



सत्यमेव जयते

राजस्थान राजपत्र
विशेषांक

साधिकार प्रकाशित

RAJASTHAN GAZETTE
Extraordinary

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उप-खण्ड (I)

राज्य सरकार तथा अन्य राज्य-प्राधिकारियों द्वारा जारी किये गये (सामान्य आदेशों, उप-विधियों आदि को सम्मिलित करते हुए) सामान्य कानूनी नियम।

Mines and Petroleum (Gr-II) Department

Notification

Jaipur, March 04, 2024

G.S.R.188 .-In exercise of power conferred under Section 10BA(4) of Mines and Mineral (Development and Regulation) Act, 1957 (as amended from time to time), the State Government hereby notifies the following mineral blocks for the grant of Exploration Licence as per the provisions of the Mineral Auction Rules, 2015 (as amended from time to time).

1- Sarasar-Pallu-Dhandhusar Hardaswali Block in District-Hanumangarh, Shri Ganganagar, Churu & Bikaner, for Potash Mineralization

Total Area of the Block-935,53 Sq.Km

Area free for grant of exploration licence - 906.5510 Sq.Km

Pillar no.	Latitude	Longitude
A	29°09'4.84"	74°07'18.22"
B	29°05'55.41"	74°21'17.70"
C	28°45'9.36"	74°14'20.04"
D	28°49'00.12"	74°00'11.52"
Total Block area- 935.53 Sq. Km.		

The above exploration license block also includes Jaitpur block whose details are as follows:-

Pillar no.	Latitude	Longitude
A	28°56'23.6709"	74°03'36.1596"
B	28°55'25.0293"	74°05' 22.5410"
C	28°53'49.5818"	74°04' 43.0473"
D	28°52'18.3181"	74°04' 14.0713"
E	28°51'59.5923"	74°03' 12.5862"
F	28°52'29.5578"	74°02' 06.2997"
G	28°54'58.3192"	74°02' 08.6908"
Total Jaitpur Block area- 29.115 Sq. Km.		

The area of Jaitpur block which is conflicting with the exploration licence block – 28.9490 Sq.km

The exploration licence of this block shall be granted excluding the area overlapping with Jaitpur block i.e. 28.9490 Sq.Km. Therefore, the area free for grant of exploration licence is 906.5510 Sq.Km

2- Chaba-Nawatala-Patodi Block District – Barmer & Jodhpur (Raj), for REE Mineralization, Area – 574 Sq.Km

Pillar no.	Latitude	Longitude
A	26°18'37.86"	72°03'42.87"
B	26°24'05.54"	72°10'4.20"
C	26°10'48.89"	72°25'28.93"
D	26°04'12.96"	72°17'45.13"

3- Renwal-Raithal-Kaladera Block District – Jaipur, Sikar & Nagaur, for REE & RM Mineralization

Total Area of the Block- 795.088 Sq.Km

Area free for grant of exploration licence - 789.4044 Sq.Km

Pillar no.	Latitude	Longitude
A	27°18'15.27"	75°25'36.31"
B	27°07'45.65"	75°41'47.57"
C	26°57'27.63"	75°32'52.19"
D	27°08'43.25"	75°16'22.57"
Total Block Area – 795.088 Sq.Km		

The above exploration license block also includes area falling in Aravalli whose details are as follows:-

Pillar no.	Latitude	Longitude
I	27°01'07.31758"	75°36'02.25676"
II	27°00'41.38333"	75°35'39.80485"
III	27°59'41.70322"	75°33'23.31573"
IV	27°00'03.68064"	75°33'08.22064"
V	27°01'09.20121"	75°35'07.96238"
VI	27°01'07.31758"	75°36'02.25676"
Area falls in Aravalli – 4.5652 sq. km.		

The above exploration license block also includes three areas (Block 1, Block 2 and Block 3) of minor mineral leases whose details are as follows:-

Block-1 (near village Dadar-Naradpura)

Pillar no.	Latitude	Longitude
I	27°04'41.18958"	75°38'58.44281"
II	27°04'07.49053"	75°38'13.69691"
III	27°04'13.52992"	75°38'08.02056"
IV	27°04'48.60612"	75°38'50.25801"
V	27°04'41.18958"	75°38'58.44281"
Block-1 area – 0.4499 sq. km.		

Block-2 (near village Dungri)

Pillar no.	Latitude	Longitude
I	27°10'21.99110"	75°28'52.90748"
II	27°10'01.76214"	75°29'13.19253"
III	27°09'55.03694"	75°29'04.12049"
IV	27°10'15.81362"	75°28'44.16236"
V	27°10'21.99110"	75°28'52.90748"
Block-2 area – 0.2645 sq. km.		

Block-3 (near village Kalwad)

Pillar no.	Latitude	Longitude
I	26°59'04.89260"	75°34'16.30581"
II	26°59'0.83507"	75°34'12.79575"
III	26°59'09.57209"	75°33'57.54204"
IV	26°58'57.71687"	75°33'25.41866"
V	26°59'02.13083"	75°33'23.67418"
VI	26°59'15.63830"	75°33'52.01627"
VII	26°59'04.89260"	75°34'16.30581"
Block-3 area – 0.2500 sq. km.		

