall be implemented as follows:

1. Clear the surface of any vegetation, debris for the opening and stock pile of the excavated materials. Separate the topsoil from the other over burden materials. This material must be protected by a retaining wall or other acceptable means.
2. The opening of the on-going test pits shall either be barricaded or covered by lumber, branches of trees such that the opening will not be a hazard to people and livestock. Lumber can be obtained either from the tree cut along access route or from a licensed lumber dealer or construction store available in Legaspi.
3. Surface drainage shall be diverted around or away from the disturbed surface.
4. After geological data, sampling, etc. are obtained, all trenches and pits will be back filled and restore as much as possible to its origin. Surface will be covered with topsoil and later re-vegetated. Surface excavation will be done manually to minimize damage and control moving of earth materials.
5. All garbage or human waste will be properly disposed and sanitized to maintain a good health working condition in the area.

7.1.5 Site preparation, drill machine operation, usage of fuel, lubricants, other consumables like drill mud, cement, emission of noise and smoke.

The following mitigating measures shall be undertaken during the Drilling Operation:

1. **Preparation of Drill Site**



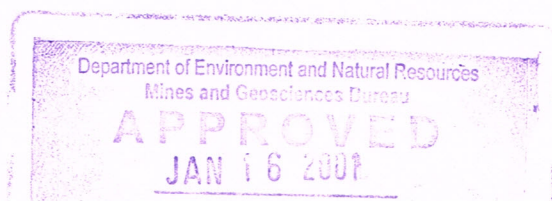
A stable ground will be selected when ever possible in coordination with the surface landowner. Crops and surface disturbances will also be compensated. A minimum area of drill pad will be utilized hence, a 10 x 15 meters drill pad is required for a safe working area. Topsoil and overburden will be removed and stock piled for rehabilitation measures when drill site is abandoned.

Water lines will be installed if ever necessary to support the operation to protect surface and vegetation cover disturbance. Excess use of water will be prevented by installing shut-off valves. A proper water drainage will be constructed away from the existing creeks and will be supported by sump to accommodate drill mud spillage.

2. **Drill Machine Operation**

- 1) **Noise/Smoke emission** - The exhaust pipe shall be maintained in good condition and will be provided with a sufficient muffler or silencer to minimize unnecessary noise emissions that will help in effective communication between workers. The smoke stock discharge will be high enough (i.e. 5 meters above the ground) such that the smoke emission shall be directed towards the sky and the smoke be desipated above.
- 2) **Fuel, Oil and Lubricant** - will be contained in a suitable closed containers when being transported/transferred or stored. Transfer hoses will be provided and will be drained into the containers.

Fuel containment at drill sites will be provided, i.e., the drums will be placed in an elevated platform for safety and convenience. In this manner, the underneath could always be cleaned every now and then. A container with a funnel can also be placed below the opening or screw cap of the drum to catch/trap any spillage. As a precautionary measure provide a competent barrier or slab made of piece of lumber or stone where to place a container with a funnel when drawing out fuel from the fuel drum/container. The platform must be placed sloped away from any watercourse. Ensure proper spill handling tools like trays, shovel or open



can/drum that should be of sufficient capacity to hold accidental leaks and spills.

In case of spill or leak, the spill must be contained and absorbed along with any contaminated soil. Any contaminated/leaked material regardless of volume must be collected and burned. The corresponding area shall be reclaimed and rehabilitated.

- 3) **Drilling mud** - will be transported/transferred in sacks to avoid breakage of the bag. The drilling mud will be stored in a safe place. The drilling mud shall be properly placed in the mixing tank and mix only what is required for the drill hole. The drilling mud is similar to cement, the use is to seal off the wall of the drill hole to ensure that water used in the drilling operation will not leak to the under ground.
- 4) **Cement** - will be used for cementing collar holes after the drilling is completed. It is use to plug or sealed off the hole opening. Selected holes will be used as piezometers are provided with a 2" diameter PVC pipe and closing cap. In this manner, water table can be measured using a calibrated rope. Water sample can also be taken by using a bottle tied to a rope and dropped into the hole until the bottle is filled up with water. The water is transferred to the water sampling bottle for water analysis purposes including determination of acidic rock drainage.

