



# RAJASTHAN STATE MINES & MINERALS LIMITED

(A Government of Rajasthan Enterprise)

SBU&PC- Gypsum, 2, Gandhi Nagar Scheme, Bikaner-334001 (Rajasthan)

CIN No. U14109RJ1949SGC000505

Phone: 0151-2523295/2544254, Fax 0151-2523519

Web Site: rsmm.com email: info.rsmml@rajasthan.gov.in

RSM/SBU & PC-GYP/Env/Dhani Abdulla Wali/2018-19/58

Date: 20-07-2018

To,

The Scientist 'G' /Advisor,

Ministry of Environment, Forest and Climate Change,

Impact Assessment Division, Indira Pariyawaran Bhawan,

Jor Bagh Road, New Delhi- 110003

**Subject:-** Expansion of "Dhani Abdulla Wali Gypsum Mines" with enhancement of production capacity from 5.0 Lakhs TPA to 6.0 Lakhs TPA(ROM) of Gypsum by M/s Rajasthan State Mines & Minerals Limited, located near village Dhani Abdulla Wali, Tehsil-Kolayat, District Bikaner, Rajasthan (ML Area 1278 ha).

Ref: - Direction of MOEF&CC vide Letter No. **J-11015/63/2014-IA.II (M), dated 11.4.2018.**

Dear Sir,

The compliances of MOEF&CC letter dated 11-04-2018 are as under.

S.No.	Issue Pointed out	Compliance
(i)	EIA/EMP report is not legible; therefore a clear legible copy of EIA/EMP along with all annexure needs to be submitted.	EIA/EMP along with annexure is enclosed as <b>Annexure-F.</b>
(ii)	Detailed Action Plan on the issues raised during public hearing needs to be submitted along with budgetary provisions.	Detailed Action Plan on the issues raised during Public Hearing along with Budgetary provision is enclosed as <b>Annexure-A.</b>
(iii)	Detailed Green Belt Development plan on periphery of the lease along with plantation etc.; PP needs to plant the edible species in and around the mine lease area in consultation with villagers.	The Revised Greenbelt plan with some edible species in an around the mine lease area as per consultation with Villagers is enclosed as <b>Annexure-B.</b>
(iv)	Detailed compliance of TOR 39 w.r.t. Project Cost & EMP cost needs to be submitted;	The revised Project Cost & EMP Cost is enclosed as <b>Annexure-C.</b>
(v)	Production details authenticated by Mines and Geology needs to be submitted since inception of mine to check violation, if any.	Production details authenticated by Mines and Geology since inception of mine is enclosed as <b>Annexure-D.</b>
(vi)	Agreements with Hospital/health facility w.r. t. injury/accidents of mine workers.	The Agreements with Hospital/health facility w.r.t. Injury/accidents of mine workers is enclosed as <b>Annexure-E.</b>

We also request your good selves to kindly consider this project in the forth coming EAC Meeting.

Yours Sincerely,

For RAJASTHAN STATE MINES & MINERALS LTD.

  
(D.S.ACHARYA)

Sr. Manager (Geology)

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**Annexure-A**

**Detailed Action Plan on the issues raised during public hearing along with budgetary provisions.**

<b>S.No.</b>	<b>Name &amp; Address</b>	<b>Issues/Suggestions raised</b>	<b>Action Plan as per MoEF&amp;CC letter dated 11-04-2018</b>
1	Haji Janu kha 20 SMD, Dani and Sarpanch Gram Panchayat Jaggasar Smt. Rameshwari Devi	Told that mining operation by M/s RSMML is beneficial for the villagers as they are getting labour works. He requested for repairing and maintenance of road connecting from mines to nearest Kolta road. He has also requested for plantation work for the coming monsoon season. He informed that the land become more fertile after the excavation of gypsum.	Repairing and Maintenance of mine approach / access roads are being carried out through villagers on contract on short term basis from time to time. Contract for hiring of tractor with scrapper attachment has been hired from M/s Kalu Khan S/O Janu Khan. Copy of work order attached as <b>Annexure-I</b> estimated expenditure based on present contract <b>is Rs. 2.16 Lakhs/Annum.</b>
2	Sarpanch Gram Panchayat Jaggasar Smt. Rameshwari Devi	She was agreed with the views of Haji Janu kha, that villagers are getting work at mines. I am thankful for such facilities for villagers.  She also requested for arrangement of water tanker to suppress dust and for community building.	One Water tanker having 5000 liter capacity with water sprinkler attachment has been hired from M/s Kalu Khan S/O Janu Khan on contract. Copy of work order attached as <b>Annexure-II.</b> estimated expenditure based on present contract <b>Rs. 3.24 Lakhs/Annum</b>
3	Dilip Kumar Beniwala, 23 SMD	He requested to repair temporary culvert on irrigation branches and for water sprinkling by tractor-tanker combination at mines.	Covered under contract as above. Culvert has been repaired.
4	Sarpanch Gram Panchayat Jaggasar Smt. Rameshwari Devi	Construction of water pond(Diggi)- Demand by Gram Panchayat	Budget provision of Rs. 40 Lakh has been kept in the budget for financial year 2018-19 for Environmental issues, out of which Rs. 10 Lakhs may spend on construction of water pond (Diggi) at location provided by the Gram panchayat. Location of water pond has not been provided by Gram Panchayat till date. If location not received from gram panchayat before December 2018 then the said work will be carried out in the financial year 2019-20.
5	Hari Prasad Pipraliya, Additional District Magistrate, District- Bikaner	What is the planning for plantation?  He inform that PWD will be repaired and maintain PWD road and Rural road will be repaired and maintained by project proponent.	Plantation has already been undertaken by the Gram Panchayat through villagers.  Repairing and maintenance of Rural Road is being carried out on contract through local villagers as mentioned at Point No-1



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RSMM/SBU & PC-GYP/LE-/2018/ 54

Date: 06.06.2018

08

### DETAILED LETTER OF ACCEPTANCE (DLOA)

**M/s Kalu Khan S/o Janu Khan**  
**Village: 20 SMD, Tehsil: Kolayat**  
**District – Bikaner**

**Sub:** "Providing one no. tractor having 45hp capacity with Scraper attachment on hire basis, for overburden removal, leveling and backfilling of mined out areas, maintenance of mine approach / access roads & and other related work at Dhani Abdullawali Gypsum Mine."

**Ref:-** i). Short Term LE No. RSMM/ GYP/Dhani/LE/2018-19-94 Dated -08.05.2018

**Dear Sir,**

This is in reference to your aforesaid offer; we are pleased to award you the work on the following terms & conditions.

**03. SCOPE OF WORK:**

The scope of work shall be as under:-

- 01.1 "Providing one no. tractor having 45hp capacity with Scraper attachment on hire basis, for overburden removal, leveling and backfilling of mined out areas, maintenance of mine approach / access roads & and other related work at Dhani Abdullawali Gypsum Mine."
- 01.2 Transportation of Tractor with Scrapper from the source to the places as mentioned above, tractor scrapper on all working days at specified timings as given by the concerned mines manager.
- 01.3 Cost of water for Tractor with Scrapper as well as purpose at source will be borne by the contractor. The Company will not pay the cost of transportation of Tractor with Scrapper to the contractor.
- 01.4 The contractor will have to engage valid license holder, competent, disciplined & physically fit drivers on Tractor scrapper for running in minimum one shift working smoothly & all seven days of every week. The drivers will always keep driving license

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with him while on duty & shall provide the same on demand by mines manager / authorized officer. Maximum 02 hour (Two) per day shall be Under this contract.

- 01.5 The Contractor shall ensure that the tractor with scrapper is always maintained in good condition and should be deployed in clean & tidy conditions with proper housekeeping.
- 01.6 The time schedule as indicated is tentative and company in its sole discretion, reserves the right to alter the same without giving any notice.
- 01.7 In case, the deployed water tankers are called for maintenance or comes under repair, the contractor shall have to deploy the same capacity of tractor scrapper as specified above.
- 01.8 The contractor will have to make its own arrangement for diesel & lubricant procurement which are included in the price offer. The company will not entertain any claim on account of escalation in diesel price during the contract period or extended period if any. Similarly in case of de-escalation in the diesel price during the contract period & extended period if any, the offered rate per trip will be intact & no deduction will be made by the company on said account.
- 01.11 The contractor shall have responsibility to ensure that the insurances of tractor scrapper & employees deployed on water tankers by him to cover under comprehensive or any other insurance policy at his own cost. The insurance policy is to cover the claims towards the injury caused to the persons & to injury to any third /person/property.

### 2.0 MOBILISATION & COMMENCEMENT OF WORK:

Contractor shall have to mobilize their equipments/manpower/resources to commence the work of supply & water sprinkling immediately **within 07 days** from the date of issuance of LOA/DLOA i.e.

### 5.0 PERIOD OF CONTRACT:

Period of contract shall be Three Months including the period of Mobilization and approx. **60 Hours per month** shall be the quantum of work with maximum 02 hours per day. The time period may be extend subject to requirement.

### 6.0 RATES & PAYMENT:

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The rate shall be as under which shall be firm and binding during the tenure of the contract.

Brief Description of work	Rate (Rupees / Tanker)
"Providing one no. tractor having 45hp capacity with Scraper attachment on hire basis, for overburden removal, leveling and backfilling of mined out areas, maintenance of mine approach./ access roads & and other related work at Dhani Abdullawali Gypsum Mine."	Rs. 300.- per Hour <i>(Rupees three hundred Only)</i>

The price quoted and finally accepted by the company shall be deemed to include and cover all costs, expenses, taxes, duties, levies and liabilities of every description and all risk of every kind to be taken in execution except GST.

### 5.0 PAYMENT TO THE CONTRACTOR:

The payment to the contractor shall be made on the monthly basis. For payment purpose; the contractor shall raise the bills on monthly basis for the operation of Tractor scrapper separately on number of hour basis to receive its remuneration in the office of GGM (Gypsum) at Bikaner office. The payment of the bills shall ordinarily be made within 15 days from the receipt of the bill at Bikaner office. Further, the contractor has to provide a valid copy of PAN card & A/c details so as to payments will made through RTGS.

The rate as accepted by the company & governed as per the DLOA alone shall be considered for billing purpose. The company shall be deducting TDS as applicable (or any other taxes as prevailing at the time of payment) from the bills of the contractor.

### 6.0 DISPUTE & JURISDICTION:

The place of the contract shall be Bikaner (Rajasthan). However the decision of the Head of the SBU & PC Gypsum of RSMML shall be final and binding.

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All other terms & conditions shall be applicable as per Short term LE issued on dated 08.05.2018 at CEU-Bikaner.

Yours faithfully,  
For Rajasthan State Mines & Minerals Limited

  
Dy. Manager (Mining & Contract)

Copy to: -

1. Head & Incharge (Gyp), Bikaner: For kind information please
2. Dy. GM (F&A), Bikaner: For kind information please
3. Sr. Manager (Mining), Bikaner
4. Sr. Manager (P&A), Bikaner
5. CEU Incharge / Mines Manager-Dhani Abdullawali.

  
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RSMM/SBU &PC-GYP/LE-/2018/53

Date: 06.06.2018

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### DETAILED LETTER OF ACCEPTANCE (DLOA)

**M/s Kalu Khan S/o Janu Khan**  
**Village: 20 SMD, Tehsil: Kolayat**  
**District – Bikaner**

**Sub:** "providing one water tanker having 5000 litre capacity with water sprinkler attachment on hire basis, arrangement of water at his own cost including drinking water, its transportation to departmental & public weighbridges, office buildings & staff quarters, parking place of trucks/ trollas, weighbridges to village approach road, plantation site for watering to plants, sprinkling water on mine's approach /access road & any other related places at Dhani Abdullawali Gypsum Mine."

**Ref:** i). Short Term LE No. RSMM/ GYP/Dhani/LE/2018-19-95 Dated -08.05.2018

**Dear Sir,**

This is in reference to your aforesaid offer; we are pleased to award you the work on the following terms & conditions.

#### **02. SCOPE OF WORK:**

The scope of work shall be as under:-

- 01.1 "providing one water tanker having 5000 litre capacity with water sprinkler attachment on hire basis, arrangement of water at his own cost including drinking water, its transportation to departmental & public weighbridges, office buildings & staff quarters, parking place of trucks/ trollas, weighbridges to village approach road, plantation site for watering to plants, sprinkling water on mine's approach /access road & any other related places at Dhani Abdullawali Gypsum Mine."
- 01.2 Transportation of water for sprinkling from the source to the places as mentioned above, water sprinkling on all working days at specified timings as given by the concerned mines manager.
- 01.3 Cost of water for sprinkling as well as drinking purpose at source will be borne by the contractor. The Company will not pay the cost of transportation of water tanker to the contractor.

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- 01.4. The contractor will have to engage valid license holder, competent, disciplined & physically fit drivers on water tanker for running in minimum one shift working smoothly & all seven days of every week. The drivers will always keep driving license with him while on duty & shall provide the same on demand by Mines Manager / authorized officer. Maximum water tanker per day shall be 3 nos. (Three nos.) Under this contract.
- 01.5 The Contractor shall ensure that the tractor mounted water tanker is always maintained in good condition and should be deployed in clean & tidy conditions with proper housekeeping.
- 01.6 The time schedule as indicated is tentative and company in its sole discretion, reserves the right to alter the same without giving any notice.
- 01.7 In case, the deployed water tankers are called for maintenance or comes under repair, the contractor shall have to deploy the same capacity of water tankers as specified above.
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### 2.0 MOBILISATION & COMMENCEMENT OF WORK:

Contractor shall have to mobilize their equipments/manpower/resources to commence the work of supply & water sprinkling immediately **within 07 days** from the date of issuance of LOA/DLOA i.e.

### 4.0 PERIOD OF CONTRACT:

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The price quoted and finally accepted by the company shall be deemed to include and cover all costs, expenses, taxes, duties, levies and liabilities of every description and all risk of every kind to be taken in execution except GST.

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Yours faithfully,  
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Dy. Manager (Mining & Contract)

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5. CEU Incharge / Mines Manager-Dhani Abdullawali Mines

  
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**Annexure-B**  
**Detailed Green Belt Development plan as per MoEF&CC vide letter dated 11-04-2018**

It is proposed that sapling/seedlings of trees and shrubs will be planted every year on periphery of mining lease area and boundary of Khaedari land. Plantation activities will also be undertaken at public places, village area and along the road sides.

Gypsum mining is an eco-friendly mining where in removal of gypsum (Hard Pan) from surface or under thin layer of desert sand will make land suitable for crops like Wheat, Oat, Peanuts, Gwar, Til and Moth etc. Therefore, mined out land which is under possession of Khatedar cannot be used for plantation work. First object of Khatedar is to take crops from the mined out land by using water of Indira Gandhi Canal or from rain during the monsoon season and plantation activities on the boundary of their land.

As directed, project proponent discussed edible and other species which are surviving in and around the mine lease area with villagers and proposed following species for plantation from financial year 2019-20 onwards. Plantation part as mentioned in existing scheme of mining will be executed as per said proposed green belt development action plan.

