2. Summary Of The Proposal For Preliminary Exploration (G3) For Graphite In Jhab Block, District- Dahod, Gujarat (4.0 Sq Km) General Information About The Block

[Implementing Agency- MECL]

	Features	**Details**
	Block ID	Jhab Graphite Block
	ExplorationAgency	Mineral Exploration and Consultancy Limited (MECL)
	Commodity	Graphite
	MineralBelt	Aravalli Group
	CompletionPeriodwithentire Timescheduleandcost	Rs. 474.63Lakh & 15 months
	Objectives	The present exploration program (G3) has been formulated on the basis of the outcomes of previous work to fulfill the following objectives: i). Detail Geological mapping on 1:4000 scale to delineate graphite bands with the structural features and lateral disposition of the mineralized zonesalong withother lithounits in the area. ii). Topographical Contouring on 1:4000 scale, by means of surface contouring at 2 m interval. iii). Delineation of the potential subsurface mineralized zones in the eastern part of the block by Geophysical Surveys (Self Potential). iv). Trenching will be carried out at suitable interval in the anomalous zone established after bedrock, channel and geophysical survey to establish the continuity of the mineralization along strike direction, which is covered by soil. v). After the positive outcomes of the above activities drilling will be carried out to intersect the graphite mineralization at 30m vertical depth with 400m strike interval followed by 60m vertical depth intersection at 800m strike interval at selective places. vi). Assessment of quality and quantity of the resources (333) if any as per UNFC norms & Minerals (Evidence of Mineral Contents) Rules- 2015.

<table>
<tr><td></td><td>Whether the work will be carried out by the proposed agency or through outsourcing and details thereof. Components to be outsourced And name of the outsource agency</td><td>Work will be carried out with the in house resources of MECL.</td></tr>
<tr><td></td><td>Name/Number of Geoscientists</td><td>1 No. of Geoscientist (For Field)</td></tr>
<tr><td></td><td>Expected Field days(Geology)Geological Party Days</td><td>Geologist: 01 HQ (60 days)

Geologist:01 Field (180 days)

Surveyor: 01 (60 days)</td></tr>
<tr><td>1.</td><td>Location</td><td>The proposed block area for G-3falls under Survey of India Toposheet number 46F14. The block area falls in and around the villages Jhab, Bamroli, and Kuva Tehsil- DevgadhBariaDist-Dahod, Gujarat.</td></tr>
<tr><td></td><td>Latitude and Longitude</td><td>
<table>
<tr><th>Corner Points</th><th>Latitude</th><th>Longitude</th><th>Area</th></tr>
<tr><td>A</td><td>22° 37' 4.040" N</td><td>73° 55' 20.881" E</td><td rowspan="8">5.73 sq.km</td></tr>
<tr><td>B</td><td>22° 37' 18.504" N</td><td>73° 55' 44.748" E</td></tr>
<tr><td>C</td><td>22° 37' 19.473" N</td><td>73° 56' 18.880" E</td></tr>
<tr><td>D</td><td>22° 37' 4.484" N</td><td>73° 56' 31.747" E</td></tr>
<tr><td>E</td><td>22° 37' 3.057" N</td><td>73° 57' 9.031" E</td></tr>
<tr><td>F</td><td>22° 36' 5.004" N</td><td>73° 57' 10.404" E</td></tr>
<tr><td>G</td><td>22° 36' 5.818" N</td><td>73° 55' 34.920" E</td></tr>
<tr><td>H</td><td>22° 36' 49.808" N</td><td>73° 55' 31.533" E</td></tr>
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</td></tr>
<tr><td></td><td>Villages</td><td>Jhab, Bamroli, and Kuva</td></tr>
<tr><td></td><td>Tehsil/Taluk</td><td>DevgadhBaria</td></tr>
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	District	Dahod
	State	Gujarat
2.	**Area(hectares/squarekilometers)**	
	BlockArea	5.73 sq.km
	ForestArea	Reserved Forest falls in the Block area
	GovernmentLandArea	Data not available
	PrivateLandArea	Data not available
3.	**Accessibility**	
	NearestRailHead	Chota Udaipur, Railway station is 30 km South from the proposed block.
	Road	DevgadhBaria-Chota Udaipur National Highway No. 42 passes with in the proposed block.
	Airport	The nearest airport is Vadodara Airport, located 100 km from proposed block.
4.	**Hydrography**	
	LocalSurfaceDrainagePattern(Channels)/ Rivers/Streams	There is dendritic pattern of drainage forming few seasonal nalas in the flat areas within the block which ultimate draining into Panam River. While in the hills, combination of Radial and Dendritic drainage pattern can be observed.The drainage pattern in the region is structurally controlled, influenced by fractures and rock formations. The region consists of seasonal streams and nalas, which help in surface water drainage and contribute to local groundwater recharge. Panam River (North Eastern part of the block).
5.	**Climate**	
	MeanAnnualRainfall	Average annual rainfall is 1000 to 1225mm
	Temperatures(December)(Minimum) Temperatures(June)(Maximum)	11.9°C (January) to 25.6°C (Feb). 27.7°C (April) to 39.7°C (June).
6.	**Topography**	
	ToposheetNumber	46F14
	MorphologyoftheArea	The area consists of undulating terrain with a mix of hills, valleys, and plains. The southern and northern parts of the block are hilly and covered with dense forest, while the central region mainly consists of agricultural and barren lands with scattered hillocks. The elevation ranges from 139 m to 474 m, indicating a moderate relief.
7	**Availabilityofbaselinegeosciences**	