The above exploration license block also includes Area of minor mineral leases under court case whose details are as follows:-

ML Area under Court Case (near village Badi Dungri)

Pillar no.	Latitude	Longitude
I	27°08'56.36958"	75°27'44.11066"
II	27°08'34.98839"	75°27'44.35457"
III	27°08'35.08998"	75°27'35.63251"
IV	27°08'56.16107"	75°27'35.69654"
V	27°08'56.36958"	75°27'44.11066"
Block area under court case – 0.1540 sq. km.		

The total overlapping area – 5.6836 Sq.Km

The exploration licence of this block shall be granted excluding the area overlapping i.e. 5.6836 Sq.Km. Therefore, the area free for grant of exploration licence is 789.4044 Sq.Km

**[No.F.3(31)Mines/Group-2/2015-Part5]
By Order of the Governor,**

Ashu Chaudhary,
Joint Secretary to Government.

Government Central Press, Jaipur.

Proposal for Exploration License (EL) on Potash

I. Introduction: A reconnaissance survey for search of Potash in and around Srasar, Pallu, Dhandhusar, Hardaswali in Hanumangarh, Sri Ganganagar, Churu and Bikaner districts of Rajasthan having an area of 937 Sq km is being proposed under the Exploration License. The Nagaur-Ganganagar Evaporite Basin, covering an area of over 50,000 sq km. in the western part of the Indian shield and potential for potash mineralisation. The presence of evaporate minerals like gypsum, anhydrite and halite were known from Nagaur and Bikaner districts since 1930's. Particular mention may be made of the reported occurrence of halite in Bikaner (P.K.Ghosh, 1952), gypsum in Nagaur (Roy Chowdhury et al., 1965) and the intersection of anhydrite in the boreholes drilled by Central Groundwater Board (CGWB) and Oil and Natural Gas Commission (ONGC).

Kumar *et al*, (1993), carried out drilling work in about 28,500 sq km area of Nagaur-Ganganagar basin and drilled 72 boreholes. Based on drilling results and geophysical surveys (gravity and magnetic) eight depo-centers for potash mineralization containing over 2% K were identified in parts of Rajasthan namely, Lakhasar, Bikaner, Gharsisar, Hanseran, Arjunsar, Jaitpura, Bharusari and Satipura. Out of these, four sub-basins, namely Satipura, Bharusari, Lakhasar and Jaitpura are considered good prospect for sylvite/sylvinite mineraliation. These sub-surface deposits occur at a depth range of 600m to 750m and are mainly localized in the bottom two halite cycles (viz. H₁ & H₂) out of the seven halite cycles (H₁ to H₇) developed within Hanseran Evaporite Group (HEG). The thickness of HEG ranges from 103.20 m to 652.15 m containing halite zones with average cumulative thickness of 488.50 m.

The proposal Srasar-Pallu-Dhandhusar-Hardaswali Block for EL falls south of Bharusari sub-basin up to Jaitpura sub-basin in Nagaur Ganganagar Evaporite basin, in Hanumangarh, Sri Ganganagar, Churu and Bikaner districts of Rajasthan.

II. Block Name: Srasar-Pallu-Dhandhusar-Hardaswali Block

III. Mineral Commodity of the block : Potash (Sylvite, Polyhalite etc) and Halite

IV. State : Rajasthan

V. Districts : Hanumangarh, Sri Ganganagar, Churu, Bikaner districts

VI. SOI Toposheet (s) No. 44 K/ 4, 8 and 44 L/1, 5

VII. Accessibility: The area is well-connected by metalled and unmetalled roads and rail. National Highway Nos. 11 and 15 pass through the area besides State Highways. Jeepable tracks connect interior localities. Broad gauge railway lines connecting Jaisalmer-Bikaner-Delhi, Bikaner -Ganganagar, Bikaner-Delhi and Ganganagar-Delhi provide easy accessibility to the area. The main railway stations are Sri Dungargarh, Sardarshahr, Bikaner, Suratgarh, Ganganagar and Hanumangarh. The major cities are Bikaner, Hanumangarh and Ganganagar in nearby areas.

VIII. Area (Sq. km) : 937 sq. km.

IX. Boundary coordinates of the block (in DMS) :

Corner Points	Long	Lat
A	74°07'18.22"E	29°09'04.84"N
B	74°21'17.70"E	29°5'55.41"N
C	74°14'20.04" E	28°45'09.36"N
D	74°00'11.52" E	28°49'0.12"N

X. Regional Geology of the Block : The Nagaur-Ganganagar Evaporite Basin is an intra cratonic basin in which marine sediments of Marwar Supergroup were deposited on the basement rocks of the Malani Igneous Suite and/or Delhi metamorphites. Nagaur-Ganganagar basin, covering over 1,00,000 sq km and in parts of Ganganagar, Hanumangarh, Churu, Bikaner, Nagaur, Jodhpur, Jaisalmer and Pali districts of Rajasthan, Sirsa district of Haryana and Faridkot and Bhatinda districts of Punjab. The halite-bearing evaporate sequence within the basin appears to extend up to Sardarshahr- Bidasar Fault in the east, up to Balesar in the south and up to Devikot- Nachana subsurface high in the southwest, inferred from Oil India boreholes located at Baghewala and Tabriwala. The absence of un-metamorphosed sediments older than those of the Marwar Supergroup in its contact with Precambrian rocks suggests that the basin floor comprises metamorphites belonging to the Delhi Supergroup and gneisses, granites and rhyolites of the Malani Igneous Suite (Dasgupta et al; 1988). In the southern part of the basin, rocks of the Marwar Supergroup and their time equivalents, the Randha and the Birmania Formations, overlie the Malani Igneous Suite (at Jodhpur, Balesar, Kul and Pokaran) and the Delhi Supergroup of rock (at Khatu, Bidasar, Ratangarh, etc.). The eastern margin of the basin (in Indian part) is tectonically disturbed in most of the places. The Sardarshahr-Bidasar Fault located on the eastern margin is a well-marked dividing plane between the Marwar Supergroup and the Delhi Supergroup. This fault

strikes almost NNE-SSW with steep westerly dip and an estimated down-throw of over 740 m for the western block.