**Table- List of suitable species proposed for Greenbelt development**

S.N.	Common Name, Botanical Name & Family	Growth	Tolerance Level	Uses
<b>Trees</b>				
1.	CN: Siris BN: <i>Albizia lebbek</i> F: Fabaceae	Fast growing	Tolerant to air pollution and dry conditions	Medicinal, Light-wood, Fuel-wood
2.	CN: Neem BN: <i>Azadirachta indica</i> F: Meliaceae	Fast growing after 1 <sup>st</sup> season	Tolerant to air pollution and dry conditions	Edible, Medicine, Fuel, Timber
3.	CN: Nimbu BN: <i>Citrus aurantifolia</i> F: Rutaceae	Fast growing	Tolerant to dry conditions	Edible, Fodder, Medicine
4.	CN: Kinnu BN: <i>Citrus hybrid</i> F: Rutaceae	Fast growing	Tolerant to dry conditions	Edible, Fodder, Medicine
5.	CN: Shesham BN: <i>Dalbergia sissoo</i> F: Fabaceae	Moderate in 1 <sup>st</sup> year faster afterward	Tolerant to air pollution	Timber, Medicine
6.	CN: Peepal BN: <i>Ficus religiosa</i> F: Moraceae	Fast growing	Tolerant to air pollution	Edible for birds/animals, Medicine, Air Purifier, Religious
7.	CN: Khejri BN: <i>Prosopis cineraria</i> F: Fabaceae	Fast growing	Tolerant to air pollution and dry conditions	Edible, Fodder, Medicine, Timber
8.	CN: Pilwan/ Mitha Jal BN: <i>Salvadora oleoides</i> F: Salvadoraceae	Fast growing	Tolerant to dry conditions	Edible, Medicine, Fuel
9.	CN: Khari Jal BN: <i>Salvadora persica</i> F: Salvadoraceae	Fast growing	Tolerant to dry conditions	Edible, Medicine, Fuel, Light- Timber

**Annexure-B**  
**Detailed Green Belt Development plan as per MoEF&CC vide letter dated 11-04-2018**

10.	CN: Rohida BN: <i>Tecomella undulata</i> F: Bignoniaceae	Fast growing	Tolerant to dry conditions	Fodder, Medicine, Fuel, Timber,
11.	CN: Pemly Ber BN: <i>Ziziphus mauritiana</i> F: Rhamnaceae	Slow growing	Tolerant to dry conditions	Edible, Fodder, Timber, Medicine
12.	CN: Desert Ber BN: <i>Ziziphus nummularia</i> F: Rhamnaceae	Slow growing	Tolerant to dry conditions	Edible, Fodder Fuel, Medicine,
<b>Shrubs</b>				
13.	CN: Anar BN: <i>Punica granatum</i> F: Lythraceae	Slow growing	Tolerant to dry conditions	Edible, Medicine,
14.	CN: Bui BN: <i>Aerva persica</i> F: Amaranthaceae	Fast growing	Tolerant to dry conditions	Seeds Edible, Suitable to stabilize of Sand Dunes
15.	CN: Kair BN: <i>Capparis decidua</i> F: Brassicales	Fast growing	Tolerant to dry conditions	High medicinal value, Best species to stabilize of Sand Dunes
16.	CN: Karonda BN: <i>Carissa carandas</i> F: Apocynaceae	Slow growing	Tolerant to dry conditions	Edible, Medicine,
17.	CN: Mogra BN: <i>Jasminum sambac</i> F: Oleaceae	Fast growing	Tolerant to dry conditions	Ornamental, Edible, Perfumes, Medicinal
18.	CN: Phog BN: <i>Calligonum polygonoides</i> F: Polygonaceae	Slow growing	Tolerant to dry conditions	Fuel wood, Suitable to stabilize of Sand Dunes
<b>Herbs</b>				
19.	CN: Dhamasa BN: <i>Fagonia arabica</i> F: Zygophyllaceae	Fast growing	Tolerant to dry conditions	Medicinal
20.	CN: Kheemp BN: <i>Leptadenia pyrotechnica</i> F: Apocynaceae	Fast growing	Tolerant to dry conditions	Edible, Medicinal, Fire fuel,
<b>Grasses</b>				
21.	CN: Bhurat BN: <i>Cenchrus biflorus</i> F: Poaceae	Fast growing	Tolerant to dry conditions	Edible, Medicinal, Suitable to stabilize of Sand Dunes
22.	CN: Dhaman BN: <i>Cenchrus setigerus</i> F: Poaceae	Fast growing	Tolerant to dry conditions	Fodder, Suitable to stabilize of

**Annexure-B**  
**Detailed Green Belt Development plan as per MoEF&CC vide letter dated 11-04-2018**

				Sand Dunes
23.	CN: Daabh BN: <i>Desmostachya bipinnata</i> F: Poaceae	Fast growing	Tolerant to dry conditions	Medicinal, Suitable to stabilize of Sand Dunes
24.	CN: Sewan BN: <i>Lasiurus scindicus</i> F: Poaceae	Fast growing	Tolerant to dry conditions	Fodder, Suitable to stabilize of Sand Dunes
<i>Ref. Guidelines for developing Greenbelts, CPCB, PROBES/75/1999-2000</i>				

It is submitted that in above circumstances, Khatedars of are willing to go for short period mutual land agreement wherein project proponent committed for land compensation @70/metric ton on Gypsum Production and dispatches from mines (As per weighment at Weighbridge) with backfilling and leveling of mined out land. The Land compensation as being paid by project proponent is more than the market value of Land and it will support to Khatedars in their up-liftment of social and economic status which help them to arrange their agriculture equipments as well as other resources as needed in Agriculture activities.

**Annexure- C**  
**Updated Project Cost & EMP cost as required by MoEF&CC vide point no-(iv) of letter**  
**dated 11-04-2018**  
**Project Cost**

<b>S. No</b>	<b>Equipment/Infrastructure</b>	<b>Cost in Rs. (Lakh)</b>
<b>A</b>	<b>Capital Cost</b>	
i	One Hydraulic Excavator	73.00
ii	One Bunk House	5.00
iii	Weighbridge	15.00
<b>Total-A</b>		<b>93.00</b>
<b>B</b>	<b>Recurring Cost</b>	
i	Salaries & Wages, Contribution to PF/Gratuity, Bonus/Exgratia, Employees Welfare, Leave encasement and medical facilities of employees, Stores consumables, Machineries Operation, Repairing & Maintenance, stationary, CSR & overhead expenditures per year..	900.00
ii	Royalty on Mineral per year.	750.00
iii	District Mineral foundation Trust per year.	75.00
iv	Land Compensation to Khatedar @Rs. 70/Metric Ton per year.	420.00
<b>Total-B</b>		<b>2145.00</b>
<b>C</b>	<b>EMP Cost</b>	
i	Repairing and Maintaince of haul and rural roads per year.	2.16
ii	Water tanker for sprinkling on Haul road and for plantation per year.	3.24
iii	AAQM on 6 monthly basis per year.	0.80
iv	CTO fees per year.	4.00
v	Plantation (Cost of plants, water arrangement, plantation through villagers (Labour cost) per year.	5.00
vi	Environment Protection Equipment like Helmet, earmuff, goggles, safety shoes, Gloves, Mask, First aid facilities etc. per year.	0.10
v	Construction of water Diggi (Pond) as demanded in Public Hearing (one time)	10.00
<b>Total-C</b>		<b>25.30</b>

राजस्थान सरकार

कार्यालय खनि अभियन्ता, खान एवं भूविज्ञान विभाग, बीकानेर

क्रमांक: खअ/बीका/संग/18-19/

18  
30/5/18

दिनांक:

राजस्थान स्टेट माईन्स एण्ड मिनरल्स लि.

एम.एल. 32/2005

निकटग्राम ढाणी अब्दुल्ला वाली,

तहसील कोलायत, जिला बीकानेर।

विषय : खनिज जिप्सम के उत्पादन समकों के सत्यापन बाबत।

संदर्भ : आपका पत्रांक RSMM/SBU & PC-GYPSUM/Environment/2018-19/15

दिनांक 08.05.2018

महोदय,

उपरोक्त विषयान्तर्गत लेख है कि राजस्थान स्टेट माईन्स एण्ड मिनरल्स लि. (RSMM Ltd.), एम.एल. 32/2005, निकटग्राम ढाणी अब्दुल्ला वाली, तहसील कोलायत, जिला बीकानेर द्वारा खनिज जिप्सम के खनन पट्टे की लीज अवधि के प्रारम्भ वर्ष 2009-10 से वर्ष 2017-18 तक की अवधि के दौरान जो उत्पादन किया है, उसका विवरण निम्नानुसार है, जो आवश्यक कार्यवाही हेतु प्रेषित है।

क्र.सं.	वर्ष	उत्पादन (M.T. में)
1	2009-2010	257062.00
2	2010-2011	493888.90
3	2011-2012	219714.50
4	2012-2013	295120.00
5	2013-2014	255013.10
6	2014-2015	342719.60
7	2015-2016	64149.10
8	2016-2017	80761.70
9	2017-2018	17941.67

खनि अभियन्ता

खान एवं भू-विज्ञान विभाग,  
बीकानेर

**Annexure-E**  
**Agreement with Hospitals/Health facility w.r.t injury as required by MoEF&CC vide point no-(vi) of letter dated 11-04-2018**

Dhani Abdulla wali gypsum mines is operating under the supervision of employees holding first aid certificate issued by The Ministry of Health and Family Welfare.

In case of any injury to mine worker first aid facilities is available at Mines. After first aid given at mines, injured worker may referred to Primary Health centre situated at Dhantore about 37Km from mines. If further required he may shift to District Hospital Bikaner, about 115Km from Dhantore.

Ambulance facility is provided for mine workers at Mines during the mining operation time. However till date no injuries to workers have been reported at Mines.

All the employees of RSMML are covered under RSMML Medical Rules for 100% reimbursement of medical expenses on treatment from any Government hospitals and other authorized hospitals.

For quick treatment if required, private hospitals at Bikaner are also authorized for consultation with reimbursement of medicine and testing cost.

If requires urgency, management of RSMML may permit hospitalized treatment at any private hospital under RSMML Medical Rules 2002. Gypsum Unit of RSMML has also authorized a Doctor of District Government Hospital affiliated with Medical Collage at Bikaner. For specific treatment some hospitals outside Bikaner and State are also authorized for medical Treatment by RSMML. Copy of First aid Certificate of employees posted at Mine, Authorization of Doctor and Authorization of various Hospitals along with a copy of RSMML Medical Rules 2002 is enclosed.



# St. John Ambulance Association

CERTIFICATE NO.

MFA3982804

Secretary General  
**DR. MANOJ MATHUR**

President  
THE PRESIDENT OF INDIA,  
Chairman Executive Committee  
MINISTER OF HEALTH & FAMILY WELFARE

son/daughter

has been awarded this certificate

of *Shri* **GAJLAB SINGH**  
his is to certify that **C S BANIWAL**

EXAMINATION	RE-EXAMINED FOR MEDALLION	CENTRE	LOCAL JAIPUR
SUBJECT	FIRST AID	DATE	27.09.96

PREVIOUS EXAMINATION DETAILS :-  
1. 402955 13.10.90  
2. 2620490 02.10.93

*Singh*

Signature or thumb impression of the holder

*Manoj Mathur*  
Secretary General

*APC*  
*Manoj Mathur*  
27.09.96  
SECRETARY GENERAL  
ST. JOHN AMBULANCE ASSOCIATION  
JAIPUR



# St. John Ambulance Association

CERTIFICATE NO

President

NFA1419212

Chairman Executive Committee  
MINISTER OF HEALTH & FAMILY WELFARE

THE PRESIDENT OF INDIA

Secretary General

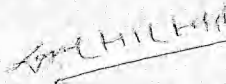
AJIT BHOWMICK

It is to certify that **RAM KUMAR SARKAR** son/daughter  
of **Shri** **REKHA RAM** has been awarded this certificate

EXAMINATION	RE-EXAMINED FOR MEDICAL	CENTRE	LUNKARANSAR
SUBJECT	FIRST AID	DATE	28.01.51

PREVIOUS EXAMINATION DETAILS-

1. FAC NO-202327      DATE- 30.10.44      CENTRE-UDAIPUR  
2. FAC NO-234782      DATE- 07.04.48      CENTRE-EKANER



Signature or thumb impression of the holder



Surgeon Examiner



Secretary General



# St. John Ambulance Association

CERTIFICATE NO.

President

AFAI/19210

THE PRESIDENT OF INDIA.

Secretary General

Chairman Executive Committee  
MINISTER OF HEALTH & FAMILY WELFARE

AJIT BHOWMICK

This is to certify that RUPA RAM

son/daughter

of Shri

KISHAN LAL

has been awarded this certificate

EXAMINATION	RE-EXAMINER FOR MEDALLION	CENTRE	LUKARANSAP
SUBJECT	FIRST AID	DATE	28.01.91

PREVIOUS EXAMINATION DETAILS-

1. FAC NO-179937      DATE- 14.12.84      CENTRE- JAPARKOTRA

2. FAC NO-234779      DATE- 07.04.86      CENTRE- ETIKAN

Signature or thumb impression of the holder

Surgeon Examiner

Secretary General

Printer: S. S. & M. Jemant, ulants, Id, New

# RAJASTHAN STATE MINES & MINERALS LIMITED

(A Government of Rajasthan Enterprise)

## REIMBURSEMENT OF MEDICAL ATTENDANCE RULES-DULY AMENDED -2002

1. These Rules may be called Rajasthan State Mines & Minerals Limited (Reimbursement of Medical Attendance) Rules, amended 2002. These rules shall come into force with effect from 01.04.2002 and would supersede all rules, instructions, and procedures/practices in force prior to the application of these rules.
2. These rules shall be applicable to all employees (both officers' and workmen) of the Company except the following:
  - (a) Employees appointed on part-time basis;
  - (b) Employees appointed on contract/adhoc basis ;except where specifically provided for in the terms of such contract/adhoc appointments;
  - (c) Employees who are on deputation to other organizations or are abroad, and
  - (d) Casual employees and apprentices except when these rules are specifically made applicable to them by an order.

3. In these rules unless where is any thing repugnant to the context, the following terms are used in the sense herein explained.

"Authorized Medical Attendant (AMA) means any allopathic Medical Practitioner registered with State/Central Medical Council, Or Homeopathic/Ayurvedic/Unani Medical Practitioner registered with a duly recognized body, provided such practitioner is working in any Central/State Government/Municipal Hospital or dispensary, and also means the Medical Officers of the company. In addition AMA shall also mean such medical practitioner as may be declared by the company to be an authorized medical attendant under these rules.

- (ii) 'Company' means Rajasthan State Mines & Minerals Limited.
- (iii) 'Family' means the employee, his legal wife (not more than one)/husband, as the case may be, legitimate unmarried children (including stepson and stepdaughter and also including legally adopted son or daughter) and parents wholly dependent on the employee.

### Explanations:

1. Employed or married sons & daughters and their wards shall not be considered as dependent children for medical reimbursement.
2. For the purpose of these rules the parents shall be regarded as wholly dependant upon the employee if they normally reside with the employee at the place of his posting and their total monthly income from all sources does not exceed Rs. 1000/- Lump-sum non-recurring income

*for circulation to all. DYP (PMA) Circulated to all. A.K.B. Jaf*

*10/4/02*

*RAJASTHAN STATE MINES & MINERALS LIMITED*

e.g. contributory provident fund, gratuity, insurance benefits etc. shall not be regarded as income for the purpose of these rules, but recurring monthly income from sources such as pension, house rent, land holding etc. should be taken into account for the purpose of assessing this income.

- (iv) 'Hospital' for the purpose of these rules means the following:
- (a) Central Government hospitals/dispensaries
  - (b) All State Government hospitals/dispensaries;
  - (c) Hospitals/dispensaries maintained by a local body i.e. Municipal Council etc;
  - (d) Dispensaries maintained by the Company; and
  - (e) Private hospitals/Nursing Homes/Clinics recognized by the Company as per annexures attached herewith
- (v) 'Managing Director' means Managing Director of Rajasthan State Mines & Minerals Limited;
- (vi) 'Medical Attendance' in respect of an employee means attendance by the AMA in a hospital, or in case of such illness which compels the employee or a member of his family to be confined at his residence, at the residence of the employee or his family and includes:-
- (a) Such pathological, bacteriological, radiological or any other methods, examinations, as may be specified by the AMA for the purpose of diagnosis;
  - (b) Consultation with the AMA in the hospital or at his residence; and
  - (c) Such nursing care as is ordinarily provided to patients by hospitals:

**Note:** In case of such hospitals as have been recognized by the company, reimbursement for medical attendance shall be restricted only to the treatment for which the hospital has been recognized by the company.

- (vii) 'Pay' for the purpose of these rules means basic pay;
- (viii) 'Treatment' means use of all medical and surgical facilities as might be ordinarily available in the hospital where patient has been referred to, and includes:
- (a) The employment of such pathological, bacteriological, radiological or any other methods as are considered necessary by the AMA.
  - (b) Dental treatment where the diagnosis of the physiological or other disability from which a patient is suffering, indicates that the teeth are the only source of ailment, provided the ailment is of a major kind, such as treatment of a bone disease, total removal of teeth, or impacted wisdom teeth.
  - (c) Surgical operations, including surgery needed for the removal of odontomas and also including oral surgery of the mouth.

