



Rajasthan  
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Anglo American Exploration (India) Pvt. Ltd.  
1/25, Goverdhan Vilas Main road,  
Opp. Goverdhan Sagar, Nr. Technoy Motors,  
National Highway No. 8  
Udaipur - 313 001, Rajasthan - India

10<sup>th</sup> Sept 2007

- To
1. The Controller General,  
Indian Bureau of Mines,  
Indira Bhawan, Civil Lines  
NAGPUR - 440 001
  2. The Director General,  
Geological Survey of India,  
27, Jawaharlal Nehru Road,  
KOLKATA - 700 016
  3. 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: Bhilwara - Shahpura RP (1718.70 sq km) in Bhilwara & Ajmer 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,

Place: UDAIPUR  
Date: 10<sup>th</sup> Sept 2007

1185  
24/9/07  
Signature:   
Name in full: Brijendra Singh Gahlot  
Designation: Director

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

cmg  
A 21.9.07



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**FORM-BB**

(See rule 7 (iii) & 7 (vii) under MCR, 1960)

Progress report of reconnaissance survey in respect of Copper, lead, zinc, silver, gold, precious metals and associated minerals [the name of the mineral(s)] for the year ending May 2007 (Abandonment of reconnaissance permit).

**IMPORTANT**

This Form fully filled-in must reach the Concerned authorities within thirty days after expiration of one year from the date of execution of reconnaissance permit or the expiry of reconnaissance permit or abandonment of reconnaissance permit, whichever is earlier.

To,

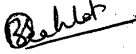
1. The Controller General,  
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UDAIPUR – 313 001

**RP No: Shahpura RP – (1718.70 sq km)**

1.	Name of the permit holder	Anglo American Exploration India Pvt. Ltd.
2.	Nature of the firm	A private limited company registered under Companies Act, 1956
3.	Address of the firm	Anglo American Exploration India Pvt. Ltd. 214, South Ex Plaza – 1 389, Masjid Moth, South Ext Pt II New Delhi - 110 049

Anglo American Exploration (India) Private Limited  
Regd Office: 214, South Ex Plaza-1, 389, Masjid Moth, South Extension, PT-II, NEW DELHI –110 049

4.	Area under permit	1718.70 sq km
5.	Location: (i) Topo sheet No. (s) (ii) Co-ordinates of corner points (iii) District (s) (iv) State	45 K /6, 45 K/10, 45 K/11, 45 K/13, 45 K/14, 45 K/15, 45 O/1 and 45 O/2. Given in Figure 1 in the attached report Bhilwara and Ajmer Rajasthan
6.	Date of grant of permit	26 April 2004
7.	Period of permit	3 years, from 24.05.2004 to 23.05.2007
8.	Reconnaissance survey work done  (A brief description of the work involved along with particulars of the machines and instruments used would be given against each of the following items)  (i) Regional Survey  (ii) Aerial / Photogeological work  (iii) Geological mapping including area covered and scale  (iv) Geophysical  (v) Geochemical  (vi) Test drilling: Number, area of influence meterage and sampling.	Please refer to report attached for the details.  Please refer to report attached for the details.  None  Entire RP by 1:100, 000. Please see attached report under heading: Reconnaissance survey work done - Geological  G. Mag survey- 8224 line km at 100m lines spacing, GEM survey- 42 -line km. For detail Please see attached report.  Soil samples 1990 at 1000X200m, Rock samples 498, analysed for 53 elements. For detail Please see attached report.  None
9.	Nature and structure of the ore body	NA
10.	Analysis of the ores or minerals	NA

11.	<b>If abandonment</b>  (i) <b>Date of abandonment</b> (ii) <b>Reasons for abandonment</b>	23 <sup>rd</sup> May 2007  Exploration activities completed  Signature:   <b>BRIJENDRA SINGH GAHLOT</b> (Full name of the Signatory) Designation: Director and Address: Anglo American Exploration (India) Pvt. Ltd. 1/25, Goverdhan Vilas Main road, Opp. Goverdhan Sagar, Nr. Technoy Motors, National Highway No. 8 Udaipur – 313 001, Rajasthan - India  Date of despatch: 10 <sup>th</sup> Sept 2007
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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 MCR, 1960)