XI. Lithostratigraphy : The entire area of the basin is covered by thick aeolian sand and/or alluvium except in the southern part where scanty outcrops, dug wells and shallow borehole yield limited information. Based on data obtained from boreholes of potash investigation, a generalized stratigraphic sequence has been built up (after Virendra Kumar et al, 1993).

Generalized stratigraphic sequence in Nagaur-Ganganagar Evaporite Basin. (Kumar et.al., 1993)

Age	Supergroup	Group	Thickness	
Quaternary			0m to 373.0m	
~~~~~Unconformity~~~~~				
Tertiary			38.0m to 120.0m	
~~~~~Unconformity~~~~~				
Lower Cambrian to Late Proterozoic	Marwar	Nagaur	50.0m to 290.0m	
		Bilara-HEG	Bilara	100.0 m- 300.0m
			HEG	103.0m-652.0m
Jodhpur	240.0m-423.0m			
~~~~~Unconformity~~~~~				
Pre-cambrian	Malani Igneous Suite/ Delhi	--	Basement rocks	

**XII. Structural Details:** The Nagaur-Ganganagar basin covering an area of 100,000 sq. km is soil covered and bounded by the Aravalli range in the east, Lahore-Delhi sub-surface ridge to the north and north-east, Devikot-Nachna sub-surface high in the west and Jodhpur-Pokaran-Chaotan-Malani ridge to the south. The presence of gravity high, probably representing deep seated basement faults with their down throw towards west, is indicated between Ganganagar and Suratgarh. This gravity high coincides with the northern extension of the Dulmera sub-surface ridge which trends from NNE-SSW through N-S (Suratgarh-Arjunsar) to NW-SE (Hanseran-Lakhasar). Minor structures observed in drill cores include bedding, laminations, flow structure, nodular anhydrite, stylolite surfaces breccia and algal structures. Bedding is horizontal to sub-horizontal but flow structures have an oblique relationship with the bedding/laminations due to salt flowage. Presence of nodular anhydrite

indicates their formation under sea marginal environment in arid climate. Stylolite structures are observed in anhydrite cores indicating solution activity under high pressure conditions.