- (d) The supply of such medicines, vaccines, sera or other therapeutic substances not ordinarily available in Government hospitals in the state.
  - (e) The supply of such medicines, vaccines, sera or other therapeutic substances not ordinarily so available, as the AMA may certify in writing to be essential for the treatment, or for the prevention of serious deterioration in the condition of the patient but excludes medicines which are regarded as food, toilets, tonics having more food value, disinfectants and other similar preparations. However, in burn cases such disinfectants, as approved by the treating AMA, would also be included in Medicines.
  - (f) Confinement in hospital, and prenatal and postnatal treatment, and
  - (g) Provision of accommodation for treatment.
4. The authority for extension of recognition to private hospitals/nursing homes/clinics and for declaration of authorized medical attendants shall vest with the Managing Director who shall determine the procedure to be followed in this regard from time to time.
5. All employees of the company, except those excluded in rule 2 of these rules, shall be eligible for reimbursement of cost of treatment and medical attendance for themselves and their families in accordance with the provisions of these rules.
6. Each employee shall be required to furnish to the Management a declaration of his dependants in the prescribed form (Annex. I) after every 3 years. It shall be the responsibility of the employee to intimate the change, if any, in the list of the dependants included in such declaration, immediately after such change in the list takes place. The Management shall have the discretion to reject the medical reimbursement claims in respect of the dependants of the employees, in case of such employees who as might not have filled their declaration form with the Management within the prescribed period.
7. Cost of artificial limbs, valves, plates, joints, pacemakers, or any other artificial implants/appliances will not be reimbursable. However, competent authority may allow reimbursement of such appliances as a special case.
8. Reimbursement of the expenditure incurred by an employee of the Company, on account of medical attendance and treatment, shall be made available to him only after he has submitted the claim in the prescribed form (Annex. III) to the Company's Medical Officers. The employee shall also enclose the original prescription and cash memos/receipts/vouchers etc. For places where Company's M.O. is not available, the employee shall submit the following papers along with the prescribed form for reimbursement of medical claim.

1. Original prescription of the treating AMA
2. Cash memos/receipts/vouchers in support of his claim.

Note:- It would be incumbent upon an employee to submit the claim for reimbursement in respect of himself, or members of his family, within a period of 90 days from the bill. Claims for reimbursement filed after this period shall not be normally entertained. Condonation of delay may, however, be considered by the Management upon the employee furnishing reasonable justification in this regard to the company's Chief Medical Officer, or to any other Officer duly nominated in this regard by the Management.

9. The following expenses may be reimbursed to the Company's employees:
- (a) Cost (including sales tax) of allopathic medicines, drugs, vaccines, sera or other therapeutic substances except such medicines, drugs, vaccines sera or other therapeutic substances as are contained in the list of non-admissible items as issued by the Government of Rajasthan from time to time.
  - (b) Cost of Ayurvedic/Unani medicines included in the list issued by the Government of Rajasthan from time to time, and cost of homeopathic medicines included in the list issued by the State Government from time to time.

Purchase of Allopathic and Ayurvedic medicines will be permissible from Sahkari Upbhokta Bhandar only, subject to following exceptions:-

- Sup*
- (i). In case of urgency in odd hours, medicines for only one day can be purchased from the market and in the alternative, an employee may be allowed to purchase the medicine from the market to the tune of rupees 150/- p.m. for non serious diseases.
  - (ii). If an employee and or his/her family members are actually living at such a place where no cooperative medical store exists and takes treatment from that area, then he may be allowed to purchase the medicines from that local market.
  - (c) Consultation fee charged by the AMA for attending on the employee or his family members, either at the residence of the patient, or at a hospital, or at the residence of such AMA including the fee charged by the compounder, or the nurse for rendering nursing services such as administering injections, dressing etc. but the reimbursement of such fees would be made only in accordance with the schedule attached with these rules (Annex. VI). However, in the case of receipts issued by the Government Doctors/Compounders/Nurses, actual charges would be reimbursed.

*DR*



- (d) Reimbursement of any pathological, bacteriological and radiological tests or any other diagnostic charges as might be prescribed by AMA, in accordance with the schedule attached with these Rules. [Annexure-VII]
- (e) Homeopathic treatment taken from the AMA would be eligible for reimbursement. Medical claims in respect of Ayurvedic treatment shall be admissible only upon due verification by the concerned Government Vaidya.
- (f) The actual cost of I.V. and Catheter sets, and blood transfusion sets, as well as blood transfusion charges (if any) shall be reimbursable.
- (g) Cost of hearing-aid artificial limb (including cost of replacing a limb) or calipers and implants shall be reimbursed only once in the entire tenure of the employee in the company, subject to Rules under clause 7.
- (h) In case of accident during the course of and/or arising out of duty, cost of medical treatment including cost of non-reimbursable medicines shall be reimbursed in full.
- (i) In respect of dental treatment, reimbursement will not be made for artificial denture and wiring but if the specialist, in a Medical College certifies that the root cause of any other disease is dental ailment and for treatment of that disease, the treatment of dental ailment is absolutely necessary, then in such cases expenses for artificial denture and wiring would be reimbursed.
- (j) Ambulance/transportation charges incurred to carry the patient from residence to hospital and vice-versa, or from one hospital to another for treatment or examination, shall be reimbursed on certification by AMA.
- (k) If an employee is on official tour or he/she or dependant family member of the employee has been referred for treatment to any of the authorized hospitals by the AMA, and such employee or dependant family member expires, then in such cases actual transportation charges incurred in transportation of the dead body of the employee or dependant family member from the place of his/her death to the last place of posting of the company's employee shall be reimbursed. Reimbursement of such transportation charges shall be limited to Rs. 3.0 per Km. if the mode of transportation is by Ambulance van / taxi car/jeep etc.
- (l) Special diagnostics tests such as CT scan, MRI, memogram, engeography etc. and other costly diagnostic tests more than Rs. 500/- for single test as prescribed shall only be reimbursable if recommended by the AMA not below the rank of Professor or Specialty Clinic Head or Company's Medical Officers.
- (m) Simultaneously treatment under two different systems of medicines like Allopathic, Unani, Ayurvedic, Homeopathy etc for same disease will not be reimbursed and the employee may choose one at a time for reimbursement.

- (d) Reimbursement of any pathological, bacteriological and radiological tests or any other diagnostic charges as might be prescribed by AMA, in accordance with the schedule attached with these Rules. [Annexure-VII]
- (c) Homeopathic treatment taken from the AMA would be eligible for reimbursement. Medical claims in respect of Ayurvedic treatment shall be admissible only upon due verification by the concerned Government Vaidya.
- (f) The actual cost of I.V. and Catheter sets, and blood transfusion sets, as well as blood transfusion charges (if any) shall be reimbursable.
- (g) Cost of hearing-aid artificial limb (including cost of replacing a limb) or calipers and implants shall be reimbursed only once in the entire tenure of the employee in the company, subject to Rules under clause 7.
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- (j) Ambulance/transportation charges incurred to carry the patient from residence to hospital and vice-versa, or from one hospital to another for treatment or examination, shall be reimbursed on certification by AMA.
- (k) If an employee is on official tour or he/she or dependant family member of the employee has been referred for treatment to any of the authorized hospitals by the AMA, and such employee or dependant family member expires, then in such cases actual transportation charges incurred in transportation of the dead body of the employee or dependant family member from the place of his/her death to the last place of posting of the company's employee shall be reimbursed. Reimbursement of such transportation charges shall be limited to Rs. 3.0 per Km. if the mode of transportation is by Ambulance van / taxi car/jeep etc.
- (l) Special diagnostics tests such as CT scan, MRI, memogram, engeography etc. and other costly diagnostic tests more than Rs. 500/- for single test as prescribed shall only be reimbursable if recommended by the AMA not below the rank of Professor or Specialty Clinic Head or Company's Medical Officers.
- (m) Simultaneously treatment under two different systems of medicines like Allopathic, Unani, Ayurvedic, Homeopathy etc for same disease will not be reimbursed and the employee may choose one at a time for reimbursement.

- 10 All the employees shall be eligible for cottage ward accommodation during the period of indoor treatment in State Government Hospital.
- 11 Special consideration for patients suffering from leprosy, tuberculosis or cancer, would be as follows:
- (i). Cost of medicines having more food value shall be reimbursable to the maximum extent of Rs. 200/- (Rupees two hundred) per month subject to certification by the AMA to the effect that such medicines were necessary for recovery of the patients.
12. (a.) In respect of an employee or a member of his family, whose illness is such that the facilities for its treatment at his normal place of posting are not considered to be adequate, it would be possible for the Management to refer such patient for treatment to a place other than his place of illness, provided such reference to a referred hospital (Annex-II) is made on the recommendation of the principal/Superintendent /Professor of concerned Department of a Medical College/Hospital (Govt. proforma attached as Annex-IV). In case the Deptt does not have a Professor, then the Unit Head [i.e. in the rank of Associated Professor or next] is authorized to refer. Such authority may also specify the mode of travel for such patient to the place of such treatment.
- (b) In case of serious illness if it is unsafe for the patient to travel unattended, then on specific recommendation by the authority referred to above, an attendant may be allowed to travel with the patient to the place of treatment. In such cases, travelling allowance for to and fro journey would be allowed to the patient and one attendant. No daily allowance or any other expenses would be admissible to such attendant. The travelling expenses for such journeys would as per the entitlement by train, unless some costlier mode of travel is prescribed by the referring authority only for one side journey.
- (c) All further follow up / checkup except one follow up will require the same procedure / compliance as mentioned above. Travelling expenses of only one attendant shall be reimbursed for the 1st follow up visit and for the subsequent visits attendant's travelling expenses shall not be reimbursed except on special recommendation by the referring authorities.
- (d) Local conveyance to and fro charges shall be reimbursed only one time irrespective of number of visits to hospitals/temporary residence/bus stand/railway station/airport.
- (e) At the office / establishment of the Company, where Company's medical officers are not posted, the referral cases shall require recommendation of either CM&HO or Principal Medical Officer of the concerned Government Hospital.

*[Handwritten signature]*



- (f) Treatment at outstation, of the Company's recognized hospitals i.e. Rajasthan Hospital, Ahmedabad and Krishna Heart Institute Ahmedabad (Annexure-V) will only be made available on the recommendation of Company's CMO/authorized officer to avail special discount from these hospitals for RSMML employees. In want of such recommendation, 10% deduction will be made from the bill amount to be reimbursed to the employee. However, employees posted /on official tour at these places may avail facilities for normal illness without prior recommendation of CMO/authorized officer.
- (g) In case treatment is taken in recognized referral hospitals (referred cases), payment for accommodation, treatment, operation, medical investigation, nursing facilities & other relevant services will be made as per rates applicable for lowest class of economic ward.
13. (i) An advance to cover the anticipated cost of treatment, including cost of transportation would be permissible to be drawn by the employee. Such advance would be available to the employee only in the event of his treatment requiring hospitalization. The quantum of such advance would be as recommended by the referring authority or through Company's Medical Officer.
- (ii) Where such advance is considered to be necessary by him, the employee would submit an application in this regard to the competent authority along with a specific recommendation regarding the quantum of such advance by referring authority.
- (iii) Such advance should be adjusted by the employee within 30 days of completion of treatment, along with refundable amount if any. Sanction of subsequent advance could be considered for the employee depending upon the recommendation in this regard by CMO/ACMO, and subject to the settlement in full of the previous advance by the treating hospital.
- (iv) A penal interest @ 18% shall be chargeable from the employee in case of default by him in the settlement of the advance within the stipulated period. In addition, Management shall be free to take disciplinary action against the employee for such default.
14. Special medical cases pertaining to critical and serious conditions, which are not covered under above rules, will be examined by a committee consisting of executives and union representatives.
15. The Managing Director would have the right to alter/modify any or whole of these rules, and/or grant any concessions relating to the medical treatment to any employee, which are otherwise not provided in these rules, or permit any patient to travel by modes of travel other than his entitlement.

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# RAJASTHAN STATE MINES & MINERALS LTD

( A Government of Rajasthan Enterprise )

**CORPORATE OFFICE**

4, Meera Marg, Udaipur - 313 004

FAX :(0294)2521727, 2523170; PHONE : 2523585, 2528681-85

No.RSMM/CO/P&A /10(1)/ 1578

Dated 25.03.2006

## OFFICE ORDER

In accordance with the minutes of discussions dtd. 21.03.2006 the following Hospitals will be considered as **Recognised Hospitals** for treatment of the employees and their dependents with immediate effect :

- i) All India Institute of Medical Sciences, New Delhi
- ii) Bombay Hospital, Mumbai
- iii) Mulji Bhai Patel Urological Hospital, Nadiad

Chief (Pers. & Admn.)

cc PS to MD  
 cc FA, C.O/F.A., K.B.Jaipur  
 cc GGM(RP)GGM(Cont)/GGM(LS)/GGM (Lig.)/GGM(Gyp)  
 cc GM(MIS)  
 cc:ACMO  
 cc; M(ADMN.)  
 cc : GS, RSMMWF

Bis/cont

Chief (Pers. & Admn.)

29/3/06  
SM/CO/CA

29/3

724

29/3/06

A-circulate to all  
Shi Belya

R. S. M. M. L. D.  
 BIKANER  
 Inward No. 936  
 Date 29/3/2006



# RAJASTHAN STATE MINES & MINERALS LTD

( A Government of Rajasthan Enterprise )

Regd. Office : 89-90, Lalkothi Scheme, Jaipur

CORPORATE OFFICE: 4, Meera Marg, Udaipur - 313 001

FAX :(0294)2521727, 2523170; PHONE : 2523585, 528681-85

E-mail : [rsmmltd1@jpl.vsnl.net.in](mailto:rsmmltd1@jpl.vsnl.net.in)

Ref: RSMM/CO/Admn./ 4(1)/07- 228

Dated: 05.06.2007

## Office Order

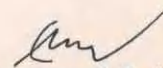
In exercise of the powers conferred by rule 15 of the reimbursement of Medical Attendance Rules, the Managing Director of the Rajasthan State Mines & Minerals Ltd., hereby amend the said rules as under:-

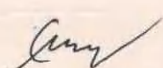
For the existing rule 7 the following shall be substituted, namely:-

“ 7(1) the following sterile devices shall be reimbursed:-

1. Cardiac Stents
2. Drug Eluting Stents
3. Catheters
4. Intra Ocular Lenses
5. I.V.Cannulac
6. Bone Cements
7. Heart valves
8. Scalp Vein set
9. Orthopaedic Implants
10. Internal Prosthetic Replacements

7(2) Cost of other artificial implants/appliances will not be reimbursable, however competent authority may allow reimbursement of such appliances as a special case.

  
Chief (Personnel & Adm.)

  
Chief (Personnel & Adm.)

Copy to: PS to M.D

- : All(SBU-PC) GGM(GYP)
- : All HoDs at C.O
- : CMO,C.O/ACMO,Jkt.
- : G.S.RPMS
- : Notice Board

Inward No. 4596

Date 11/6/07

*By GJM (PAA)  
to M.D  
11/6*

*CC  
M.D  
Circulated  
to all concerned.  
Please file  
27/6*



# RAJASTHAN STATE MINES & MINERALS LTD

( A Government of Rajasthan Enterprise )

Regd. Office : C-89/90, Janpath, Lal Kothi Scheme, Jaipur

CORPORATE OFFICE: 4, Meera Marg, Udaipur - 313 001

FAX : (0294)2521727, 2523170; PHONE : 2560366, 2523585, 2528681-85

E-mail : rsmml@sancharnet.in

No.RSMM/CO/ADM/4(30)/07-~~30~~ 307

Dated: 14.06.2007

## OFFICE ORDER

In exercise of power conferred under Rule-4 of reimbursement of Medical Attendance Rules -2002, the Management is pleased to accord approval for reimbursement of fees paid for Pathological / Radiological and other diagnostic tests conducted at any Pathological /Radiological Diagnostic Centres run /supervised by a registered Medical Practitioner, on actual basis or the rates already approved by the Company, which ever is less. This will be applicable in the State of Rajasthan only. It will come into force with immediate effect.

This bears approval of the Competent Authority.

Chief (Pers. & Admn.)

Copy to: : PS to MD GGM (SBU-PC) GYP.  
: SBU & PC Heads - for compliance of above  
: C.M.O. B.S. BSMWF  
: Notice Board

Chief (Pers. & Admn.)

*Handwritten notes:*  
GGM (D & A)  
20/6  
N(A)A-

**R. S. M. M. LTD**  
**BIKANER**  
Inward No. 1682  
Date: 19/6/07

No. Rsmml/GYP/Pers/2007-284

Dt. 20/6/2007

Copy forwarded to the followings for information and action:

1. SM (min-Rod) / SM (min-Cent.) / SM (R & A) / M (Head) / M (Mcty), Bikaner office
2. Incharge c EU - Rawla / Sanchara / Bikaner / Nagaur / Hanumangarh office.
3. Notice Board, Bikaner office.