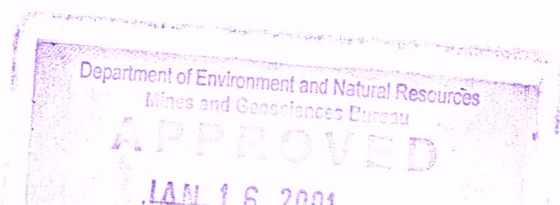
7.2 **Management of stockpile of excavated and removed earth, if any, to prevent dust and siltation problems.**

7.2.1 **Dust prevention caused by stockpiled excavation material.**

To prevent dust generation, stockpile will be sprinkled sufficiently with water. Water usage will be limited to avoid saturation of the stockpiled earth material.

7.2.2 **Mitigating measures to prevent siltation from stockpile are as follows:**

1. Surface drainage shall be diverted away from the stockpile of excavated materials.



2. A retaining wall or some other acceptable means will be constructed to protect stock piled materials from slumping.
3. The stock piled materials will be back filled to its origin. Topsoil will be spread evenly over the surface and will be re-vegetated/replanted with plants suited to it.
4. A sump or silt/sediments trap will be provided to catch or entrap any silt that may accidentally flow in case of rain.

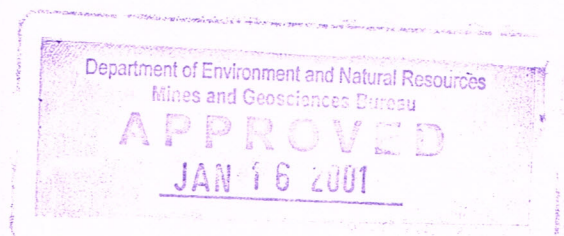
7.3 Maintenance of road to minimize dust.

Access roads if applicable should be kept moist to minimize the generation of dust. Proper drainage systems shall be installed to maintain the road.

7.4 Handling of toxic and hazardous materials, if any, including an Emergency Response Program.

7.4.1 The proper handling of fuel, oils and lubricants

1. All petroleum products will be contained in suitable closed containers.
2. Fuel oils, lubricant and mud additives will be transported/transferred and stored in a closed container. Handling shall be with every precaution to prevent accidental spills and loss. Transfer hose will be drained after use into an empty container.
3. Fuel, oil and lubricant storage facilities will be provided with a roof, will maintain cleanliness and provide sufficient working space.
4. Spills or leaks will be controlled by providing a berm around storage area and provide fluid/water pumps or portable operating equipment. Drip pan will be of sufficient capacity to hold accidental leak and spills. Another alternative is to provide/place plastic or cellophane mat under the storage area to catch or collect accidental leak or spills and to prevent surface soil or water contamination. Plastic mats are re-usable after cleaning. Any oil collected shall be placed in a container that shall be disposed together with the used plastic at the closest waste disposal site.



5. In case of a spill or leak, contaminated soil will be contained. Any spill and contaminated soil regardless of volume will be collected and disposed of in an environmentally responsible manner i.e., burn the contaminated soil by placing flammable material on top and set fire. Surface affected by spills or burnt will be rehabilitated to its origin. It will be covered with top soil and revegetate with fruit trees or other species suited for the locality.
6. Fire extinguisher will be provided for each drill machine.
7. The drill company will ensure that appropriate spill handling gadget are in place and that all exploration crew are familiar with their use.
8. In case of skin allergy or infections of whatever kind and nature, a doctor or medical staff nearest to the project site will be consulted for first aid purposes and/or treatment. A first aid kit will be made available during drilling operation.

