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Rajasthan
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Anglo American Exploration (India) Pvt. Ltd.
1/25, Goverdhan Vilas Main Road,
Opp. Goverdhan Sagar,
Near Technoy Motors,
National Highway No. 8
UDAIPUR, Rajasthan
PIN- 313 004

CMC
31.7.07

17th July 2007

- To,
- The Controller General,
Indian Bureau of Mines,
Indira Bhawan, Civil Lines
NAGPUR - 440 001
 - The Director General,
Geological Survey of India,
27, Jawaharlal Nehru Road,
KOLKATA - 700 016
 - The Director Mines and Geology
Government of Rajasthan
Khaniz Bhawan,
Shastri Circle
UDAIPUR - 313 001

Sub: **Final Report of Reconnaissance Work Done**
(Under Rule 7 (iii) & 7 (vii) of Mineral Concession Rules, 1960)

Ref: **Kakrana RP (730.00 sq km) in Sikar and Jhunjhunu districts of Rajasthan**

Mineral(s): Copper, Lead, Zinc, Silver, Gold, Precious metals and Associated minerals

Dear Sir,
Please find enclosed herewith the **Final Report of Reconnaissance Work Done** over the above Reconnaissance Permit as required under Rule 7 (iii) & 7 (vii) of Mineral Concession Rules, 1960. All data and information acquired during the reconnaissance operations is attached.

We request you that the contents of the report are kept confidential under Rule 7(viii) of MCR, 1960.

Yours faithfully,

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31810
Geological Cell

Signature: _____
Name in full: Brijendra S Gahlot
Designation: Director

Place: UDAIPUR
Date: 17th July 2007

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Enclosure 1: Reconnaissance report
Enclosure 2: Data in Compact disc

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Report by Anglo American Exploration (India) Private Limited

Final Report of Reconnaissance Work Done
(See Rule 7 (iii) & 7 (vii) of MCDR, 1960)

A. INTRODUCTION -

In May 2004, Anglo American Exploration (India) Private Limited (AAEPL) executed Reconnaissance Permit (RP) over an area of 730.00 sq km (Kakrana RP) in Sikar and Jhunjhunu districts of Rajasthan. The area has been granted for prospecting of Copper, Lead, Zinc, Silver, Gold, Precious metals and Associated minerals.

This final report describes the reconnaissance work accomplished in the Reconnaissance permit area and data and information collected during reconnaissance operations.

B. AREA OF RECONNAISSANCE -

The RP (see Figure 1) constitute an area of 730.00 sq km in Rajasthan, covering parts in Sikar and Jhunjhunu districts in the state of Rajasthan.

Location, area and date of execution of the RP are tabulated below and depicted in Figure- 1.

RP Block	Falls in Districts	Date of execution	Original Area (sq km)	Area Relinquished (sq km)	Present Area (sq km)
Kakrana RP-5/2002	Sikar and Jhunjhunu	24/05/2004	730.00	730.00	00.00

C. GEOLOGY OF THE AREA -

Regional Geology:

Regionally, the rocks of the area belong to North Delhi Fold Belt of Proterozoic age. The rocks are primarily meta-sediments comprising of pelites, meta-carbonates and quartzites. A number of ENE trending structures traverse the area. Metamorphic grade varies from middle amphibolite to granulite facies.

The Saladipura pyrite deposit lies within the tenement area and Manaksas zinc occurrence lie in adjoining areas to the north, but outside of this RP. Kayar zinc deposit, near Ajmer, is also hosted in the pelitic rocks of the North Delhi Fold Belt.

Generative work carried out by AAEIPL indicates that this area is prospective for base metal mineralisation.

AAEIPL carried out geological mapping based on regional traverses and interpretation of available datasets including ground magnetics to come up with interpreted geological map for the prospective area, which is shown in Figure 2. AAEIPL used consultants from outside to help in preparing the geological map of the area, as the area is too complex metamorphically and structurally to interpret.

D. RECONNAISSANCE WORK DONE –

GENERAL:

There is no plan to conduct aerial survey at this stage. Instead detailed ground magnetic survey will be done to get better resolution data for geological interpretation over the prospective areas.