Dy. Gen. Manager (PSA)



# RAJASTHAN STATE MINES & MINERALS LTD

( A Government of Rajasthan Enterprise )

Regd. Office : 89-90, Lalkothi Scheme, Jaipur

CORPORATE OFFICE: 4, Meera Marg, Udaipur - 313 001

FAX :(0294)2521727, 2523170; PHONE : 2523585, 2528681-85

E-mail : rsmmld1@jp1.vsnl.net.in

No. :RSMM/CO/ Admn./4(30) /2007-691

Dated: 24.09.2007

## OFFICE ORDER

The following Hospitals will be considered as recognized Hospitals for treatment of the employees & their dependents with effect from 01.08.2007:-

1. Gujarat State Cancer & Research Institute, (MP Shah Cancer Hospital), Ahmedabad.
2. Bhagwan Mahaveer Cancer Research Centre, JNL Marg, Jaipur

*Handwritten note:*  
05/10/07  
Mrgd. Off.

*Signature*  
Chief ( Pers. & Admn.)

- CC to: 1. PS to MD  
2. All SBU & PCs (GYP) Bikaner  
3. All HoDs at C.O.  
4. CMO, C.O.  
5. ACMO, Jkt. Mines  
6. GS, RPMS.  
7. Notice Board.

*Signature*  
Chief ( Pers. & Admn.)

No. RSM M/44P/Pen/07-

Dt. 6/10/2007



- copy forwarded to the followings for kind information please.

1. SM (Min-Prod)/SM (Min-Cont)/SM (FEA)/M (Geo)/M (Mktg).
2. Incharge - CEU, HMH/Rawla/Nagaur/SNCR/Bikaner.
3. Notice Board, Bikaner office.

*Signature*  
Manager (FEA)



# RAJASTHAN STATE MINES & MINERALS LTD

( A Government of Rajasthan Enterprise )

Regd. Office : 89-90, Lalkothi Scheme, Jaipur

CORPORATE OFFICE: 4, Meera Marg, Udaipur - 313 001

FAX : (0294)2428739, 2428768; PHONE : 2428794, 2428763-67

E-mail : [rsmml@sancharnet.in](mailto:rsmml@sancharnet.in)

✓ 4(14)

Ref: RSMML/CO/Admn/ 4(30)/2008 - 123 .

Dated: 13.05.2008

## OFFICE ORDER

Amar Medical & Research Centre, Kiran Path, Mansarowar, Jaipur is considered as recognised Hospital for the treatment of the employees of RSMML & their dependents w.e.f. 26.04.2008. They will allow 10% discount on all treatments. The discount will also applicable to Ex-employees of RSMML.

Pl. circulate  
for (P&A)

Pl. Circulate  
to all.

15/5/08

Sh. Bhalooji

Chief (Pers. & Admn.)

Encl: Rate list

- CC to: 1. PS to MD  
 ✓ 2. All Heads of SBU & PCs (Bikaner)  
 3. All HoDs at C.O. - F.A.  
 4. M.O. C.O.  
 5. ACMO, Jkt Mines  
 6. GS, RPMS  
 7. Notice Board.



Chief (Pers. & Admn.)

Copy forwarded to the followings for R/information.

- ① Sr. PS to GGM / DGM (min), Bikaner office
- ② Sr. Mgr (FEA) / Sr. Mgr (min), Bikaner office
- ③ Manager (MKT) / Mgr (Geo), Bikaner office
- ④ Incharge - CEU - Rawla / Sanchole / Bikaner / Hanumangarh / Nagaur office.
- ⑤ Notice Board, Bikaner office.

sent to all.  
RM  
16/5/08

Manager (P&A)

4(14)



# RAJASTHAN STATE MINES & MINERALS LTD

( A Government of Rajasthan Enterprise )

Regd. Office: C-89/90, Janpath, Lal Kothi Scheme, Jaipur

**CORPORATE OFFICE: 4, Meera Marg, Udaipur - 313 001**

FAX : (0294)2428739, 2428768; PHONE : 2428794, 2428763-67

E-mail : [rsmml@sancharnet.in](mailto:rsmml@sancharnet.in)

Ref:RSMM/CO/Admn/4(30)09/ 659

Dated : 16th December, 2009

## C I R C U L A R

All the Medical Officers/Authorised Medical Attendants of the Company are hereby advised that the Medical bills submitted by the employees for reimbursement should be verified strictly as per Medical Rules of the Company in future.

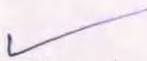
This is as per the directives of the competent authority.

**Chief (Pers. & Admn.)**

CC to:

*Handwritten notes:*  
Hamm (280)  
A  
22/12

GGM(Phos)/ GGM (LSU) GGM(Lig)/GGM(Gyp.)  
F.A. C.O.  
Manager (F&A), Jkt Mines  
Dy. CMO, Jkt Mines/M.O. C.O.  
All the Medical Attendant of the Company  
Office copy



**Chief (Pers.& Admn.)**

*Handwritten notes:*  
Sh. Balrajji  
A  
22/12



# RAJASTHAN STATE MINES & MINERALS LTD

( A Government of Rajasthan Enterprise )

Regd. Office : 89-90, Lalkothi Scheme, Jaipur

CORPORATE OFFICE: 4, Meera Marg, Udaipur - 313 001

FAX :(0294) 2421770 2421727; PHONE : 2428794,2428763-67

RSMML/CO/Adm/4(30)/10-11/- 1055

Dated:23.02.2011



## OFFICE ORDER

M/s Royal Eye Care & Research Centre, Goving Marg, Adarsh Nagar, Jaipur is considered as recognized Hospital for the Eye treatment of employees of RSMML & their dependants w..e.f. 24/01/2011.

*[Signature]*  
Chief (Pers.&Admn.)

Enc. Rate List

- Cc:to: 1. PS to MD  
 2. All HOD's of SBU & PCs/FA-C.O. (Cypsum)  
 3. All HOD's at C.O.  
 4. ACMO Jkt Mines/Sr. Medical Officer, C.O.  
 5. Notice Board

*[Signature]*  
Chief (Pers.&Admn.)

*मार्गदर्शक*  
*80 नंगल (886)*  
*28/2/11*

*श्री. बलराज*  
*28/2/11*

4(14)



# RAJASTHAN STATE MINES & MINERALS LTD

( A Government of Rajasthan Enterprise )

Regd. Office : 89-90, Lalkothi Scheme, Jaipur

CORPORATE OFFICE: 4, Meera Marg, Udaipur - 313 001

FAX : (0294)2428739, 2428768; PHONE : 2428794, 2428763-67

E-mail : [rsmml@sanchamnet.in](mailto:rsmml@sanchamnet.in)



Ref:RSMM/CO/Admn/4(30)/10-11-1110

Dated: 14<sup>th</sup> March, 2011

## OFFICE ORDER

M/s Escort Fortis Hospital, Jaipur has been empaneled in the list of recognized hospitals for all kinds of treatment of employees of RSMML & their dependents on the rates at par with Santokbha Durlabhji Memorial Hospital, Jaipur w.e.f. 01/03/2011 or actual whichever is less. For reference, rates & discounts offered by M/s Escort Fortis Hospital, Jaipur is enclosed with the letter.

Chief (Pers. & Admn.)

- CC to:
1. PS to MD
  2. All GGM of SBU & PCs/F.A-C.O/KB *Cyprusum (Bikaner)*
  3. All HOD's at C.O./M(mkt.) *Lkr Regl office Jaipur*
  4. ACMO Jkt Mines/ Sr.M.O. C.O.
  5. Notice Board

Chief (Pers. & Admn.)

*No enclosure  
received  
17/2/11*

*सु. बाबाजी  
17/2/11*

*CC to Sr. Mgr (F&A) Bikaner*

*CC to Incharge CCU - Bikaner / Nagarmat Hanumanmangal / Sanchase / Rawatla*

*CC to Notice Board*



1422

## RAJASTHAN STATE MINES & MINERALS LIMITED

(A Government of Rajasthan Enterprise)

SBU&PC- Gypsum

2, Gandhi Nagar Scheme, Bikaner-334001 (Rajasthan)

Phone: 0151-2523295/2544254, Fax 0151-2523519

No. RSM/ GYP/ Admn/3(1)/2013- 796

Dated: 25-10-2013

Dr. Narender Kumar Gahlot,  
Behind of Veterinary College,  
Near Indane Gas Godam,  
BIKANER (Rajasthan).

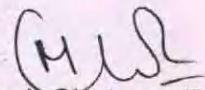
Sub: Medical consultation to our employees.  
Ref: Your request dated 06-09-2013.

Sir,

With reference to above, management is please to retain you for providing medical consultation/treatment to our employees and their dependent family members and also verification of medical bills submitted by employees on the consolidated retainership fee of Rs.5,000/- (Rupees Five Thousand) per month with effect from 25-10-2013 to till further orders.

Thanking you,

Yours faithfully,  
For RAJASTHAN STATE MINES & MINERALS LTD,

  
(Mukesh Chaturvedi)  
Gr.General Manager(Gyp)

*File Accepted.*

*23*  
*28.10.13*

Cc to: SM(Geo)/SM(Min)&Agent/SM(Min-Cont)/SM(F&A), Bikaner office.

Cc to: Dy. Manager (Mktg), Bikaner office.

Cc to: CEU-Incharge, Bikaner/Nagaur/Hanumangarh/Sanchore/Rawla office.

Cc to: Notice Board, Bikaner office.

Gr.General Manager(Gyp)

### Registered Office:

C-89, Janpath Lal Kothi Scheme,  
Jaipur- 302015  
Phone 0141-2743734  
Fax: 0141-2743735

### Corporate Office:

4, Meera Marg,  
Udaipur - 313001  
Phone: 0294-2428763-67  
Fax: 0294-2428768,2428739

### Delhi Office:

1/19-B Asaf Ali Road,  
New Delhi-110 002  
Phone: 011-3231711  
Fax:011-3230710

F. 247

R/121



**RAJASTHAN STATE MINES AND MINERALS LTD**

( A Government of Rajasthan Enterprise )

SBU&PC - GYPSUM

Sadul Club Building

Bikaner

e-mail: rsmmlgyp@vsnl.com

No. RSMM/GYP/Pers/4(14)/2004-1263

Dated: 15-01-2004.

M/s. Kothari Medical & Research Institute,  
Gajner Road,  
BIKANER.

Sub: Authorisation of your Hospital for treatment of  
our employees.

Dear Sir,

This has reference to the schedule of charges submitted by you  
and further discussions held with you on the above subject.

The management is pleased to recognize your hospital for  
consultation only for our employees and their dependent family  
members with effect from 19-01-2004.

You shall charge Rs.50/- only per consultation for 15 days.

The management reserves the right to terminate your  
authorization without assigning any reason by giving fifteen  
days notice.

Kindly send your acceptance by returning the duplicate copy of  
this letter and duly signed and sealed per return of post.

Thanking you,

Yours faithfully,

For RAJASTHAN STATE MINES & MIENRALS LTD,

SR. MANAGER (P&A)

Accepted  
For Kothari Medical & Research Institute

(S.L. Rathi)  
General Manager



# RAJASTHAN STATE MINES AND MINERALS LTD

( A Government of Rajasthan Enterprise )  
SBU&PC - GYPSUM  
Sadul Club Building  
Bikaner

e-mail:rsmmjgyp@vsnl.com

No. RSMM/GYP/Pers/4(14)/2004-1290

Dated: 23-01-2004.

## OFFICE ORDER

Dr. Vishal Malik, B.D.S., Sadul Ganj, Bikaner is hereby authorized as Authorized Medical Consultant at the following rates with immediate effect to till further order:

- |    |                              |                             |
|----|------------------------------|-----------------------------|
| 1. | Scaling                      | : Rs.75/-                   |
| 2. | Silver filling               | : Rs.60/-                   |
| 3. | RCT (a) Anterior             | : Rs.250/-                  |
|    | (b) Posterior                | : Rs.350/-                  |
| 4. | White Metal Crowns           | : Rs.450/-                  |
| 5. | Extraction                   | : Rs.35/-                   |
| 6. | Open Method Extraction       | : Rs.150/-                  |
| 7. | Temporary Filling            | : Rs.20/-                   |
| 8. | X-ray                        | : Rs.25/-                   |
| 9. | Consultation Fee(per person) | : Rs.30/- for 7(Seven) days |

  
SR. MANAGER (P&A)

- Cc to: Chief(Pers&Admn), C.O., Udaipur office.  
Cc to: Dy.General Manager(Mining), Bikaner office.  
Cc to: Sr.Manager(Mining), Bikaner office.  
Cc to: M(F&A)/M(Mktg)/M(Geo-Prod.)/M(Geo-Plan), Bikaner office.  
Cc to: Incharge - CEU, Rawla/Hanumangarh/Nagaur/Sanchore/  
Jalore/Bikaner office.  
Cc to: General Secretary, GMW Union, Bikaner.  
Cc to: Notice Board, Bikaner office.

  
SR. MANAGER (P&A)



# राजस्थान स्टेट माईन्स एण्ड मिनरल्स लिमिटेड

(राजस्थान सरकार का उपक्रम)

एसबीयू एण्ड पी.सी.जिप्सम, सादूल क्लब बिल्डिंग, बीकानेर

Phone: 2542133, 2542229, 2544178

Fax: (0151) 2523519

Website : www.rsmml.com

E-mail: rsmmlgyp@vsnl.com.

rsmmlgyp@datainfosys.net.

क्रमांक-आरएसएमएम/जिप्स/पर्स./4(14)/2004- 1358

दिनांक- 27-01-2004

## कार्यालय आदेश

बिनानी एक्सरे क्लिनिक एण्ड डाइग्नोस्टिक सेन्टर, २१ सादूल कालोनी, बीकानेर को विभिन्न पैथोलोजिकल जॉब हेतु तुरन्त प्रभाव से अधिकृत किया जाता है ।

उपरोक्त डाइग्नोस्टिक सेन्टर द्वारा प्रस्तुत की गई मूल्य सूची के अनुसार ही पुनःभरण किया जावेगा ।

वरि. प्रबन्धक (का. एवं प्रशा.)

### प्रतिलिपि-

१. मुख्य (कार्मिक एवं प्रशा.), उदयपुर ।
२. उप महाप्रबन्धक (खनन), बीकानेर ।
३. वरि. प्रबन्धक (खनन), बीकानेर ।
४. प्रबन्धक (वित्त एवं लेखा) / प्रबन्धक (भू-वि., उत्पादन) / प्रबन्धक (भू-वि. - योजना)
५. इन्चार्ज - सीईयू - रावला / जालौर / साँचौर / बीकानेर / हनुमानगढ़ / नागौर
६. महासचिव - जिप्सम माईन वर्कर्स यूनियन, बीकानेर
७. सूचना पट्ट, बीकानेर ।

वरि. प्रबन्धक (का. एवं प्रशा.)



# राजस्थान स्टेट माईन्स एण्ड मिनरल्स लिमिटेड

(राजस्थान सरकार का उपक्रम)

एसबीयू एण्ड पी.सी.जिप्सम, सादूल क्लब बिल्डिंग, बीकानेर

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Fax: (0151) 2523519

Website : www.rsmm.com

E-mail: rsmmlgyp@vsnl.com.

rsmmlgyp@datainfosys.net.

क्रमांक-आरएसएमएम/जिप्स/पर्स./4(14)/2004-

दिनांक- 27-01-2004

## कार्यालय आदेश

डा० जी.एस.विजय, हड्डी रोग विशेषज्ञ, सी-१३, सादूलगंज, बीकानेर को चिकित्सा परामर्श हेतु अधिकृत चिकित्सा अधिकारी तुरन्त प्रभाव से अधिकृत किया जाता है।

उपरोक्त चिकित्सा अधिकारी को प्रति परामर्श रुपये 50/- (15 दिन में एक बार) मात्र फीस देय होगी। उनके चिकित्सालय में किसी भी प्रकार की अन्य सुविधा प्राप्त करने पर संस्थान उस सर्जरी का भुगतान नहीं करेगा।

वरि.प्रबन्धक(का.एवं प्रशा.)