**XIII. Baseline Dataset available (NGCM/NGPM/NAGMP):** National Geophysical mapping in parts of degree sheet No. 44K (Toposheet Nos. 44K/04, 07, 08, 11 & 12) of Sri Ganganagar, Hanumangarh, Bikaner and Sirsa Districts of Rajasthan and Haryana was carried out by Singh et al, 2022 and Geophysical mapping in toposheet Nos. 44L/1, 44L/2, 44L/5, 44L/6 and 44L/9 in Bikaner, Churu, Sri Ganganagar and Hanumangarh districts, Rajasthan was carried out by Bhushan et al. 2022.

Bouguer gravity anomaly vis-à-vis the thickness of evaporite sequence intersected in various boreholes revealed that there is no relationship between the thickness of the sediments/evaporite sequence/halite intersected in various boreholes and the Bouguer gravity anomaly. However, the data of gravity survey in conjunction with magnetic surveys helped in deciphering the basin configuration.

NGCM and NAGMP not carried out.

**XIV. Exploration details available in EL Block :** Out of 72 boreholes drilled by GSI in NGEB during 1974 to 1991, two boreholes ( P-50 and P-52) fall in the proposed area. The borehole P-50, had intersected 3.4 % K over 1.6m thickness between 792.94 and 794.54 m depth and borehole P-52 had intersected 1.8 % K over 2 m thickness.

Exploration work restarted in Satipura Sub Basin by GSI in FS 2016-17 and till now almost 65 Sq.km area has been explored in G-3 stage in nine blocks. Inferred resources under UNFC-G3 stage has been estimated in 7 blocks and report of other two blocks are under progress. The blocks are **Satipura block** - 44.60 million tonnes at 5% cutoff with an average grade of 6.31 K% (7.57 K₂O%) ; **Jandawali