7.4.2 Handling of potential acid rock drainage from exploration excavation/drilling:

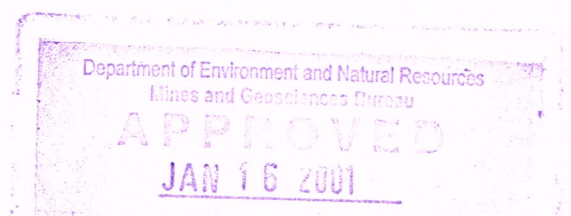
Acid Rock Drainage (ARD) results from oxidation of sulphide minerals upon exposure to water and air. ARD occurs in areas with previous mining activities such as old adits, shafts, tunnels, waste rock stockpiles from underground workings and tailings.

The exploration activities may cause the generation of ARD through excavated materials from test pits, trenches or core material from drill holes.

To prevent occurrence of ARD from stockpiled materials, proper drainage will be constructed, surrounding the stockpile in such manner, that water will not accumulate around the base of stockpile and dry vicinity can be guaranteed.

To prevent occurrence of acidic rock drainage from the test pits, the following mitigating measures will be implemented:

- a) The opening will be provided with a canvass shade so that rainwater will not accumulate inside/bottom of the test pits in the course of digging.



- b) After sampling, mapping and completion of geochemical assessment, the excavated material will be back filled and the test pit area rehabilitated.
- c) The topsoil will be properly spread and revegetated or planted with tree seedlings. In this manner the occurrence of acidic drainage can be minimized.

To prevent occurrence of ARD from drill holes the following mitigating measures will be implemented:

- a) Drill hole collars will be plugged with concrete cement so that no run off or rainwater can enter the drill hole.
- b) The drill hole intended for measurement of water table and water analysis shall be cemented and be provided with a 2" PVC pipe with screw cap, which could be opened when measuring the water elevation with a calibrated rope. An empty bottle tied to a string can be used to get water inside the hole through this opening for water analysis purposes.
- c) During drilling operation necessary sump will be prepared to contain spillage of drilling mud in case there will be excess use of it.

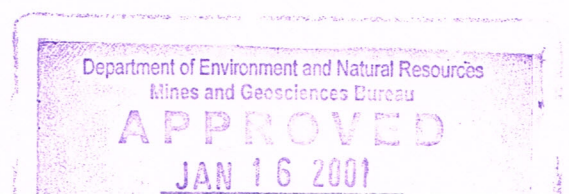
However, based on experiences, sulphides are mostly deep-seated, thus, it is not encountered in shallow excavations, hence, the possibility of acidic rock drainage occurrence at excavations sites for drill pad preparation, test pits or trenches is minimal.

7.5 **Accommodation and other economic activities in the area.**

Our exploration project staff are receptive to whatever economic activities in the community will endeavor to undertake, on barangay level, municipal level and provincial level that will be beneficial to populace. Proponent project employees are oriented to promote, encourage and assist community development projects with in their means, they are considered as Ambassador of the Proponent within the local community.

7.6 **Alternative plans in case special habitat of flora and fauna are affected.**

Probably the easiest way as an aid in environmental monitoring is to accomplish religiously the flora and fauna logbook similar to log book for terrestrial plants and animals, Item No. 4.5.1. The information that will be recorded in the logbook shall also aid in determining the composition of the



local forest and how the local forest, other dwelling areas are being used by wild life, etc.

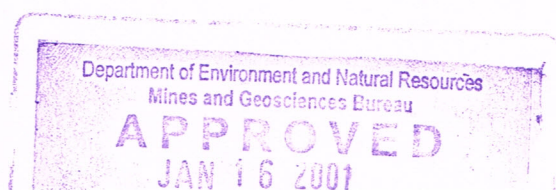
Should there be habitat of flora and fauna are to be affected, safety measures suited to preserve their respective habitat and existence shall be undertaken accordingly.