### प्रतिलिपि-

१. मुख्य (कार्मिक एवं प्रशा.), उदयपुर।
२. उप महाप्रबन्धक(संनन), बीकानेर।
३. वरि.प्रबन्धक(संनन), बीकानेर।
४. प्रबन्धक(वित्त एवं लेखा)/प्रबन्धक(भू-वि., उत्पादन)/प्रबन्धक(भू.वि.-योजना)
५. इन्चार्ज-सीईयू-रावला/जातौर/सॉचौर/बीकानेर/हनुमानगढ़/नागौर
६. महासचिव-जिप्सम माईन वर्कर्स यूनियन, बीकानेर
९. सूचना पट्ट, बीकानेर।

वरि.प्रबन्धक(का.एवं प्रशा.)



# राजस्थान स्टेट माईन्स एण्ड मिनरल्स लिमिटेड

(राजस्थान सरकार का उपक्रम)

एसबीयू एण्ड पी.सी.जिप्सम, सादूल क्लब बिल्डिंग, बीकानेर

Phone: 2542133,2542229,2544178

Fax:(0151)2523519

Website : www.rsmm.com

E-mail:rsmmlgyp@vsnl.com.

rsmmlgyp@datainfosys.net.

क्रमांक-आरएसएमएम/जिप्सम/पर्स./4(14)/2004- 1276

दिनांक- 19-01-2004

## कार्यालय आदेश

बीकानेर नर्सिंग होम, पवनपुरी, बीकानेर को सामान्य चिकित्सा परामर्श हेतु तुरन्त प्रभाव से अधिकृत किया जाता है ।

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(संभवतः 27/1)  
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# राजस्थान स्टेट माईन्स एण्ड मिनरल्स लिमिटेड

(राजस्थान सरकार का उपक्रम)

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दिनांक- 19-01-2004

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**RAJASTHAN STATE MINES AND MINERALS LTD**

( A Government of Rajasthan Enterprise )

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Sadul Club Building

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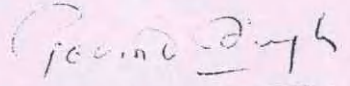
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डा०एस.पी.व्यास,ऑख विशेषज्ञ,व्यास आई केयर सेन्टर, शास्त्री नगर, बीकानेर को सामान्य चिकित्सा परामर्श हेतु अधिकृत चिकित्सा अधिकारी तुरन्त प्रभाव से अधिकृत किया जाता है ।

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7. सूचना पट्ट, बीकानेर ।

  
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**FINAL ENVIRONMENTAL IMPACT ASSESSMENT REPORT  
FOR "PROPOSED MINING PROJECT OF DHANI ABDULLAH WALI GYPSUM  
MINE OF MINE LEASE AREA- 1278 HA  
AT VILL- DHANI ABDULLAH WALI, TEHSIL- KOLAYAT, DISTRICT- BIKANER,  
RAJASTHAN**

**PROJECT PROPONENT**



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(A GOVERNMENT OF RAJASTHAN ENTERPRISE) SBU & PC-GYPSUM,  
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**APRIL, 2016**



**Prepared By  
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KOLAYAT AND DISTRICT BIKANER

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# 1. CHAPTER: INTRODUCTION

## 1.1 Preamble

Mineral resources of the nation reflect in terms of potential economic growth of the country at large. Our natural mineral wealth has been exploited considerably during the past 50 years. With increase in industrialization coupled with population growth, the demand for different minerals has increased and is likely to grow further in years to come. This has resulted in irreversible impacts on diminishing reserves, with simultaneous generation of solid wastes and effluents causing environmental degradation. It is therefore important to tackle the problem for control of pollution and mining of minerals in a cost-effective method causing least damage to the environment. In order to commence/enhance production/ renewal of any mines, it is necessary to obtain Environmental Clearances from the Ministry of Environment and Forests, Govt. of India as per EIA Notification 2006 and consecutive amendments.

Mining Operation Plan, Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) etc. are some of the important requisites from investor for Environmental Clearance. Hence, the lessee has to prepare an Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) report for Environmental Clearance before commencement of mining activities. To prepare an effective and sustainable EIA and EMP, it is necessary to conduct a baseline survey of the existing environmental attributes. It helps to evaluate anticipated environmental impacts to the proposed activities and in formulating a scientific Environmental Management Plan. Irrespective of magnitude of operation, attempts have been made to maintain Environmental balance of the study area. Environmental Impact Assessment (EIA) is one of the tools available with the planners to achieve the above mentioned goal. It is desirable to ensure that the development options under consideration are sustainable. In doing so, environmental consequences must be characterized early in the project cycle and accounted for in the project design.

There are many Acts/Rules & Notifications issued by MoEF&CC, New Delhi for keeping the environment in and around project sites congenial for healthy/better standard of living. Few of them are mentioned below:

1. Environment (Protection) Act, 1986
2. Environment (Protection) Rules, 1986
3. Water (Prevention & Control of Pollution) Act, 1974
4. Air (Prevention & Control of Pollution) Act, 1981

5. Environmental Impact Assessment (EIA) Notification, dated 27th January, 1994
6. Environmental Impact Assessment (EIA) Notification, dated 14th September, 2006
7. Environmental Impact Assessment (EIA) Notification as amended on 1st December, 2009

It has been made mandatory to obtain environmental clearance for all mining lease areas irrespective of the size in view of recent orders of Hon'ble Supreme Court of India dated 27<sup>th</sup> February 2012. The notification has classified mining projects under two categories-A (mining projects having an area equal to or more than 50 hectares) and B (mining projects having an area less than 50 hectares). Category-A Projects (including expansion and modernization of existing projects) require clearance from Central Government (Ministry of Environment and Forest, Govt. of India) while category-B projects should be considered by State Level Environmental Impact Assessment Authority (SEIAA), constituted with the approval of MoEF&CC

M/s. Rajasthan State Mines & Mineral Ltd has proposed for mining of Gypsum on 1278 ha lease area. As per EIA Notification dated 14th September, 2006 this project falls under Category "A" 1 (a) (mining lease area  $\geq$  50 ha)-{Mining of Minerals} as the lease area is 1278 ha.

The lease was granted in the favour of M/s Rajasthan State Mines & Minerals Ltd. (RSMML) vide GOR order no. P.3 (14) Khan/Group-1/2007, dated 31.07.2009 for a period of 20 years from the date of registration of mining lease agreement i.e. 20.01.2010. (Copy of order enclosed as **Annexure-2**).

The mine being operated as per the environmental Clearance has been granted by the ministry of Environment & Forest, Government of India vide order no. J -11015/573/2007-IA.II (M) dated 28.05.2008 for gypsum capacity 5 Lac TPA (Copy enclosed as **Annexure-6**)

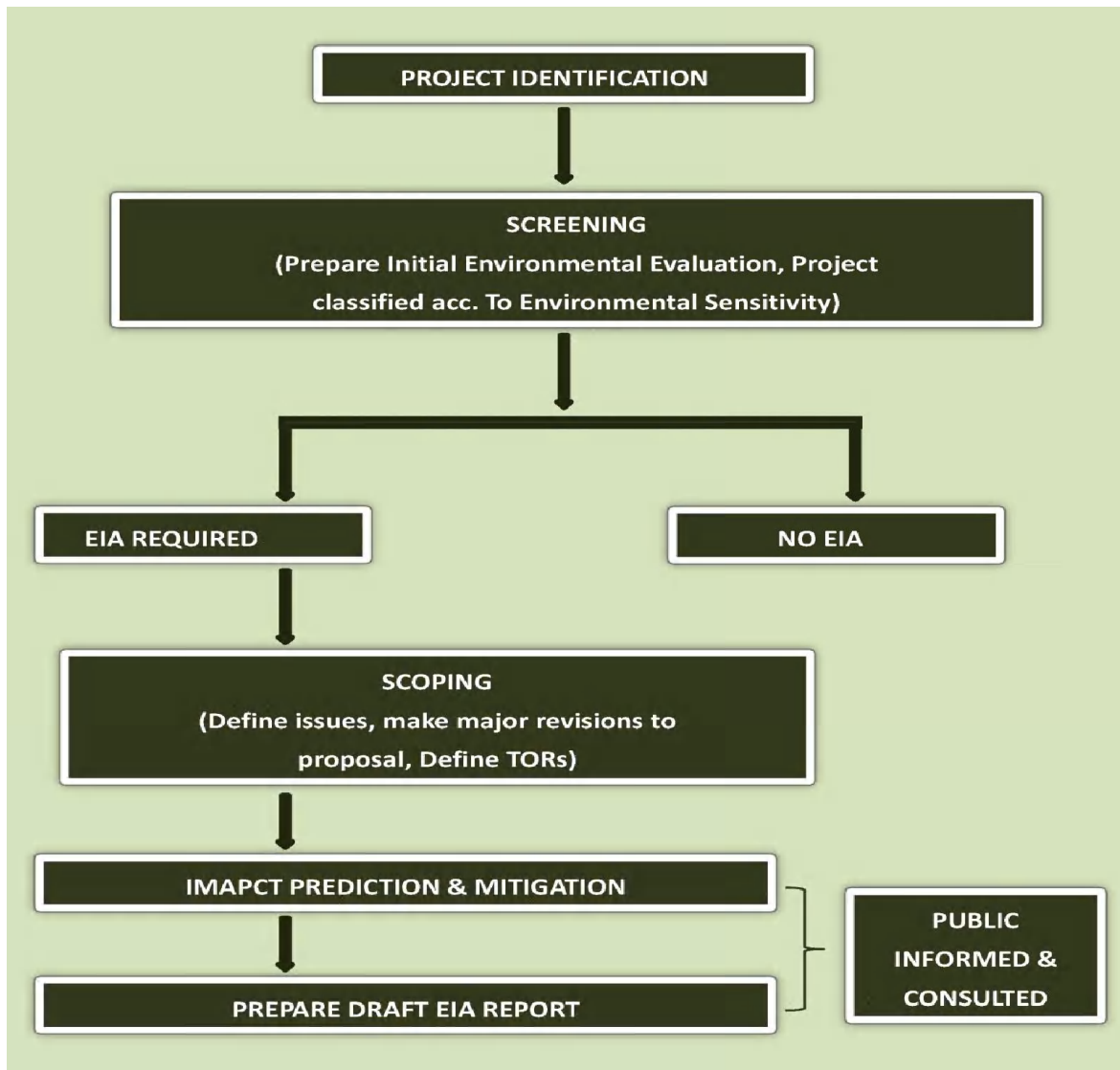
Project Proponent proposed to enhance the production capacity from 5 Lac TPA to 6 Lac TPA of gypsum production. Therefore this project requires Environmental Clearance from (EAC) MoEF&CC as per EIA Notification dated 14th September, 2006 for enhancement of production capacity.

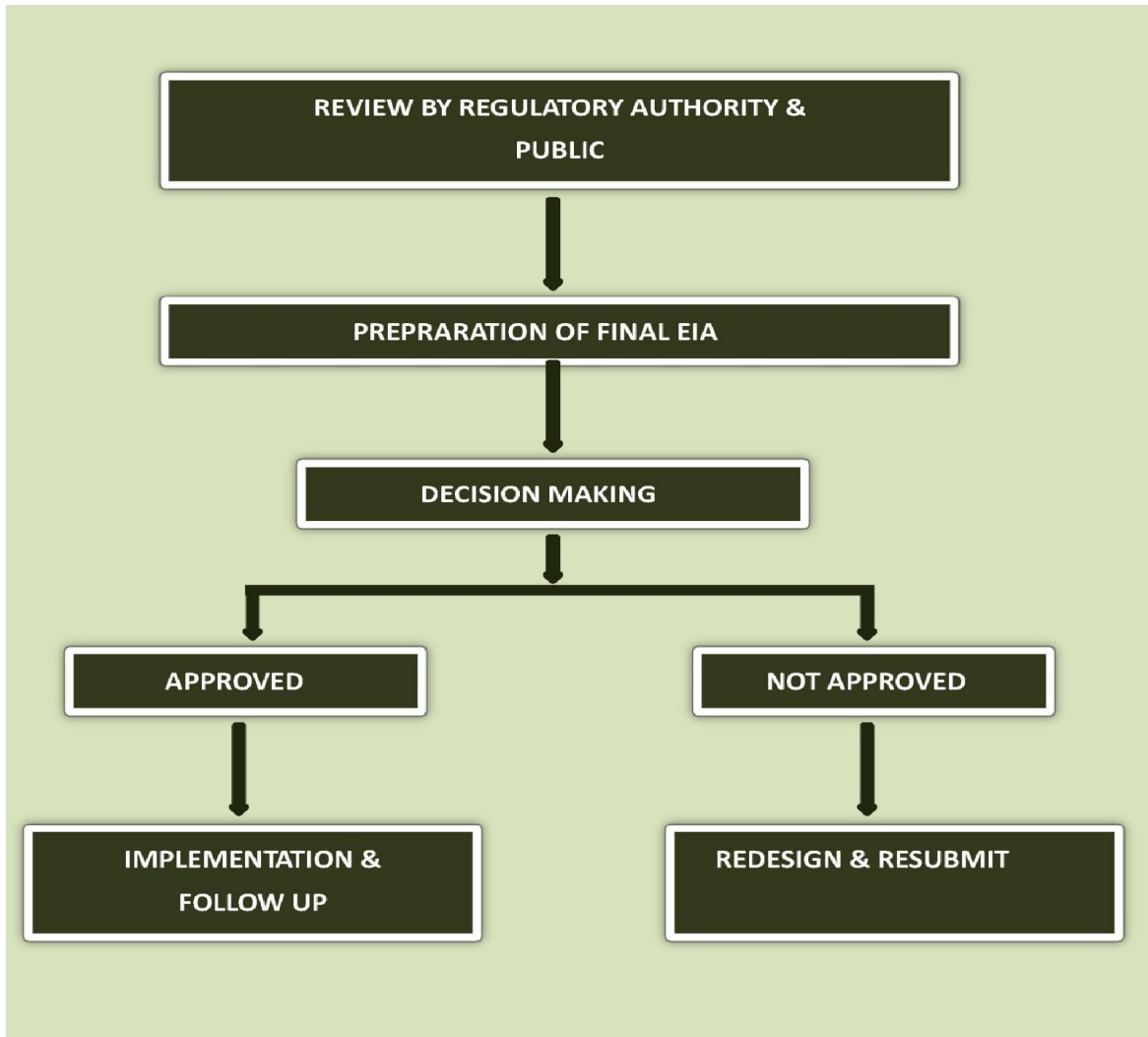
The lessee has hired an agency i.e. **M/s. Mantec Consultant** for preparation of Environment Impact Assessment Report for obtaining Environment Clearance from MoEF&CC.

The sole purpose of Environmental Impact Assessment report is to assess the beneficial and adverse impacts of the project on the existing environmental systems and to propose appropriate pollution control measures to ensure a secure, hale and hearty environment. Thus the report is a presentation of environmental consequences of the project activity so that all the factors are considered tactfully in eventually claiming a decision. The main objectives are described as follows:

- Evaluation of current level of pollution (air, soil, water & noise) in and around the mine under the existing conditions
- Assessment of existing Environmental Status of Water, Air, Flora, Fauna, Demography and Land use pattern.
- Suggested measures, recommendations for pollution control and organizational set up for maintenance of pollution control.

Figure1.1: Schematic Process diagram of EIA





## 1.2 Identification of the project and project proponent

### 1.2.1 Identification of the Project

Name of the Project: Dhani Abdullah Wali Gypsum Mine

Location of the Project: Village Dhani Abdullah Wali, Tehsil Kolayat District Bikaner

### 1.2.2 Identification of the Project Proponent

Applicant: Rajasthan State Mining & Mineral Ltd (RSMML)

Address: O2, Gandhi Nagar Scheme, Bikaner (Rajasthan)

Rajasthan State Mines and Minerals Limited (RSMML) is one of the leading and progressive undertakings of the Government of Rajasthan. It occupies a place of pride in production and marketing of nonmetallic minerals in India. RSMML is multi mineral and multi-location enterprise engaged in mining of Rock Phosphate, Lignite, SMS grade Limestone and Gypsum. RSMML is not

only the leader in Mining & Selling of Rock Phosphate, Gypsum across the country, but also a global pioneer in technology in open cast mining and mineral beneficiation of Carbonate Rock Phosphate. Besides minerals, RSMML has also forayed into Energy Sector and has setup 106.3 MW installed capacity Wind Power Project at Jaisalmer, Rajasthan.

### 1.3 Lease Status

The mining lease area of 1278.0 Hectares in village Dhani Abdullah Wali Tehsil Kolayat District Bikaner for mining of Gypsum was granted to RSMML vide GOR order no. P.3 (14) Khan/Group-1/2007, dated 31.07.2009 for a period of 20 years from the date of registration of mining lease agreement i.e. w.e.f. 20.01.2010.