south block**- 31.34 million tonnes at 5% cutoff with average grade of 5.64K% ( 6.7% K₂O) ; **Jandawali north block**- 21 million tonnes at 5% K cutoff with average grade of 5.63% ( 6.7 % K₂O) ; **Khunja NW block** - 23.11 million tonnes at 5%K cutoff with average grade of 8.27 K% (9.92 K₂O%) **Jorkian south block** - 33.050 million tonnes at 5% cutoff with average grade of 8.25 K% (or 9.94 K₂O%) , **Makkasar block** -15.53 million tonne at 5% cut off with an average grade of 8.41 K% and **Nai Basti block** - 23.11 million tonne at 5% cut off with an average grade of 8.27 K% (9.92 K₂O%). In the above mentioned **seven blocks total 889.166 MT resources** has been estimated at 2% cut-off grade with average grade of 3.04 % K, **total 164.714 MT resource**



has been estimated at **5% cut-off grade with average grade of 8.06 %K** and total 78.337 MT resource has been estimated at 8% cut-off grade with average grade of 12.51 %K.

During FS 2021-22, a G-4 stage investigation for potash was carried out in Jaitpur sub-basin in Ganiyasar-Sarupdesar area, Bikaner, Churu and Hanumangarh districts, Rajasthan in parts of toposheet 44L/1 and 44L/2. An area of 219 sq km has been mapped on 1: 12500 scale and a total of 3369m have been drilled in 04 vertical boreholes in scout pattern with the inter borehole spacing ranging between 8.75 to 15 Kilometres. No significant potash mineralization zone could be established considering 1m stoping width and 2% cut-off. Maximum value of 4.44% of K has been analysed in one sample of 0.59m width. However, continuity of Halite cycles and the intervening zones have been established in the present area of investigation with the thickness of HEG in the study area ranging from 431.01m to 533.17m and seven halite cycles, numbered H1 to H7 from bottom to top have been observed.

