NO.

REPORT ON THE MINERAL EXPLORATION IN THE EAST JAVA AREA THE REPUBLIC OF INDONESIA PHASE III

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JAPAN INTERNATIONAL COOPERATION AGENCY
JAPAN OIL, GAS AND METALS NATIONAL CORPORATION

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PREFACE

In response to the request by the Government of the Republic of Indonesia, the Japanese Government decided to conduct a mineral exploration project in the East Java Area and entrusted the survey to the Japan International Cooperation Agency (JICA). The JICA entrusted the project to Metal Mining Agency of Japan (MMAJ,current Japan Oil, Gas and Metal National Corporation) because contents of the survey belong to a very specialized field of mineral exploration.

The survey conducted during this fiscal year is the third-phase of a three-phase project. JICA and MMAJ sent survey teams to the Republic of Indonesia twice during the period from 30 June to 18 February 2004. The teams exchanged views with the officials concerned with the Government of the Republic of Indonesia and conducted cooperative field surveys in the East Java Area.

This volume is the report of the surveyed carried out during the present fiscal year and constitue a part of the final report. We hope that this report will serve the development of the Republic of Indonesia and contribute to the promotion of friendly relations between our two countries.

We wish to express our deep appreciation to the officials concerned of the Government of the Republic of Indonesia for close cooperation extended to the Japanese team.

March 2004

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SUMMARY

During the third year of the East Java Mineral Resources Exploration, geological survey was carried out for a total area of 260km^2 in four districts. These districts are; Temporary, Purwoharjo, Seweden, and Prambon Districts. The geology of all of these districts consists mainly of Tertiary and Quaternary volcanic and pyroclastic rocks, and limestone also occur in two districts. Gold, silver, copper, lead, and zinc mineralization is observed mainly in Oligocene to Miocene volcanic and pyroclastic units.

(1) Tempursari District

Pyrite dissemination and alteration minerals such as sericite are widely developed in Tertiary volcanic・pyroclastic rocks and intruding dioritic rocks. Gold, silver, copper mineralization was observed in parts of these alteration zones. Soil geochemical prospecting results show that parts of the high copper and gold anomalies overlap these alteration zones. Geophysical survey revealed that the chargeability in the area trends to be higher in the western part and lower in the eastern part. Some chargeability anomalies were detected in all four survey lines. The anomalous zones show vertical structure and would reflect pyrite dissemination in intruding rocks and silicified vein zones because of its high chargeability, high resistivity and vertical structure. It is interpreted from analysis of the distribution of diorite intrusive bodies and faults and the high chargeability that Ngrawan River Basin in the northern part has the highest mineral potential.

(2) Purwoharjo District

Results of the geological survey do not indicate the existence of mineralization in the Purwoharjo District, and the high copper content in the stream sediments discovered during the second-year survey is inferred to be the results of high copper in the source areas. Thus it was concluded that further survey is not warranted.

(3) Seweden District

In this district, wide spread white-colored argillization and pyrite dissemination is observed. Silicification and argillization are particularly strong in the dacite intrusive bodies and their vicinity in the Putih River Basin where cooper and gold mineralization was observed. Also on the western side, although on small scale, quarts veinlets associated with copper, lead, and zinc mineralization are found and either epithermal gold-silver or mesothermal deposit of the porphyry copper type can be anticipated. Soil geochemical exploration of these zones shows concentration of high Au, Cu, Pb, Zn, As anomalies in the Putih Basin and the vicinity which was confirmed to largely coincide

with the silicified and argillized zones. From the above, it is concluded that Putih River Basin has the highest mineral potential in this District. Some chargeability anomalies exceeding 30 mV/V are detected in the central-eastern deep parts by geophysical survey. They form two north-south trending anomalous zones at the elevation of -100 m. Drilling Results show that argillic alteration continues from 37.30m depth, the lower boundary of oxidation zone, to the bottom of the hole. No significant base and precious metal mineralization was encountered by one hole that was drilled at the western high chargeability zone, while strong pyrite dissemination occurs quite consistently. The pyrite occurs as dissemination in altered andesitic rock or in-veinlets along hair cracks such as joints. A molybdenite-pyrite-quartz-clay occurs at deeper part, while copper mineral occurs only as exsolution mineral from pyrite under microscopy. However, these mineral phenomena are considered to be manifestations of porphyry copper deposits. It is recommended that the lateral extension of the wide alteration zones which were intercepted by one scout drilling should be followed.

(4) Prambon District

Many gold-silver-bearing quartz veins and silicified veins occur in the northern part of this district, and they all strike in the N-S to NNW-SSE direction, and those extending more than 1km can be divided into at least 4 zones. The highest gold assay result of rock samples is 3g/t Au, but gold mineralization is observed throughout the zones. Soil geochemical exploration shows that the high gold content of soil occurs intermittently and its distribution generally agrees with the surface occurrence of quartz and silicified veins. Considering the results of the survey of the southern part of the district carried out during the second year, the potential of vein deposits occurrence in the northern quartz-silicified vein zone is high in this District. Two holes of the four intercepted wide silicified and agillized zones. The assay results show the highest gold values 10.40g/t over 0.60m width intercepted by MJIE-P1. Three samples contained 1-5 g/t Au, and most samples contained less than 1 g/tAu. However, 14 samples among 16 polished samples contains sphalerite, chalcopyrite and galena, indicating these minerals may be related with gold mineralization. Acanthite is identified in two samples form MJIE-P2 adjacent to pyrite grains. The gangue and alteration minerals in and adjacent to veins are quartz, calcite, sericite, chlorite and mixed-layer minerals. The study of fluid inclusions in quartz or calcite veins show the homogenization temperatures of about 200 °C and salinities are low. Therefore, it is concluded that epithermal mineralization occurs widely, mainly in the northern part. The quartz veins in the northern extension of the vein that intercepted by two holes should be given higher priority. Also the zones on both eastern and western sides of the above two zones are also important targets and drilling should be carried out. Also the zones on both eastern and western sides of the above two zones are also important targets and drilling should be carried out

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