The main focus of exploration in the RP area was around exposed gossans in the area especially in the Saladipura and Seoli areas. Ground magnetics was carried out to determine strike extensions of litho units under soil-covered areas with the aim to identify prospective horizons under covered areas.

1. Geology:

Regional geological traverses were taken to understand the litho package and structure of the area. As the exposures are limited in the permit area so information was collected from well spoils for geological information. Mostly granite gneiss and carbonates are exposed being more resistive to weathering compared to psammopelites which occur as recessive units mainly seen in well spoils.

AAEIPL carried out geological mapping based on regional traverses and interpretation of available datasets including ground magnetics to come up with interpreted geological map for the entire area, which is shown in Figure 2. AAEIPL used consultants from outside to help in preparing the geological map of the area, as the area is too complex metamorphically and structurally to interpret.

2. Geophysics:

a. Ground magnetics:

Ground magnetic survey was conducted to use different approach in exploration compared with what other companies have done in the past. Geological map was used to prioritize areas for ground magnetic surveys.

1947 line km of the ground mag survey was carried out to cover prospecting part of the tenement area. Figure 3 shows the line path and figure 4 shows the processed TMI grey scale image of the survey area. This survey was done by using GSM-19 (V6.0) overhauser magnetometers which is having inbuilt GPS. Another magnetometer was used as a base magnetometer to correct diurnal variations during the survey period. The specifications of the survey is mentioned below:

Total No. of Line Km: 1947
 Line spacing : 100m
 Line Direction : EW or N130
 Station Spacing : 0.5m (approx.)

b. Ground EM:

Data interpretations identified few anomalies to be followed up by ground geophysics. Fig 7 shows locations where the ground EM was carried out. Total 81-line km of EM survey was carried out to identify the bedrock conductor. Based on interpretation of ground EM data two anomalies were prioritized for drilling.

Raw data is given in attached CD.

3. Geochemistry:

Details of the geochemical activities undertaken in the area are listed below:

a. Soil Sampling:

Regional soil sampling was carried over potential areas within the RP area. Samples were collected at random grid over random line directions (Figure 5). The proposed site of sampling was reached with the help of a handheld GPS and the topsoil was scraped. Soil samples, approximately 160gms from $-250\mu\text{m}$ fractions, were collected from a depth of 20-30cm.

Data interpretation from prospecting areas has identified two anomalies, which has been screened by Ground EM.

Geochemical samples were analyzed for a large number of major and trace elements using ultra-trace analytical methods and ICP-MS / ICP-AES at ACME Laboratories, Vancouver (Canada).

Soil results for the key elements are attached in table 2 and results for all elements are given in attached CD.

b. Regolith Mapping:

Regolith mapping was done over the entire permit area using Landsat image and field observation. Major part of the area in the south of the tenement lies within transported environment with thickness of sand cover being plus 35 m. The geochem signature gets masked due to transported nature of soil this was kept in mind during the soil interpretation.

c. Rock Sampling:

Besides systematic soil sampling, several rock chip samples were collected from well spoils and outcrops during the process of mapping and sampling. Samples are being analyzed for 53 elements. As major part of the tenement is covered by

transported soils, which make it, difficult to see the geochemical signature so rock samples were collected and shown in Figure 6.

Rock sample results for the key elements are attached in table 3 and results for all elements are given in attached CD.

4. Drilling:

Based on the interpretation of geological, geochemical and geophysical datasets two anomalies areas (Seoli gossan & Saladipura east) were selected for drill testing. Figure 8 shows location of drill holes.

Drilling intersected uneconomical Pb Zn mineralisation but was not enough to go for further drilling. Summary of the drill holes is given in table 1 and results of drill samples were given in table 4.

Drill results are being looked into in conjunction with magnetics and geology to plan future work.

Drill assays are given in attached CD.

E. PERSONS ENGAGED FOR THE WORK -

Geological mapping and geochemical sampling programmes are being carried out by a number of geologists working for the company as well as consultants from abroad are being used for mapping and data interpretation. Field assistants are hired locally to assist the field teams.

The company geophysicist is undertaking most of the ground geophysical surveys. Several field assistants, as per requirement, are hired locally to carry out the surveys.