MECL carried out preliminary exploration for potash in Bharusari block, Bharusari sub-basin by drilling 12 numbers of boreholes in the periphery of earlier drilled boreholes of GSI over an area of 14.17 sq. Km in 800m X 800 m grid in the G-3 level .The gross inferred resource of 12.839 M.T. and net inferred resource of 10.272 M.T. with average grade 5.58% K (6.75% K₂O) and gross reconnaissance resource of 5.324 M.T. and net reconnaissance resource of 4.259 M.T. with avg. grade of 5.65% K (6.84% K₂O) has been estimated at 5% K cutoff in the block (Geological report of Bharusari block, MECL,2022). The present proposed area lies to the south of MECL leasehold area in Bharusari sub-basin.

**XV. Proposed Potentiality of EL block :** Out of eight sub-basins , the four sub-basins (Satipura, Bharusari, Jaitpura and Lakhasar) are considered to be good prospects for polyhalite, sylvite/ sylvinite mineralisation. However, detailed exploration work was conducted in the Satipura, Bharusari and Lakhasar sub-basins only. The most promising of these sub-basins i.e. Jaitpura sub-basin could not be explored due to drilling difficulties caused by tough terrain conditions and non-availability of water in the vicinity for drilling operations (Kumar et al. 2005). Two earlier drilled boreholes of GSI ( P-50 and P-52) fall in the proposed area. The borehole P-50, had intersected 3.4 % K over 1.6m thickness between 792.94 and 794.54 m depth and borehole P-52 had intersected 1.8 % K over 2 m thickness. Presence of the proposed block south of Bharusari sub-basin up to Jaitpura sub-basin in Nagaur Ganganagar Evaporite basin, and earlier drilled boreholes P-50 and P-52 within the proposed area shows that the area is potential for potash exploration

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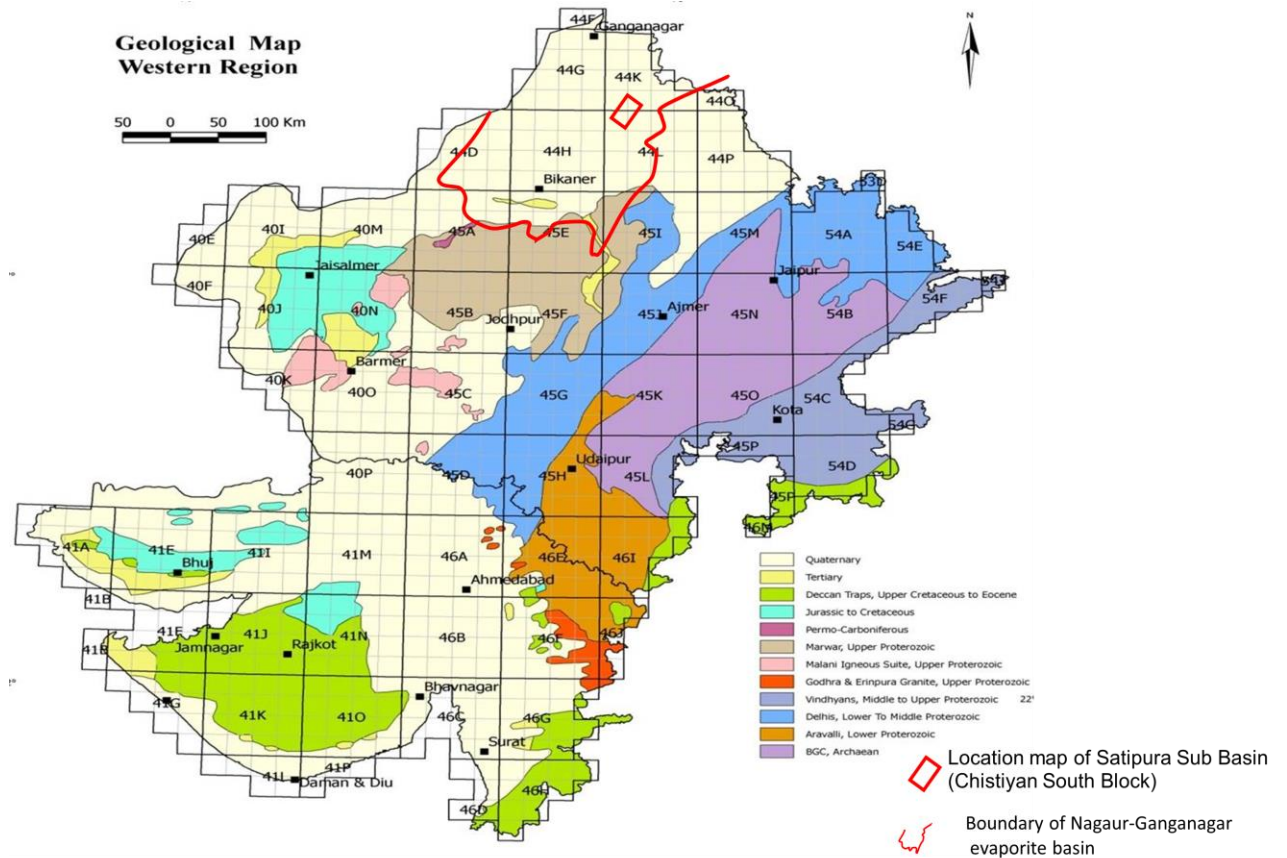