**A. INTRODUCTION -**

In May 2004, Anglo American Exploration (India) Private Limited (AAE IPL) executed Reconnaissance Permit (RP) over an area of 1718.70 sq km (Shahpura RP) in Bhilwara and Ajmer 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 1718.70 sq km in Rajasthan, covering parts in Bhilwara and Ajmer 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)	Relinquished Area (sq km)	Present Area (sq km)
Shahpura RP-4/2002	Bhilwara and Ajmer	24/05/2004	1718.70	1718.70	00.00

**C. GEOLOGY OF THE AREA -**

**Regional Geology:**

Regionally, the rocks of the area belong to Mangalwar group of rocks of Proterozoic age. Mangalwar complex hosts two big Zn-Pb deposit namely Rampura Agucha and Rajpura Dariba. The characteristic rock in the area is feldspar-quartz-biotite-garnet-sillimanite gneiss. Other important rock types in the area are layered calc - silicate, marble, mylonites, granite gneiss pegmatites, aplites, amphibolites and mafic rocks. Many of the mafic rocks are layered and intimately associated with calc-silicates and are probably meta-sedimentary rocks. Metamorphic grade varies from middle amphibolite to granulite facies.

The abundance of quartz-K feldspar-plagioclase bearing pegmatitic – aplitic bodies and their association with sillimanite bearing metapelites over vast region of the Mangalwar complex indicate melt formation during high-grade metamorphism.

Structurally the area has seen complex deformation history. In general four phases of deformation has been reported from the area. The earliest recognisable deformation structures include mylonitic foliations. Regionally, the entire area is dissected by a number of linear NE-SW trending dislocation/shear zones.

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.

#### **D. RECONNAISSANCE WORK DONE –**

##### **GENERAL:**

The area has been covered by airborne geophysical surveys previously at least two times. Therefore, there is no plan to conduct aerial survey at this stage. Instead detailed ground magnetic survey was done to get better resolution data for geological interpretation.

The area has seen exploration by other companies (BHP Minerals & Hindustan Zinc Limited) but their main exploration tool was airborne geophysics. AAEIPL has taken a different approach in exploration by taking up big regional soil survey to screen potential areas within the RP for possible Zn – Pb mineralisation.

##### **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 Mag:**

Ground magnetic survey was conducted to use different approach in exploration compared with what other companies have done in the past.

8224 line km of ground mag was planned to cover this tenement area. Figure 3 shows the linepath and figure 4 shows the processed TMI grey scale image of the tenement 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 the diurnal variations during the survey period. The specifications of the survey is mentioned below:

Total No. of Line km : 8224  
 Line spacing : 100m  
 Line Direction : EW  
 Station Spacing : 0.5m (approx.)

Data interpretation identified few anomalies to be followed up by ground geophysics.

Raw data is given in attached CD.

**b. Ground EM;**

Data integration identified certain anomalies, which required ground EM. The area covered by ground EM is shown in Fig 7. Total 42-line km of Ground EM survey was carried out to identify the bedrock conductor.

**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. Total 1990 samples were collected at 1000 x 200m grid over EW lines (Figure 5). Samples were analysed for 53 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 1 and results for all the elements are given in attached CD.

**b. Regolith Mapping:**

Regolith mapping was done over the entire permit area using Landsat image and field observation.

**c. Rock Sampling:**

Besides systematic soil sampling, 498 rock chip samples were collected from well-spoils and outcrops during the process of mapping and sampling. Samples are being analyzed for 53 elements. Figure 6 shows the location of samples that were sent for geochemical analysis.

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

**4. Drilling:**

Based on the interpretation of geological, geochemical and geophysical datasets one anomaly (Mahuakhurd) was selected for drill testing. Figure 8 shows location of drill holes.

Drilling failed to intersect significant Pb Zn mineralisation. Summary of the drill holes is given in table 3.

#### **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.

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