	data	
	GeologicalMap(1:50K/25K)	Not available
	GeochemicalMap	Not Applicable
	GeophysicalMap	Not available
8.	**JustificationfortakingupG-3orG-2Stage mineralExploration**	1. The Commissioner of Geology and Mining (CGM), Gujarat has identified several blocks for exploration of Critical and Strategic Mineral based on previous work. They published the information of these blocks in Gujarat's Mineral Wealth. CGM, Gujarat vide email dated 14/11/2024alloted few blocks to MECL. The proposed Jhab graphite block (G-3 stage) is one of them. 2. The exploration work for the potential graphite deposit in the DevgadhBariya-Nagwav Block, Dahod district, Gujarat, was conducted at the G-4 stage as part of a reconnaissance survey by GSI during field season 2022-23 with an objective to delineate new zones of graphite mineralization.Large-scale mapping (LSM) was carried out over a 100 sq. km area at a 1:12,500 scale.The study area consists of Aravalli metasediments of the Champaner Group, including dolomite, micaceous quartzite, quartz-biotite schist, and graphite schist.A total of 94 samples were collected from different locations, including 50 BRS (Bedrock Samples), 50 channel samples, 10 PCS (Petrographic Core Samples) and 50 pitting/trenching samples. These samples were analyzed for fixed carbon (FC), major oxides, and trace elements. The key reasons for upgrading the exploration stage include: A). **Confirmed Graphite Mineralization:** Two potential graphite-rich zones identified in Ankli and Jhab-Nadatod. The later one falls with in the proposed block of MECL. Fixed Carbon (FC) content in samples ranges from 6.18% to 20.18%, indicating economic viability. High concentrations of trace elements such as Cr, Cu, Nb, Ni, Zn, and V, which are associated with graphite deposits. C). **Favorable Geological Setting:** Graphite schist occurs as interbanding with quartzite, mica schist, and dolomite of the Champaner Group. The presence of Godhra granitoids suggests a structurally favorable environment for mineralization.

		D). **Economic and Industrial Importance:** High-grade flaky graphite is in demand for lithium-ion batteries, refractories, and lubricants. India is increasing graphite exploration to reduce import dependency. E). **Recommendation for Detailed Subsurface Investigation:** To assess the continuity, grade variation, and depth persistence of graphite deposits. Drilling, trenching, and geophysical surveys will help delineate mineralized zones and estimate resources as per UNFC norms. The G-4 reconnaissance survey conducted in the DevgadhBariya-Nagwav Block identified significant graphite mineralization zones, justifying a more detailed G-3 stage preliminary exploration. ii) Further, During the field season 1965-66 the graphite deposit occurring near village Jhab and Dedhana of Devgadh Baria taluka, district Punchmahals was prospected by carrying out the detailed geological mapping and trenching by shriS.S.Shah the then Assistant Geologist of the Directorate of Geology and Mining, Government of Gujarat.The explored block lies in the eastern part of the proposed block. Detailed geological mapping was conducted to plan the drilling program. The area comprises rocks of the Champaner series, including biotite-schist, graphite schist, amphibole-quartz schist, and marble, intruded by granite, pegmatite, and amphibolite.Ten boreholes (JRG-1 to JRG-10) were drilled to explore the graphite schist bands.The drilling aimed to intersect the graphite schist at shallow depths (15-20 meters) based on initial findings.The boreholes covered a strike length of about 700 meters, with the total strike length of the southern limb being approximately 930 meters.The total reserves estimated were 0.86 million tonnes, categorized into proved, probable, and inferred reserves.The report provides several justifications for undertaking further exploration work in the nearby or extension areas of the Jhab-Redhana graphite deposit. iii) Based on earlierG-4 reconnaissance survey conducted in the DevgadhBariya-Nagwav Block identified significant graphite mineralization zones, justifying a more detailed G-3 stage preliminary exploration. Also detail exploration work carried out by CGM Gujarat in eastern part of the proposed block and the same litho unit is continuing in proposed block.

		Hence, proposed block may be taken for further level of exploration to prove the continuity of the ore body and to be establish the resources for auction of this block. viii) At present graphite is a critical mineral for the nation. The previous exploration in the surrounding area has established occurrences of graphite. Hence, the Preliminary Exploration (G-3) will help to establish the vertical and lateral extension of graphite in the current block, which will definitely augment the graphite resource and make the block auctionable.