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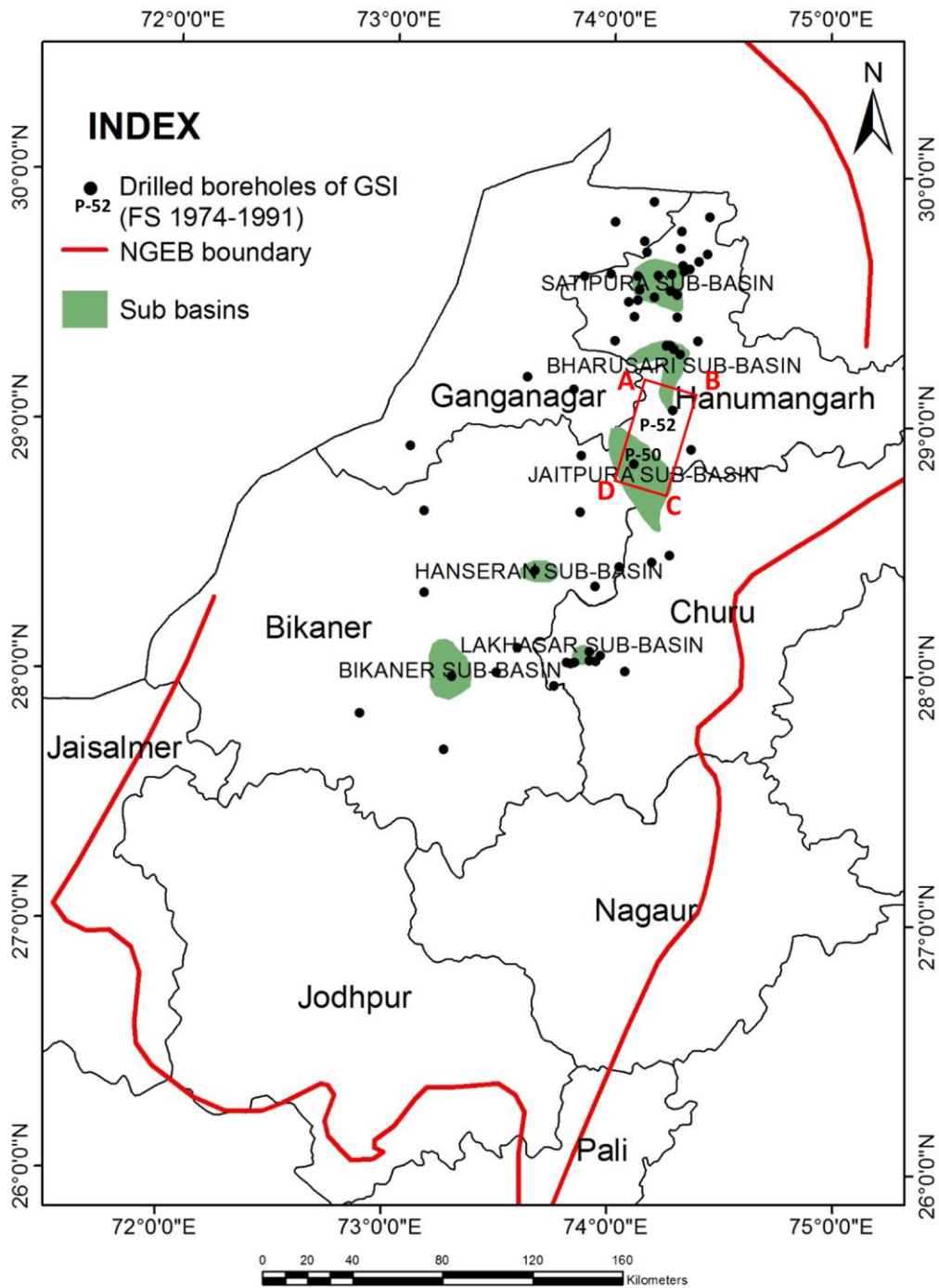
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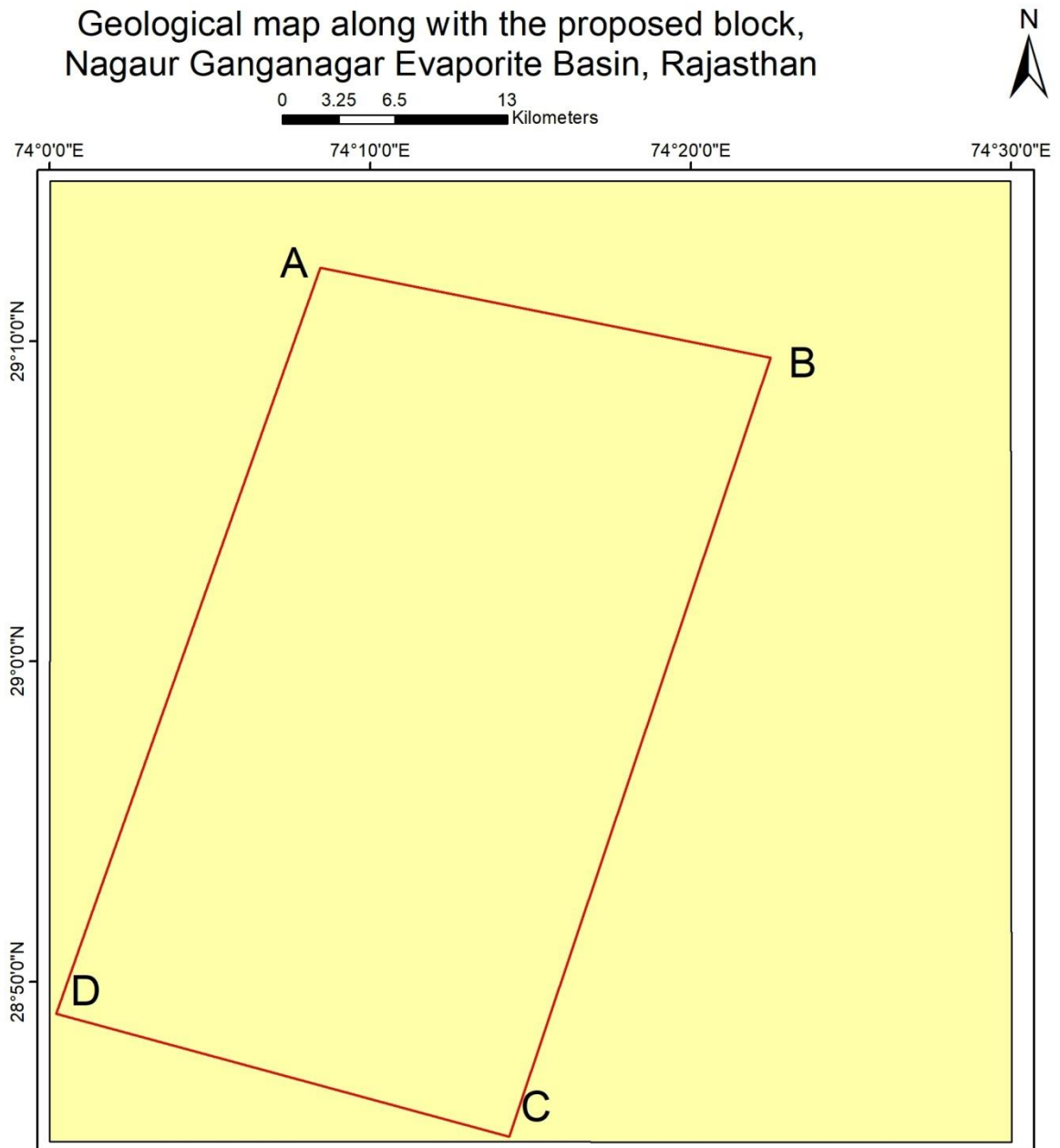
## LOCATION MAP OF THE PROPOSED SRASAR-PALLU-DHANDHUSAR-HARDASWALI BLOCK FOR AREA IN GEOLOGICAL MAP





**2. Location of the proposed EL area on Nagaur Ganganagar Exaporite Basin Map (Regional geological map)**



**3. Geological map of parts of Nagaur Ganganagar Evaporite basin , Rajasthan ,  
toposheet nos. 44 K/4 & 8 and 44 L/1 &5 showing proposed EL block**

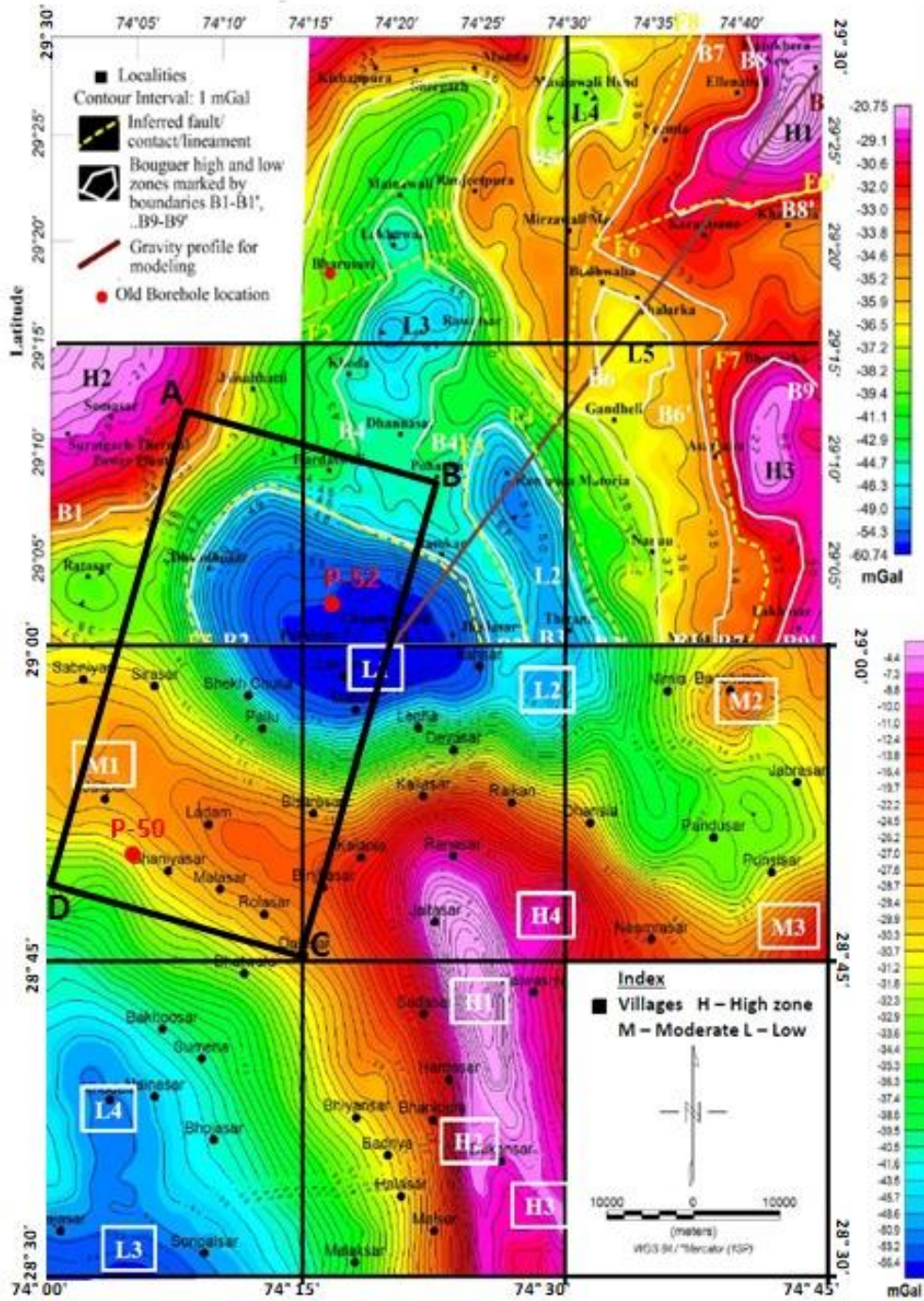


**INDEX**

-  Soil cover/aeolian sand
-  Proposed Block



**Bouguer anomaly contour map of toposheet nos.  
44 K/4,7,8,11&12 and 44 L/1,2,5,6 and 9**



 **Proposed EL area**

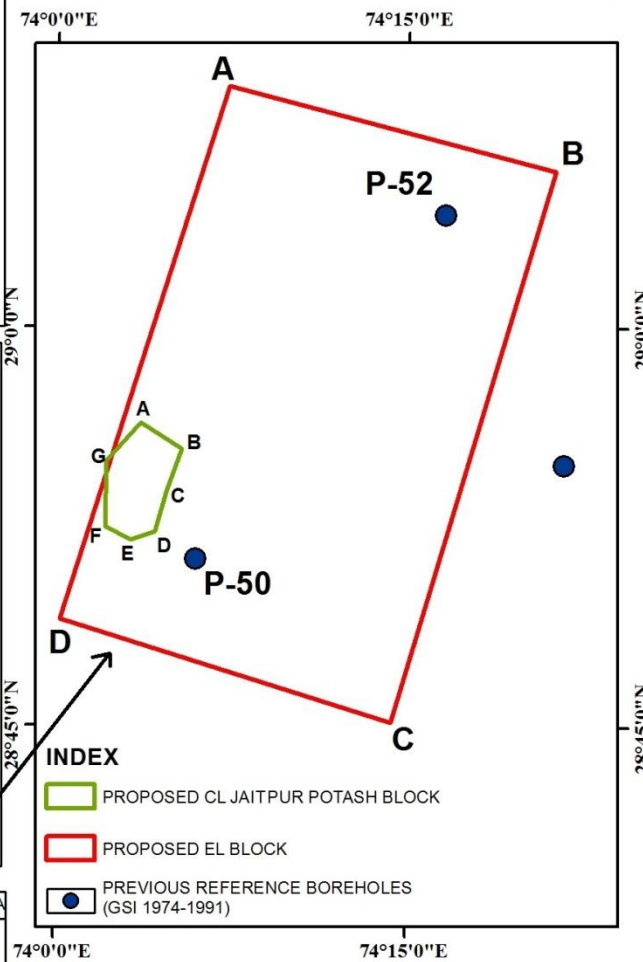
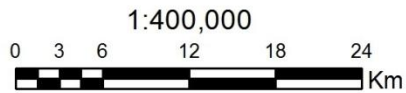
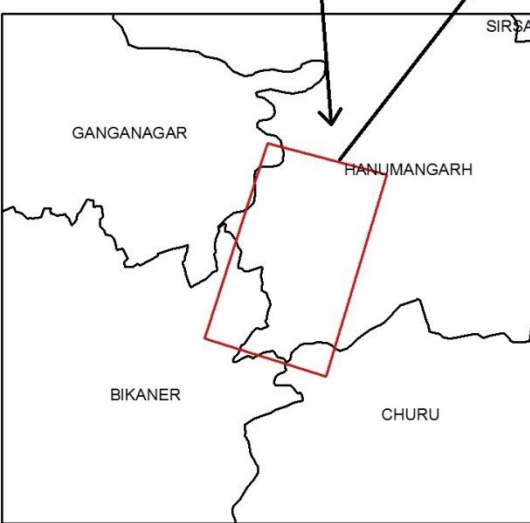
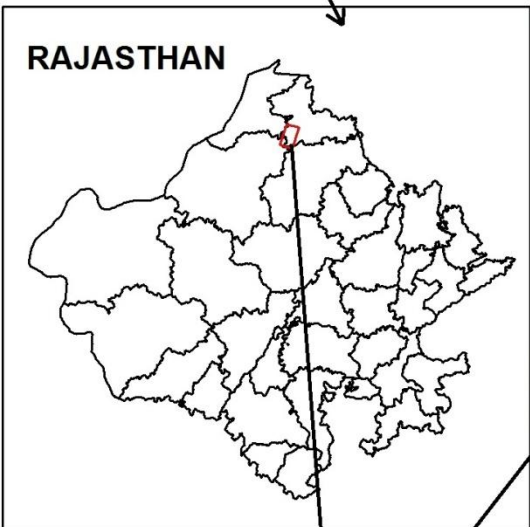
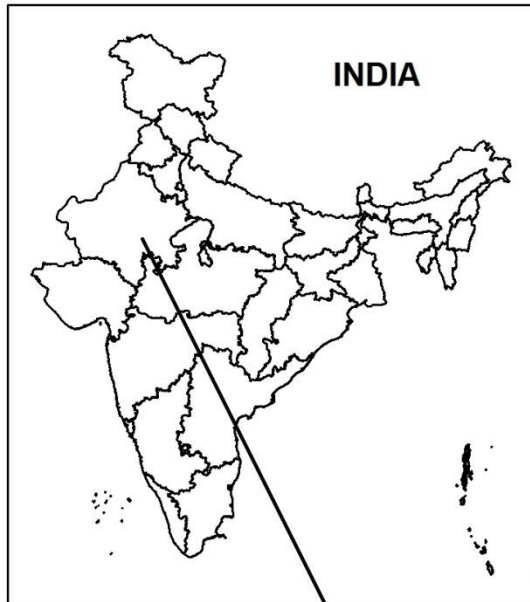
## **POTASH EXPLORATION LICENCE BLOCK**

<b>GENERAL INFORMATION</b>	
<b>Block Name</b>	Reconnaissance survey for search of Potash in and around Srasar, Pallu, Dhandhusar, Hardaswali in Hanumangarh, Sri Ganganagar, Churu and Bikaner districts of Rajasthan.
<b>License type</b>	Exploration license (EL).
<b>Mineral</b>	Potash and Halite
<b>Location</b>	Srasar, Pallu, Dhandhusar, Hardaswali in Hanumangarh, Sri Ganganagar, Churu and Bikaner districts of Rajasthan
<b>Area</b>	937.00 Sq.km
<b>Exploration level</b>	Reconnaissance
<b>Morphology of the area</b>	The major part of the area presents a monotonous dunal topography characterized by NW-SE trending sand dunes, ridges and interdunal areas. The dunal forms include parabolic/complex, reticulate, longitudinal, transverse, barchans and star shaped residual mounds. The interdunal areas often contain silt layers deposited by surface run-off during flash floods.