Project Area: Out of the total mine lease area of 1278 ha; 805 ha is agricultural land, 462.62 ha is Government barren land (wasteland) and 10.38 ha roads/village tracks. No forest land is involved. Mining shall be carried out for a targeted production of 6 lakh tonnes per annum (0.6 million TPA) of gypsum by opencast mechanized method without involving drilling and blasting.

### 1.4 Brief Description of the Size, Nature & Location of the Project

Table 1.1: Brief description of the Project

S. NO.	PARTICULARS	DETAILS
<b>A.</b>	<b>Nature &amp; Size of the Project</b>	Gypsum (ML Area – 1278 Ha.) available for mining for production capacity of 6 Lac TPA
<b>B.</b>	<b>Location</b>	
	District	Bikaner
	State	Rajasthan
	Latitude	Latitude: 28°20'3.25"N to 28°21'39.2"N
	Longitude	Longitude: 72°22'52.97"E to 72°25'34.97"E
	Toposheet No.	44D/7 'Restricted'
<b>C. Lease Area Details</b>		
	Lease Area	1278 Ha
	Type of Land	Private Agricultural Land
	Topography	Flat
	Site Elevation Range	140 m to 118 m AMSL
<b>D. Cost Details</b>		

Cost of the project	Rs. 258 per tonne
Cost for EMP	Rs. 0.50 per tonne
<b>E. Details of Environmental Setting</b>	
Ecological Sensitive Areas (National Park, Wild Life Sanctuary, Biosphere Reserve, Reserve/Protected Forest etc.) within 10 km radius	No Ecological Sensitive Areas (National Park, Wild Life Sanctuary, Biosphere Reserve, Reserve/Protected Forest etc.) within 10 km radius
Archaeological Important Place	None within 10 km radius of the project
Nearest Town	Town Kolayat at a distance of 76 km (approx.) in SE direction
Nearest major city	District Bikaner at a distance of 91km.(approx.) in SE direction
Nearest Railway Station	Kolayat Railway Station at a distance of 76 km. (approx.) in SE direction
Nearest National Highway	NH-15 at distance of 72km. (approx.) in the direction SE
Nearest Airport	Jodhpur Airport at a distance of 219 km. (approx.) by road.
Seismic Zone	Zone III as per IS 1893:2002

### 1.5 Legal Status of the Project

Dhani Abdullah Wali Gypsum Mine having a lease area of 1278 ha is located near Village- Dhani Abdullah Wali, Tehsil- Kolayat, District- Bikaner and Rajasthan. Mining lease of Dhani Abdullah Wali Gypsum mine covering an area of 1278 ha was granted in favour of M/s Rajasthan State Mines & Minerals Ltd. (RSMML) vide GOR order no. P.3 (14) Khan/Group-1/2007, dated 31.07.2009 for a period of 20 years from the date of registration of mining lease agreement i.e. w.e.f. 20.01.2010.

### 1.6 Location & Communication

#### 1.6.1 Location

The mining lease area under reference is situated Tehsil- Kolayat District Bikaner (Rajasthan). Mine is well connected by village road passing through the mine site that merges with Godu-Dantore road.

Figure1.2 : Site Photograph of Project Site



### **1.6.2 Communication**

To reach the mine, passing road through the mine site that merges with Godu-Dantore road. Mineral will be transported by truck/Dumper from Mine site to end user of Gypsum. The Nearest Railway station is at Kolayat at a Distance 76 Km in SE direction. The Nearest National highway is NH-15(72Km) in SE direction. The Nearest Airport is Jodhpur Airport at Distance of 219 Km in SW direction.

### **1.7 Objectives of Environmental Management Plan**

The main objectives of this EMP are listed below:

- To establish the present environmental scenario.
- To anticipate the impacts of mining operations on the environment.
- To prepare a detailed action plan for implementation of mitigation measures.
- To suggest preventive and mitigation measures to minimize adverse impact and to maximize beneficial impacts.
- To suggest a monitoring programmed to evaluate the effectiveness of mitigation measures.

- To suggest the formation of a core group responsible for implementation of environmental control and protective measures and monitoring of such implementation.
- To prepare a capital cost estimate and annual recurring cost for Environmental Management Plan.

### **1.8 Methodology for EIA**

M/s. Mantec Consultant is assigned the job to conduct EIA study of the Dhani Abdullawali Gypsum Mine at Tehsil Kolayat District Bikaner, Rajasthan.

The study was conducted within 10 Km radius from the proposed mine as centre. The base line data collection involves the data's of air quality, water status, land use; socio-economic structure of the study area, existing flora, fauna, prevailing noise levels, along with the physiographical status and meteorological conditions of the area. The current report is based on the mining technique, air emissions, waste water generation and discharge, and solid waste management. It also highlights the safety measures adopted. Effective plans to mitigate the adverse impacts and suggestive pollution control measures along with environmental management plan have been summarized.

The field survey for the collection of the baseline data commenced from October-2014 to December 2014 for collecting data related to air, water, noise, geology, flora, fauna, forest types and ecological parameters including soil types.

### **1.9 Scope of Study**

Application (ToR Proposal) for obtaining Environmental Clearance from Ministry of Environment & Forests, New Delhi for this project were submitted on 24.01.2014. The ToR presentation held on 18<sup>th</sup> meeting of EAC held on March 20-21, 2014. The ToR was issued on dated 7-5-2014 by MoEF vide letter no No. J-11015/61/2014-IA.II (M).

#### **1.9.1 Data Generation**

The data has been generated by M/s Mantec Consultant in accordance with the requirement of statutory agencies from October 2014 to December 2014. The monitoring and testing has been done as per the guidelines of MoEF and the IS standards. Monitoring has been conducted for the following parameters:

#### **1.9.2 Data Collection**

The EIA study is being done for the Mine Lease (core zone) and area within 10 km radius (buffer zone), both of which comprise the study area. The following data, through field survey and other

sources, has been collected by Mantec Consultant, for preparing the EIA/EMP for the proposed mining area with related facilities

- Details of wild fauna and flora within a distance of 10 km from the project site and information about forests, if any
- Eco-sensitive places, sanctuaries, biosphere reserves within 10 km radius
- Physical environment (Air, Water, Soil, & noise) baseline data
- Religious places / historical monuments and tourist places within 10 km radius.
- Land use pattern within core zone and buffer zone (10 km radius around the core zone) based on Survey of India toposheet map and satellite image.
- Demography and Socio-economic based on last available Census data for entire study area.
- Relevant meteorological data, for previous decades from Indian Meteorological Department (IMD) and primary data.
- Study of present environmental protection and mitigation measures
- Identification of water bodies, hills, roads etc. within 10 km radius.

### **1.9.3 Preparation of EMP**

The EMP will include the following details:

- Present Environmental Setting
- Identification, prediction and evaluation of anticipated environmental impact due to the proposed mining operation and related facilities
- The environmental impacts would be anticipated in core and buffer zone
- Topography and drainage
- Climate
- Water quality (Surface/Ground)
- Hydro-geological Regime
- Air quality
- Noise Levels
- Soil Quality
- Flora and Fauna
- Traffic density
- Land-Use
- Socio-Economic Conditions

- Health, culture, human environment including public health, occupational health and safety
- Measures to control the surface and ground water pollution due to various effluents to be discharged, if any
- Measures to control air pollution due to proposed activities/operation
- Green belt development plan and reclamation plan of mine.
- Measures to contain noise pollution & mitigate adverse impact on workers and habitat in core and buffer zone
- Pronounce the improvement in socio-economic conditions & benefits the people will get on implementation of the project
- Measures to control health hazard of workers and surrounding population
- Total and specific cost of control measures
- Environmental monitoring, implementation organization and feedback mechanism to effect mid-course corrections
- Identification of flora species which can be planted in and around the project

#### 1.10 Terms of Reference

The terms of reference were issued by Expert Appraisal Committee (EAC) of MoEF, New Delhi on letter no. J-11015/61/2014-IA.II (M) dated 7-5-2014 and are enclosed as Part I of EIA/EMP report.

ToR Ref	Description	Response												
1.	<p>Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994.</p> <p>It may also be categorically informed whether there had been any increase in production after the EIA Notification, 1994 came into force w.r.t. the highest production achieved prior to 1994.</p>	<p>The Environment clearance for the mines with production capacity 5 lakh TPA was granted by MoEF&amp;CC vide letter no. No. J-11015/573/2007-IA.II (M) dated 28.05.2008. After obtaining Environment Clearance the year wise production from the mines are as under</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Financial Year</th> <th style="text-align: center;">Production (MT)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">2009-2010</td> <td style="text-align: center;">257102.00</td> </tr> <tr> <td style="text-align: center;">2010-2011</td> <td style="text-align: center;">493890.90</td> </tr> <tr> <td style="text-align: center;">2011-2012</td> <td style="text-align: center;">219714.50</td> </tr> <tr> <td style="text-align: center;">2012-2013</td> <td style="text-align: center;">295120.00</td> </tr> <tr> <td style="text-align: center;">2013-2014</td> <td style="text-align: center;">255013.10</td> </tr> </tbody> </table>	Financial Year	Production (MT)	2009-2010	257102.00	2010-2011	493890.90	2011-2012	219714.50	2012-2013	295120.00	2013-2014	255013.10
Financial Year	Production (MT)													
2009-2010	257102.00													
2010-2011	493890.90													
2011-2012	219714.50													
2012-2013	295120.00													
2013-2014	255013.10													

EIA REPORT OF EXPANSION PRODUCTION CAPACITY FOR DHANI ABDULLAH WALI GYPSUM MINE BY M/S  
RAJASTHAN STATE MINE & MINERAL LTD LOCATED AT VILLAGE DHANI ABDULLAH WALI TEHSIL  
KOLAYAT AND DISTRICT BIKANER

		2014-2015	342719.60
		2015-2016	64149.10
2.	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	Mining lease granted in favour of RSMML by the Mines & Geology department Rajasthan vide order no. P.3 (14) khan/Group-1/2007 on dated 31.7.2009. The copy of the lease documents are enclosed as <b>Annexure-2</b>	
3.	All documents including approved mine plan, EIA and public hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management and mining technology and should be in the name of the lessee.	All the documents i.e. approved mining scheme, EIA and public hearing minutes are compatible with each other in terms of ML area production levels, waste generation and its management and mining technology. The copy of approved mining scheme is enclosed as <b>Annexure-4</b>	
4.	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/toposheet should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Details of corner coordinates of the project site have been incorporated in <b>Chapter no. III</b> of EIA/ EMP Report. Land use & High resolution Imagery are also incorporate in <b>Chapter no. III</b>	
5.	Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions?	Yes, The company has formulates environmental policy which is approved by the management. Copy has been enclosed as <b>Annexure-14</b> As per policy company will comply all legal requirements of Indian environmental laws. The hierarchical system or administrative	

	<p>The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given.</p> <p>The system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large may also be detailed in the EIA report.</p>	<p>order of the Company is also mentioned in <b>Annexure-14</b>.</p>
6.	<p>Issues relating to Mine Safety and slope study in case of open cast mining, blasting study etc. should be detailed.</p> <p>The proposed safeguard measures in each case should also be provided.</p>	<p>It is an Open cast mechanized mining project. Gypsum mineral is soft in nature it is easily being scraped/excavate by hydraulic excavator machine. No blasting is requiring during mining operation.</p> <p>Safety &amp; security plan are incorporated in <b>Chapter no. XI</b> of EIA report</p>
7.	<p>The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc should be for the life of the mine / lease period</p>	<p>The study area comprises of core area and buffer zone (10Km distance from periphery of lease area.</p> <p>Primary/Secondary data is collected during EIA study as per EIA Guidelines.</p>
8.	<p>Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted.</p>	<p>No wildlife sanctuaries, National park, migratory routes of fauna and water bodies are in the study area.</p> <p>Land Use of the study area delineating forest area, agricultural land, grazing land, human settlements and other ecological features has been incorporated in <b>Chapter no. III</b> of EIA Report.</p> <p>Land use plan of the mine lease in operation &amp;</p>

EIA REPORT OF EXPANSION PRODUCTION CAPACITY FOR DHANI ABDULLAH WALI GYPSUM MINE BY M/S  
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KOLAYAT AND DISTRICT BIKANER

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	Impact, if any, of change of land use should be given.	post operation phase has been discuss in <b>Chapter no.III</b> of EIA report.
9.	Details of the land for any Over Burden dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	Not applicable, the overburden generated will be disposed off into the worked out area.
10.	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	The total mine lease area of 1278 ha, out of which 805 ha is agricultural land, 462.62 ha is Government barren land (wasteland) and 10.38 ha roads/village tracks. No forest land is involved.
11.	Status of forestry clearance for the broken up area and virgin forestland involved in the project including deposition of net present value (NPV) and compensatory afforestation(CA) should be indicated. A copy of the forestry clearance should also be furnished.	Not Applicable. No forest area falling within the mining lease area. Forest NOC enclosed as <b>Annexure-7</b> .
12.	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers	There is no forest area within the mining lease, So Recognition of Forest Rights Act, 2005 is not applicable.

	(Recognition of Forest Rights) Act, 2006 should be indicated.	
13.	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	No RF/PF fall under study area. Details of vegetation under 10 km radius have been discussed in <b>Chapter no. III</b> of the EIA Report.
14.	A study shall be carried out to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly detailed mitigative measures required, should be worked out with cost implications and submitted.	The biological study of the core zone & buffer zone has been conducted. Same are incorporate in <b>Chapter no.III</b> . Significant impact and mitigation measures are discussed in <b>Chapter no. IV</b>
15.	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the State Wildlife Department/Chief Wildlife Warden under the Wildlife (Protection) Act, 1972 and copy furnished.	Not Applicable. There is no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/Elephant Reserves/Critically Polluted areas within 10 km radius of the mining lease area.
16.	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, duly authenticated, separately for core and	Details biological study (flora & fauna) within 10 km radius of the project site have been incorporated in <b>Chapter no. III</b> of EIA Report. Flora listed in scheduled-I i.e. peafowl has been found in study area so necessary plan for their

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	<p>buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.</p>	<p>conservation has been prepared with consultation of Deputy conservator of Forest, Department of Forest, Govt. of Rajasthan, Bikaner. Copy enclosed, final recommendations is awaited. Recommendation by forest department if any received will be complied.</p>
17.	<p>Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. should be secured and furnished to the effect that the proposed mining activities could be considered.</p>	<p>Project area is not declared in 'Critically Polluted' area and not come under Aravali range.</p>
18.	<p>R&amp;R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&amp;R Plan, the relevant State/National Rehabilitation &amp; Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly,</p>	<p>The private agricultural land is being temporarily used for gypsum excavation with the consent of farmer on mutual agreement basis for short period of 2-3 months with land and crop compensation@70/-per ton and commitment of backfilling and leveling of mined out land. After fulfillment of commitment and payment of land and crop compensation to the farmer, the land is also returned back to him. Mining lease area is barren/waste/agricultural</p>

	<p>integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village located in the mine lease area will be shifted or not. The issues relating to shifting of Village including their R&amp;R and socio-economic aspects should be discussed in the report.</p>	<p>land, so there is no habitation found in project area. There is no PAP mining activity. So there is no need for R &amp; R plan.</p>
19.	<p>One season (non-monsoon) primary baseline data on ambient air quality (PM10, SO2 and NOx), water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the predominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.</p>	<p>Baseline data were collected during Oct 2014- Dec 2014 has been incorporate in <b>Chapter no. III</b> of EIA report.</p> <p>Site Specific metrological data has been collected and incorporated in <b>Chapter no. III</b> of EIA report.</p> <p>The key plan of monitoring station has been discussed in <b>Chapter no. III</b>.</p> <p>Location of the monitoring stations has been selected keeping in view the pre-dominant downwind direction and location of the sensitive receptors and also that they represent whole of the study area.</p> <p>One monitoring station has been located in the boundary of the project.</p> <p>The mineralogical composition of PM10, particularly for free silica, has been given in <b>Chapter no.III</b></p>
20.	<p>Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement</p>	<p>Air quality modeling has been done by using AERMOD for prediction of impact of the proposed mine has been incorporate in <b>Chapter no. IV</b> of EIA/EMP report.</p>

	<p>of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.</p>	<p>Transportation of mineral during operation of mines will be done by through trucks/dumpers and the impact of movement of vehicles are incorporated in <b>Chapter no. IV</b> of EIA/EMP report.</p> <p>The predominant wind direction recorded during study period was from North-South direction. Wind rose diagram shown in <b>Chapter no.III</b></p>
21.	<p>The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.</p>	<p>Total water requirement: 15 KLD Dust Suppression: 10 KLD Domestic Purpose: 2 KLD Green belt development: 3.0 KLD Water will be supply by tanker from Indira Gandhi Canal.</p>
22.	<p>Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.</p>	<p>Not applicable Water will be supply by tanker from Indira Gandhi Canal. No bore well will be dug up so necessary clearance from Competent Authority is not required.</p>
23.	<p>Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.</p>	<p>Water conservation strategies have been discussed in <b>Chapter no. XI</b> of EIA/EMP report.</p>
24.	<p>Impact of the project on the water quality both surface and groundwater should be assessed and necessary safeguard measures, if any required, should be provided.</p>	<p>Impact of the project on the water quality &amp; its mitigation measures has been incorporate in <b>Chapter no. IV</b> of EIA/EMP report. The maximum working depth of mining will be 2.90 m &amp; the ground water table exists on 70m.</p>

		So working will not intersect ground water table. Systematic diagram of mining depth also incorporate in <b>Chapter no. IX</b> of EIA/EMP
25.	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	Maximum working depth: 2.90 mRL Ground water table: 70mRL
26.	Details of any stream, seasonal or otherwise, passing through the lease area and modification/diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	There is no stream, seasonal or otherwise passing through the lease area.
27.	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.	Maximum working depth: 2.90 mRL Ground water table: 70 mRL Schematic diagram has been incorporated in <b>Chapter no. IX</b> of EIA/EMP Report.
28.	A time bound Progressive Greenbelt development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the project.	Progressive Green belt program details have been discussed in <b>Chapter no. VI</b> . Species proposed for greenbelt development are Neem, Ber, Khejri etc.