7.7 Socio-economic mitigating measures such as.

7.7.1 Plans for information and education campaign about the project, dialogue between the company and the population regarding compensation during the exploration phase:

The exploration project in-charge and staff are required to:

- a) To implement the exploration work program as per schedule and take into account the potentially sensitive areas associated with government projects and local inhabitants and/or surface owner (indigenous cultural community (ICC) and non-ICC.
- b) To be familiar with all statutes, regulations, resolutions (Barangay, Municipal, & Provincial), guidelines, and permit requirements governing mineral exploration in the locality where the project is situated. Before the start of the Exploration Work Program, the proponent ensures that necessary permit and consents (verbal or written) from the concerned government offices are acquired properly.
- c) Investigate the local and surface ownership where Exploration Work Program is to be undertaken to avoid misunderstanding with the surface right owners. Discuss with the government agencies the proposed program.
- d) Maintain a cordial relationship and open communication with the local government officials and surface owners/representatives. It is necessary to keep them informed of the activities as required.
- e) An authorized representative from the company shall attend the Barangay and municipal meetings to observe and be aware of the community agenda.
- f) Local qualified residents and surface owners shall be given first priority regarding employment.



- g) The compensation for the employees shall be the minimum wage approved and implemented by the Regional Tripartite and Wage Board.
- h) All project employees shall be covered by SSS and Medicare schemes.

7.7.2 Working Environment and Protection Measures for employees:

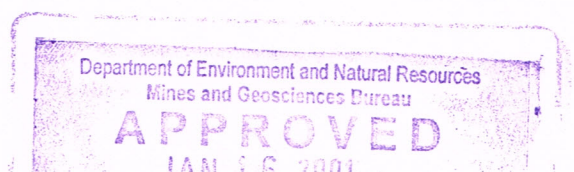
The project in-charge and staff are required to provide and implement the following mitigating measures on the following.

A. Camp Sites:

- 1. Provide a well safe temporary or permanent camp for staff. Camp should be constructed and operated in accordance to the existing municipal laws in such a way that it would maintain a healthy environment.
- 2. All camps shall always observe and maintain cleanliness, sanitation both inside and the surrounding backyard.
- 3. Provide sewage treatment facilities.
- 4. Camp wastes will be collected and disposed properly in such away that good sanitation is always maintained. A garbage pit with cover will be constructed to accommodate space for the waste materials. Once filled up, the garbage pit will be back filled with sufficient topsoil. It will be re-vegetated with plants and fruit trees.

B. Test Pits/Trench

- 1. Maintain safe and clean working conditions.
- 2. Provide lumber support on loose ground. Lumber shall be obtained from a license lumber dealer available in town.
- 3. Provide safety ropes and ladders.



4. Provide safety gadget, like, skull guard, safety rubber boots and hand gloves.
5. Provide canvass roofing to protect workers inside from rain and heat from sunlight.
6. Install perimeter fence (i.e. rope, twigs or branches) around the openings to avoid any accidents.

C. Drilling operations:

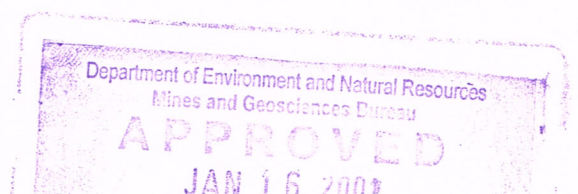
1. Install a silencer or muffler at the exhaust pipe to keep noise pollution to a minimum. This will facilitate/enhance better communication among the workers.
2. Keep the working area clean and maintain sanitation at all time.
3. Maintain the machine in good working condition.
4. Keep the drilling consumables, fuel, oil and lubricant to its proper and designated location.
5. Keep and maintain tools, spill handling and control gadget operational at all time.
6. Provide safety paraphernalia during working hours, like, skull guard, safety rubber boots, first aid kits and safe drinking water container.

7.8 **Abandonment** - measures and procedures after the conduct of exploration with cost-estimate.