<b>LOCATION DETAILS</b>	
<b>Districts</b>	Hanumangarh, Sri Ganganagar, Churu and Bikaner.
<b>Toposheet numbers</b>	44 K/ 4, 8 and 44 L/1, 5
<b>Connectivity</b>	
<b>Rail</b>	Sri Dungargarh, Sardarshahr, Bikaner, Suratgarh, Ganganagar and Hanumangarh
<b>Road</b>	The area is well-connected by metalled and unmetalled roads and rail. National Highway Nos. 11 and 15 pass through the area besides State Highways. Jeepable tracks connect interior localities.
<b>Airport</b>	Bikaner Airport, Bikaner, Rajasthan.



## LOCATION OF EXPLORATION LICENCE BLOCK OF POTASH INVESTIGATION IN RAJASTHAN, INDIA



### INDEX

- PROPOSED CL JAITPUR POTASH BLOCK
- PROPOSED EL BLOCK
- PREVIOUS REFERENCE BOREHOLES (GSI 1974-1991)

### Coordinates of Exploration License block

Corner Points	Longitude (DMS)	Latitude (DMS)
A	74°07'18.39"E	29°09'4.82"N
B	74°21'17.60"E	29°05'55.22"N
C	74°14'20.04" E	28°45'9.36" N
D	74°00'11.52" E	28°49'0.12" N

### Coordinates of Composite License block

Corner Points	Longitude (DMS)	Latitude (DMS)
A	74°03'36.1596"E	28°56'23.8709"N
B	74°05'22.5410"E	28°55'25.0293"N
C	74°04'43.0473"E	28°53'49.5818"N
D	74°04'14.0713"E	28°52'18.3181"N
E	74°03'12.5862"E	28°51'59.5923"N
F	74°02'06.2997"E	28°52'29.5578"N
G	74°02'08.6908"E	28°54'58.3192"N

Area = 29.115 Sq. km

**A. Particulars of Statutory Licenses, Permits, Permissions, Concessions, Approvals and Consents Related to Mining Operations**

- All clearances, consents, approvals, permit, no objection certificates and the like as may be required under applicable laws for commencement of reconnaissance or prospecting operations or both are to be obtained by the preferred bidder.

**B. Particulars of Land**

- As per annexed notification