29.	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered.	Impact on local transport infrastructure due to the project has been assessed and not much impact On local transport. Average 2000 TPD of mineral will be excavated per day. Transport of mineral from mine will be done by trucks/trolla. Average no. of trips per day will be 72 numbers and increase in traffic will be about 12 trips of trucks /trolla per day for enhancement gypsum production capacity by one lakh TPA (5 lakh TPA to 6 lakh TPA) The Mining project improves the social infrastructure of the area.
30.	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA report.	Adequate infrastructure & other facilities provide to the mine workers. Details are given in <b>Chapter no. II</b> of EIA/EMP
31.	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Conceptual post mining land use has been incorporate in EIA/EMP report. No such adverse effect on the environment including the local population was investigated due to mining so no R & R Plan is required.
32.	A time bound Progressive Greenbelt development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the project. Phase-wise plan of plantation and compensatory afforestation should be	Green belt development, Plantation and compensatory afforestation plan has been incorporated in <b>Chapter no. VIII</b> of EIA/EMP Report.

	<p>charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given.</p>	
33.	<p>Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP.</p>	<p>Suitable measure will be adopted to minimize occupational health impacts of the project. The project has positive impact on local environment. Details are given in <b>Chapter no. IX</b> of EIA report.</p>
34.	<p>Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.</p>	<p>Public health implications of the Project incorporated in Chapter <b>no. IV</b> in EIA report.</p>
35.	<p>Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.</p>	<p>Detailed has been described in <b>Chapter no. VI</b> of the EIA report.</p>
36.	<p>Detailed environmental management plan to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health</p>	<p>Environment Management Plan has been described in detail in <b>Chapter no. IX</b> of the EIA/EMP report.</p>

EIA REPORT OF EXPANSION PRODUCTION CAPACITY FOR DHANI ABDULLAH WALI GYPSUM MINE BY M/S  
RAJASTHAN STATE MINE & MINERAL LTD LOCATED AT VILLAGE DHANI ABDULLAH WALI TEHSIL  
KOLAYAT AND DISTRICT BIKANER

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	impacts besides other impacts specific to the proposed Project.	
37.	Public hearing points raised and commitment of the project proponent on the same along with time bound action plan to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	Public hearing has been conducted and minutes of public hearing incorporated in Chapter no. <b>VII</b> and enclosed as <b>Annexure:-15</b>
38.	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the project should be given.	No litigation is pending in any court against this project.
39.	The cost of the project (capital cost and recurring cost) as well as the cost towards implementation of EMP should clearly be spelt out	Cost per tonne: Rs.258 EMP Cost per tonne: Rs.0.50
40.	Earlier EC compliance report by the Regional Office of MoEF.	Earlier EC was granted by MoEF&CC vide letter no.J-11015/573/2007-IA.II (M) dated 28-5-2008 and conditions are comply in compliance report.
41.	Status of commitments made in the earlier Public hearing.	Commitment has been fulfilled which was made in the earlier public hearing.
42.	Letter from the State Govt. of Forests Department that the mine lease area does not fall under Forests land category.	Copy of the same is enclosed as <b>Annexure-7</b>
43.	Project Proponent shall enclose all the	All the analysis/testing of water, air, soil, noise

	analysis/testing reports of water, air, soil, noise etc. using the MoEF/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the project.	etc was conduct by NABL accredited laboratories. Results are incorporate in <b>Chapter no.III</b> of EIA report and all detail report are enclosed as <b>Annexure-10</b> .
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## 2. CHAPTER: DESCRIPTION OF THE PROJECT

### 2.1 General

The mining lease was granted for 20 years period to the lessee with effect from 20.01.2010. Mining is proposed to carrying out by mechanized method of opencast working for target production. Excavation of mineral will basically involve removal of overburden by scraper plough tractor attachment and then extracting gypsum from the gypsum bed by hydraulic excavator. Proposed mining operation shall be carried out for a target production of 591916 tons per year say 6 Lac TPA. The excavated pits at the conceptual stage shall be backfilled with the overburden generated during overburden removal and shall be given back to the farmers (respective owners) after leveling for the purpose of cultivation.

### 2.2 Description of the Project

Dhani Abdullah Wali Mine is a mine lease (area – 1278 ha) having deposits of Gypsum. Out of total land of 1278 ha, 805 ha is agricultural land, 462.62ha is Government barren land (wasteland) and 10.38ha roads/village tracks. Gypsum bearing private agricultural land has been temporarily provided by the respective land owner (farmer) on mutual agreement of land and crop compensation @Rs 70 per metric ton gypsum production with commitment for backfilling of overburden and leveling in mined out pit to RSMML for mining activities and after excavation, the backfilled & leveled land finally returned back to the farmers for agricultural use.

It is proposed to carry out mining operation by opencast mechanized method. No drilling & blasting is required as the mineralized bed is soft & friable. The mined out area shall be backfilled with the overburden for ensuring reclamation of the area and restoring original topography of the area.

#### 2.2.1 Size and the Nature of the Project

Dhani Abdullahwali Gypsum mine is having a lease area of 1278 ha comprising of 805 ha agricultural land, 462.62 ha Government barren land (wasteland) and 10.38 ha roads/village tracks. Surface plan attached as **Annexure-5(B)**. Proposed project is for the production of gypsum at the rate of 6 Lac tons per annum. Mining will be carried out by the opencast method using mechanized means without involving drilling & blasting for 6 Lac TPA. Mine will be worked in two shifts only & total number of working days in a year will be 300.

### **2.2.2 Need for the Project**

Mining of gypsum deposits in the western Rajasthan area is an eco-friendly work rather than the adverse effect on environment of the Desert. Cement, Fertilizer (Ammonium sulphate) and Plaster of Paris are the three important industries in which the gypsum is utilized. Both Mineral and by-product gypsum are used in cement manufacturing. Considering the present development scenario; India's main focus is the creation of more infrastructures with a view to infuse momentum in its economy and participation in its industrial development. These activities will keep the cement industry to grow and accordingly, the consumption of gypsum will increase. Hence, with the upcoming growth of industry in a developing nation like India, extraction of gypsum will cater the demand of raw material used in cement plants & plaster of Paris manufacturing units located in Rajasthan and other nearby states like Madhya Pradesh, Chhattisgarh, Punjab, Haryana & Uttar Pradesh etc. Gypsum powder is directly used in alkaline soil for their treatment in the state of Rajasthan, Punjab, Haryana and Uttar Pradesh. Also the mining operation has brought income to the state exchequer.

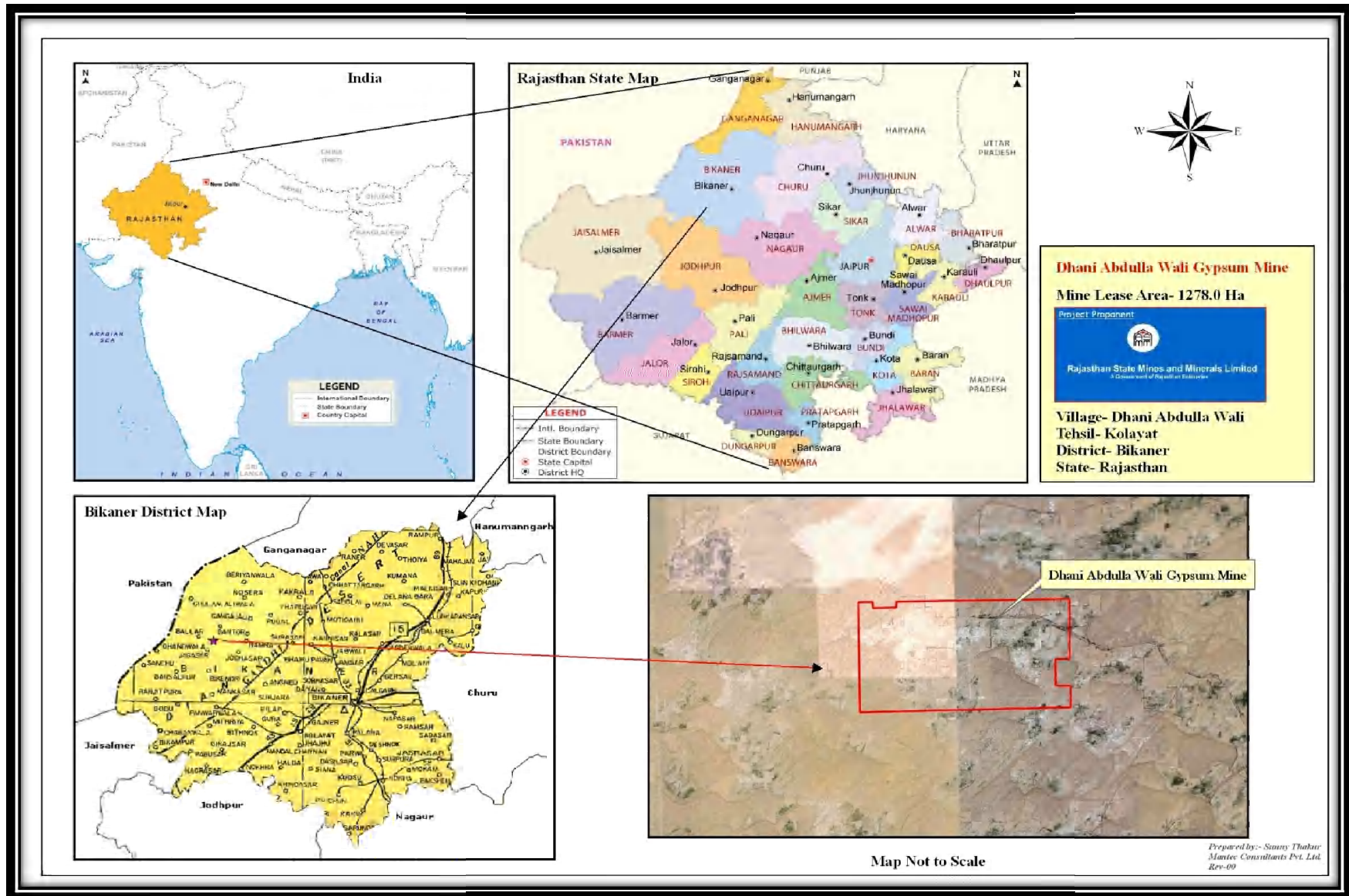
### **2.3 Location of the Project**

The mining lease area is located in village Dhani Abdullah Wali Tehsil- Kolayat District –Bikaner (Rajasthan).The project falls in the Toposheet No. : 44D/7 'Restricted'

Latitude: 28°20'3.25"N to 28°21'39.2"N

Longitude: 72°22'52.97"E to 72°25'34.97"E

Figure2. 1: Location Map of the Mine site



## 2.4 Mining

### 2.4.1 Size and Magnitude of Operation

In this mining lease area only 1278 hectare area is available for mining as per Terms of Reference approved by MoEF&CC the production capacity of gypsum is 6 Lac TPA. It is an open cast mine and it is proposed to do mining by mechanized efficient & scientific operations.

Table 2. 1: Details of Mining

Particulars	Details
Minerals of mine	Gypsum
Location of Mine	ML no. 32/2005 Village Dhani Abdullah wali, Tehsil Kolayat District Bikaner
Life of mine	≈ 10 years
Proposed annual production of mine	596916 TPA say 6 Lac TPA
Method of mining	Opencast mechanized
No of working days in a year	300
Water requirement	15 KLD
Source of water	Through tanker supply from Indira Gandhi Canal

## 2.5 Basic Requirement for the Project

### 2.5.1 Land

The area available for mining is 1278 hectare which is free from forest. As the entire area is out of total land of 1278 ha, 805 ha is agricultural land, 462.62 ha is Government barren land (wasteland) and 10.38 ha roads/village tracks.

### 2.5.2 Water Requirement

Total water requirement for the mining project is 15KLD. Water will be required for the Domestic purpose, Dust Suppression & Green belt development.

Table2. 2: Water requirement of the Project

S. No.	Water demand	Requirement (in KLD)	Source of supply
1.	Domestic	2	Tanker supply from Indira Gandhi Canal
2.	Dust suppression	10	
3.	Green belt development	3	
TOTAL		<b>15 KLD</b>	

### 2.5.3 Power requirement

As the mining will be carried out mainly during daytime, hence power is not required for the mining operations. Also for the power requirements of mine office and other ancillary facilities which is already taken by the common line of Jodhpur Vidyut Vitran Nigam Limited (JDVVNL)

### 2.5.4 Man Power Requirement

Mining at Dhani Abdullah Wali Gypsum Mine is being carried out by opencast mechanized method. As per MMR 1961, Mines officials & other competent persons are deployed for effective supervision of mines. Mostly supervisors & skilled persons are required for looking after various aspects of operations including gypsum mining, loading & quality control etc. Details of manpower deployed in Dhani Abdullah Wali Gypsum Mine are as given below:

Table2. 3: Employment details

S. No.	Details	Number
1.	Mines manager (Mining Engineer)	1
2.	Foreman	3
3.	Mining mate	3
4.	Operators	3
5.	Helpers	3
6.	Unskilled labourers	3

### 2.6 Exploration & Reserves

Geological resources & minable reserves of gypsum has been estimated on the basis of running face positions and old prospecting pits as marked on surface geological plan attached as **Annexure-5(C)**.

The minable reserve of gypsum is considered as 75% of the geological resources with estimation that 25% may be earth/argillaceous material within total geological bearing area. As on 30.09.2011,

the geological reserve of gypsum at mines is about 43.39 Lakh MT and Mineable reserve of gypsum is 34.18 Lakh MT

### 2.6.1 Production Parameters

Proposed targeted production of the mine is at the rate of 596916 Tons per year say 6 Lac TPA. Year wise production for the first five years is as given below

Table 2. 4: Year-wise Production Parameters for the first five years of mining

Year	Total ROM (m <sup>3</sup> )	Overburden (m <sup>3</sup> )	Excavated Mineral (m <sup>3</sup> )	Excavated Mineral (in tons)	Saleable mineral (in tons)
<b>1<sup>st</sup> Year</b>	232425	65024	167401	292952	219714
<b>2<sup>nd</sup> Year</b>	478072	101838	376234	658410	493808
<b>3<sup>rd</sup> Year</b>	574042	119864	454178	794812	596109
<b>4<sup>th</sup> Year</b>	537287	83087	454200	794851	596139
<b>5<sup>th</sup> Year</b>	552098	97305	454793	795888	<b>596916</b>
<b>Total</b>	<b>2373924</b>	<b>467118</b>	<b>1906806</b>	<b>3336913</b>	<b>2502686</b>

Five year working Plan is attached as **Annexure-5(D)**

**\*Note-** The scheme of mining was approved by the Department of Mines & Geology, Govt. of Rajasthan on 15.10.2013 (Annexure -4). However Project proponent is still operating the mines as per previous EC capacity of mines. Production capacity of mines will be enhanced after grant of EC.