7.8.1 **Exploration project in-charge and staff shall implement the following guidelines for abandonment and rehabilitation of exploration activity/ies to wit:**

A. Camp Sites:

1. All camp wastes shall be burned and buried in a garbage pit and will be back filled and provide with topsoil and plant fruit trees. The surface should be



tilled to break the compacted surface before revegetation. Plant appropriate fruit trees in coordination with the surface claimants if any.

2. Leave campsites that are to be used for future operation in clean and tidy conditions.
3. All temporary structures shall be removed and disposed off in an environmentally acceptable manner.

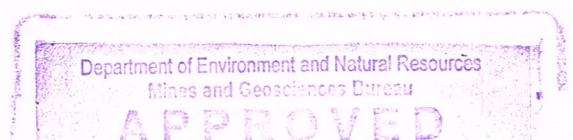
B. Access Road:

The following mitigating measures will be implemented in case construction and abandonment of roads will be executed.

1. All abandoned access road will have a system of permanent erosion control. I.e., canal culvert, retaining walls intended for use in the future will be constructed upon acceptance by the surface claimants.

If not, all culverts or bridge shall be removed and watercourse shall be restored as nearly as possible to its original condition.

2. Abandonment activities will be undertaken in a manner that it will minimize sedimentation of watercourses.
3. All abandoned road, will be cultivated, if necessary to break the compacted surface and be planted with fruit trees, plants and revegetated in coordination with the surface claimants if any
4. All abandoned road will be ditched at their junction with permanent roads to prevent vehicle access/entry.
5. In case new roads will be constructed, appropriate drainage system will be undertaken to ensure a well-protected environment.



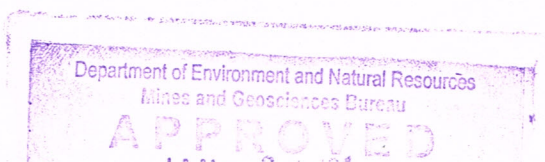
C. Drill Sites:

1. All empty cans or fuel drums, etc. will be removed and stored in the main camp for future use. Damaged drum shall be cut and flattened which can be utilized to its usefulness such as wall or sidings of dwelling.
2. All garbage or refuse will be burned and/or buried in a pit, back filled and re-vegetated.
3. Compacted surface will be cultivated and re-vegetated accordingly.
4. Drill sumps will be back filled and restore the topsoil and re-vegetate.
5. Contaminated surface with oils or drilling fluids shall be excavated, back filled to the sump or pit. Replace it with topsoil and re-vegetated.

D. Storage area for drill core samples active or rejected samples.

Drill core and other samples will be kept in a core house for future reference. Standard size core boxes will be fabricated locally, properly labeled and stacked in the shelves. It is true for the other samples that will be placed in a wooden box and stored in a designated space in the core house. A caretaker usually the owner of the lot shall be designated and compensated to see to it that the core samples are kept orderly and undisturbed. All other samples not needed for future reference shall be discarded in a pit, covered with topsoil and re-vegetated.

- E. In some cases, infrastructure and other facilities like road, buildings may be turned over, donated or acquired by surface claimants in a pre-arranged terms and conditions. In the future, the barangay council may ensure the continuous maintenance and utilization of these facilities. However, this is on a specific site and basis and in coordination with the proper entities or authorities.



7.8.2 Control measures for acid mine drainage, the generation of which is not only limited to the period of exploration but may occur also after exploration.

The possible sources of acid run-off are the test pits and drill holes.

The control measures for occurrence of acid mine drainage are the following:

A. Test Pits/Trenches:

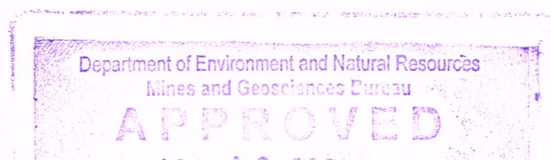
- a. When the test pitting/trenching is active or on going, provide a canvas roofing for the test pits so as to prevent rain water to be accumulated at the bottom of the test pit which can cause generation of acidic water inside.
- b. When the test pitting/trenching is completed and all required data are obtained and/or excavated site is abandoned, the excavated material will be restored/back filled. The topsoil will be restored and re-vegetated. In this manner, water will not accumulate inside the test pit there after, hence the chances of producing acidic drainage will be minimal.

B. Drill Hole:

- a. Drill hole collars will be cemented and inserted with capped PVC pipes.
- b. The hole with potential use for periodic measurement of water table is provided with 2" PVC pipe with a screw plug that could be open during measurement of water elevation and collection of water sample.
- c. In this manner no excess water will over flow from the hole which will cause acidic mine drainage to the surface.

7.8.3 Rehabilitation of the area by replanting and reforestation programs.

All disturbed surfaces shall be replanted with fruit trees, coconut suited for each vicinity and/or revegetated accordingly. In areas or portion of reforestation project is located, the proponent will assist in the community reforestation program in coordination with the



government agency concern to determine as to what assistance could be extended. Either to provide seedlings, or join the community during the designated reforestation day, i.e., plants a tree during the environmental month.

7.8.4 Restoration of the original flow of river system that have been diverted/alterd with emphasis on quality.

All creeks, ditches or canal shall not be diverted/alterd during exploration phase and shall be restored as nearly as possible to its original condition.

7.8.5 Budget Cost Estimate for Environmental Protection and Rehabilitation.

The initial annual budget presented hereunder shall be updated annually in accordance with the company policy for allocation of budget and to account for expenses for each account code under accepted accounting principles.

Year I Labor, Materials and Supplies, restoration activities, reforestation program and other related environmental activities
PhP 1,484,030.60

Year II Labor, Materials and Supplies, restoration activities, reforestation program and other related environmental activities
PhP 2,164,312.50

Grand Total PhP 3,648,343.10

Total (10% of the total budget of the Exploration Work Program)

8.0 Attachments:

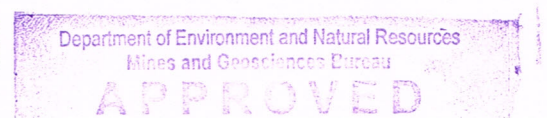
Namria Maps scale 1:50,000 showing the area approved with technical description, existing provincial road, drainage pattern or water/creek courses and topography.

9.0 **Environmental Monitoring:**

The proponent shall document all exploration activities and environmental management measures undertaken during the exploration phase. The proponent is committed to prepare semi-annual environmental accomplishment or status report. The report shall incorporate the data gathered, documented exploration activities and environmental management measures etc. undertaken during the period covered. The semi-annual accomplishment or status report as to the compliance with the EWP shall be submitted to the Bureau/Regional office, EMPAS and other office concerned within fifteen (15) working days six (6) months after the approval of the EWP. Succeeding reports will be submitted every six (6) months and thereafter incompliance with section 168 of the revised IRR implementing R.A. 6942 otherwise known as The Philippine Mining Act of 1995.

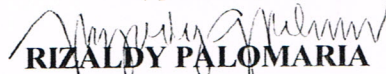
Please refer to the attached Ghannt Chart.

Contact Person: Rizaldy Palomaria
120 Lakundula Drive
4500 Gogon
Legaspi City
Albay
052 480 9528



10.0 **Name and Signature of Applicant or Person(s) preparing the Environmental Work Program EWP.**

Prepared by:


RIZALDY PALOMARIA
GEOLOGIST

PTR No. 3735731

Licence No. 810

Date issued: March 2, 2000

TIN No. 162-931-328

Conforme:

Roderick D. Watt
Vice President of Operations
Rapu Rapu Minerals, Inc.

Done this 15th day of November 2000 at Makati City.