As per the geological resources the remaining life of mine is more than **7 years**. However, the estimated geological resources may increase or decrease subject to the variation in volume to weight conversion factor from place to place, variation in ratio of gypsum bed to earth/argillaceous pockets within gypsum bearing area, acceptance of low grade gypsum by customers, identification of additional reserve if any in the remaining mining lease area etc. Therefore the life of mines for granting Environment Clearance may be considered as **10 years** on the basis of available geological resources as estimated in approved scheme of mining & possibility of additional resources in remaining mining lease area.

## 2.7 Method of Mining

Mining of gypsum shall be accomplished by opencast mechanized method of working. It is planned to achieve a target production of 5, 96,916 tons per annum. A barrier zone of 7.5 m will be left all along the lease boundary.

Mining shall include mainly two phases:

### 2.7.1 Overburden removal

Overburden shall be scraped by using a tractor having a 2.3 m long iron scraper blade attachment having a height of about 0.6 m to 0.75 m. Scraped Overburden is disposed off into the worked out area. The tractor makes requisite number of passes and clears the area of overburden exposing gypsum bed ready for extraction. The earth/clay/silt pockets in the gypsum bearing area are isolated during the mining operations are further loosened and almost leveled with the help of tractor/scraper/ plough attachment for making the land suitable for cultivation.

### 2.7.2 Extraction of gypsum by opencast mining method

Extraction of gypsum will be carried out by using hydraulic excavator. After extraction gypsum shall be loaded directly to buyers' trucks for dispatch to destined places or may be sent to unload at separate place earmarked as stockyard for blending of low grade gypsum with high grade gypsum before the final dispatch to the buyers.

### 2.7.3 Blasting

Drilling & blasting will not involve in the mining activity.

## 2.8 Disposal of Mine Waste

### 2.8.1 Nature of Solid Waste and Its Rate of Yearly Generation

Prior to mining of gypsum, the overburden above the gypsum bed comprising of thin layer of loose sand is excavated to expose the gypsum face. The volumes of Overburden to be handled for achieving yearly production of Gypsum ROM for first five years are tabulated in **Table 2.6** and are shown in Reclamation plan attached as **Annexure-5(E)**

Table 2. 5: Year wise generation & backfilling of wastes in mined out pit

Year	Overburden (m <sup>3</sup> )	Broken area (m <sup>2</sup> )
1 <sup>st</sup> Year	65024	138348
2 <sup>nd</sup> Year	101838	282883
3 <sup>rd</sup> Year	119864	398993

4 <sup>th</sup> Year	83087	360456
5 <sup>th</sup> Year	97305	324978
<b>TOTAL</b>	<b>467118</b>	<b>1505658</b>

The scraped and removed overburden is backfilled into the worked out pits & leveled with the help of Tractor plough attachment. The leveled land after mining operation becomes suitable for cultivation and is then returned to the respective owners (i.e. mostly farmers) for the agricultural purpose. Conceptual plan enclosed as **Annexure-5(F)**

### 2.8.2 Liquid Effluent

There is no liquid effluent generation from the proposed project. However the domestic effluents are collected by a sewerage system and biological treatments is adopted by means of septic tanks and soak pits.

### 2.9 Project Cost

The lessee has all the mining equipment used for the scientific mining. The mine is eco-friendly.

Table 2. 6: Estimated Project Capital Cost

S.No.	Particulars	Cost per tonne (Rs.)
i.	Mining cost (inclusive of Salaries & Wages of employees & workmen, Stores consumables, Machineries Repairing & Maintenance, depreciation & overhead expenditures)	150.00
ii.	Royalty on Mineral & MR Cess.	105.00
iii.	Socioeconomic Development	2.00
iv.	Occupational Health and Safety	0.50
v.	Environment Management	0.50
Total Cost per tonne		258.00

The selling rate of Gypsum is Rs.650 per ton. This mine is operational and thus is feasible & economical.

### 2.10 Use of the Mineral

Cement, Fertilizer (Ammonium sulphate) and Plaster of Paris are the three important industries in which the gypsum is utilized. Both Mineral and by-product gypsum are used in Cement manufacturing.

- Extraction of gypsum will cater the demand of raw material used in Cement plants & Plaster of Paris manufacturing units.
- Gypsum powder may be produced to fulfill the demand of agricultural sector for treatment of alkaline soil.

As per the demand the type of mineral reserves required (in terms of %  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$  purity) Cement Industry is demanding Gypsum having at least 50%  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$  while the other users including POP manufacturers, Agricultural sector (fertilizer manufacturing), and manufacture of Gypsum board etc. are demanding for +70%  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$  purity gypsum.

### **2.11 Existing Infrastructure**

As the mine is running since 03.02.2010, hence all the infrastructure facilities required for mining activity is already available at the mine site. Major facilities include:

- Mines office at nearby town Dantore.
- Rest shelter (Bunk House) at Mines Site.
- Toilets
- Blending area as and when required basis.
- Parking area for vehicles.

#### **2.11.1 Water Supply**

As the area lies in the arid desertic region and the ground water table is also very deep, hence the drinking water is sourced from the tanker supply on day to day basic.

## **3. CHAPTER: DESCRIPTION OF THE ENVIRONMENT**

### **3.1 General**

#### **3.1.1 Environmental Aspects**

The main objectives of describing the environment, which may be potentially affected, are (i) to assess present environmental quality and the environmental impacts and (ii) to identify

environmentally significant factors that could preclude mine development. The chapter contains information on existing environmental scenario on the following parameters.

1. Land Environment;
2. Water Environment
3. Air Environment;
4. Noise Environment;
5. Biological Environment;
6. Socio-economic Environment

### **3.1.2 Study Period & Study Area**

To achieve these objectives, our team monitored the environmental parameters within the study area (10 km. radial distance from the mine site) in accordance with the guidelines for EIA issued by the Ministry of Environment & Forests, Govt. of India.

This chapter and the related discussions contain the results of field studies carried out during the Post monsoon season year 2014 (October to December).

### **3.1.3 Source of Environmental Data**

The baseline information on micro-meteorology, ambient air quality, water quality, noise levels, soil quality and floristic descriptions are largely drawn from the data generated by M/s Mantec Environmental Laboratory (NABL Accredited Lab). Long term meteorological data recorded at the nearest IMD station, Bikaner was also collected. Micrometeorological data at site was recorded using automatic weather station. Apart from these, secondary data have been collected from Census Handbook, Revenue Records, Statistical Department, Soil Survey and Land use Organization, District Industries Centre, Forest Department, Central Ground Water Authority, etc. The generation of primary data as well as collection of secondary data and information from the site and surroundings was carried out during post monsoon season i.e. October -2014 to December -2014. Map showing location of mine site is shown in the Figure no.3.1 and the Map showing monitoring location (Air, Water Soil & Noise) is shown in **Figure no.3.2**

Figure 3. 1: Location Map showing 10 Km radius of mine area

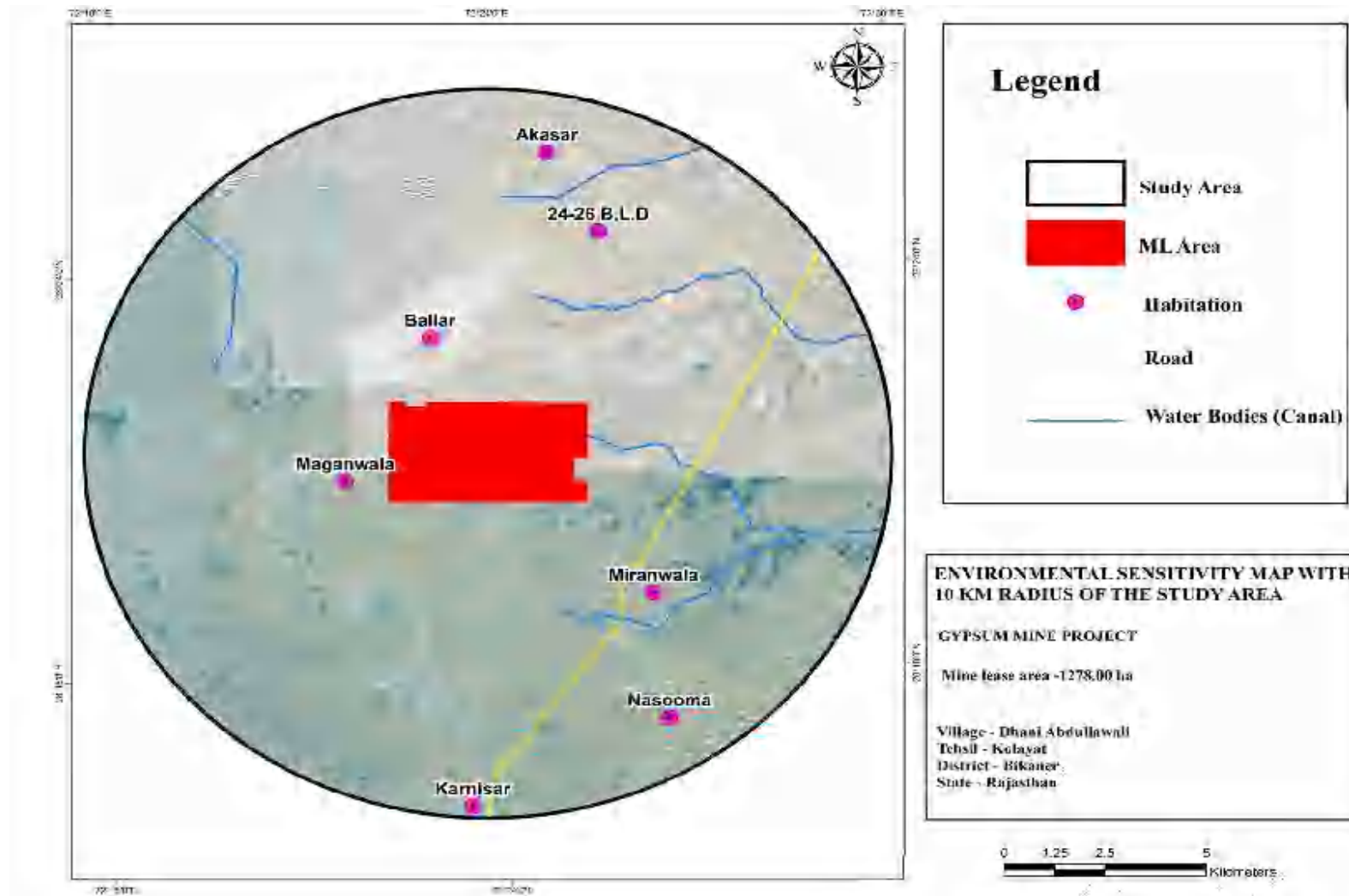
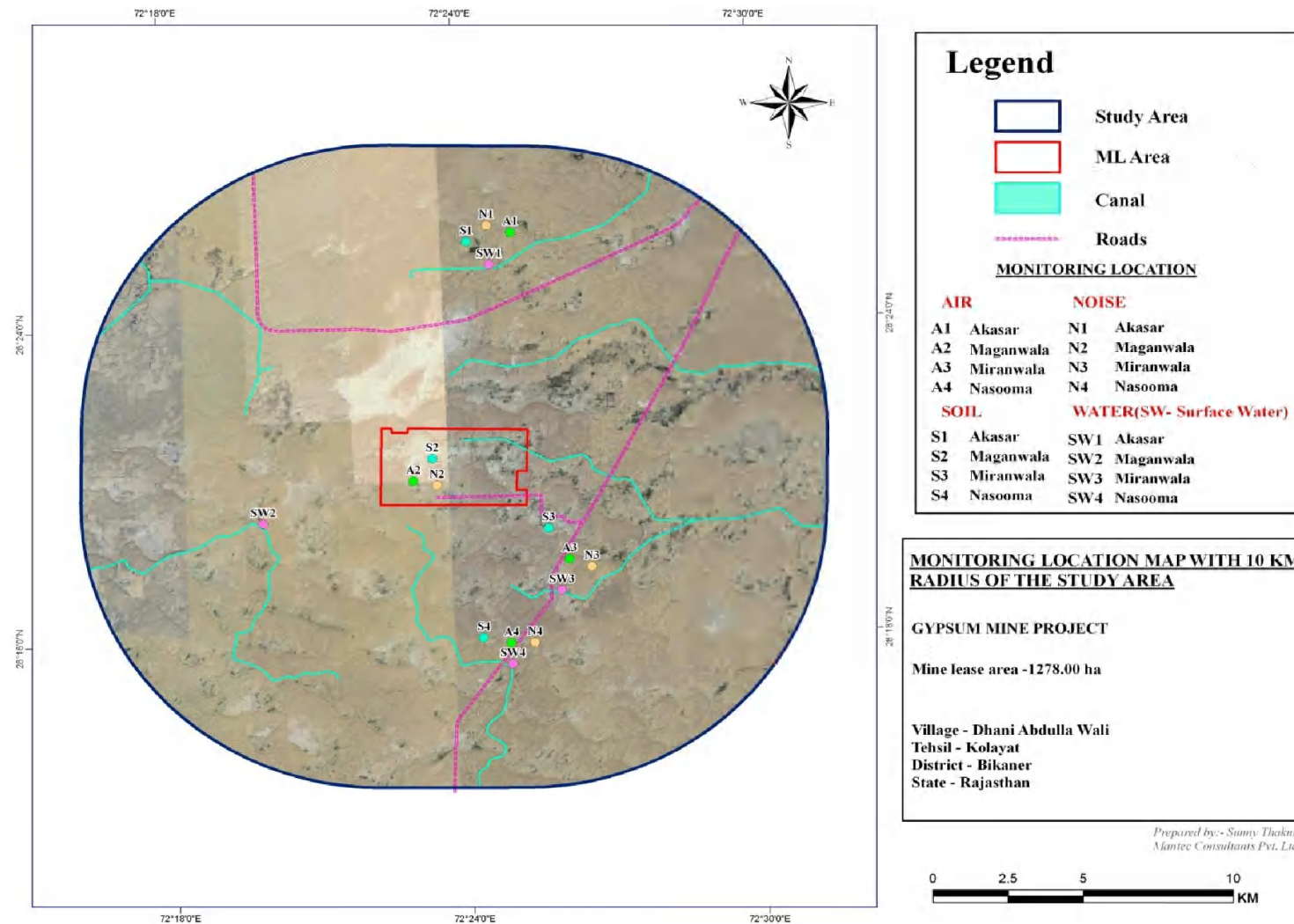


Figure 3. 2: Map showing monitoring locations under 10 km radius of the project area



### **3.1.4 Aspects Studies**

As per the gazette notification dated 14th September 2006 and guidelines of RPCB, the study area was demarked. The study was conducted within a radius of 10 km within mine as center. The study period defined is Oct 2014, Nov 2014, Dec 2014. The disciplines covered by the baseline data collection programme include the following:-Topography, Physiography, Hydrological aspects, Atmospheric condition, Biological environment, Land use, Cropping pattern & Socio economic aspects.

### **3.1.5 Presentation**

Each of the aspects listed above considered ahead in a sequential manner. Data collected during the baseline study period are given ahead and provides a sound knowledge of the existing environment.

## **3.2 Land Environment**

The mining is carried out by opencast mechanized mining method, studies on land environment play an imperative role in identifying susceptible issues and taking appropriate action to uphold ecological equilibrium in the region. The main objective of this section is to provide a baseline status of the study area covering 10 km radius around the mine site so that temporal changes due to the mining activities on the surroundings can be assessed for future.

## **3.3 Geology of the Area**

### **3.3.1 Regional Geology**

The district of Bikaner is a vast sandy tract. Five of the seven tehsils are covered with sand except some exposures near Kolayat and in Nokha tehsil. These are locally called as Magras. In these areas various types of sandstone, clay & limestone have been revealed at different levels. Thus the geology of the district is based on subsurface studies only.

Many geologists believe that during the Jurassic, Cretaceous and Eocene periods the western part of Rajasthan including Bikaner district was under the sea. Later in upper Tertiary period area got up lifted in to dry land.

Geologically the oldest rocks exposed in the limited area and encountered in dug & tube wells etc. have been equated to upper vindhyans of south east Rajasthan known as trans Aravalli- Vindhyan. Overlying them are Tertiary formations followed by quaternary to recent sediments.

The geological succession is as follows.

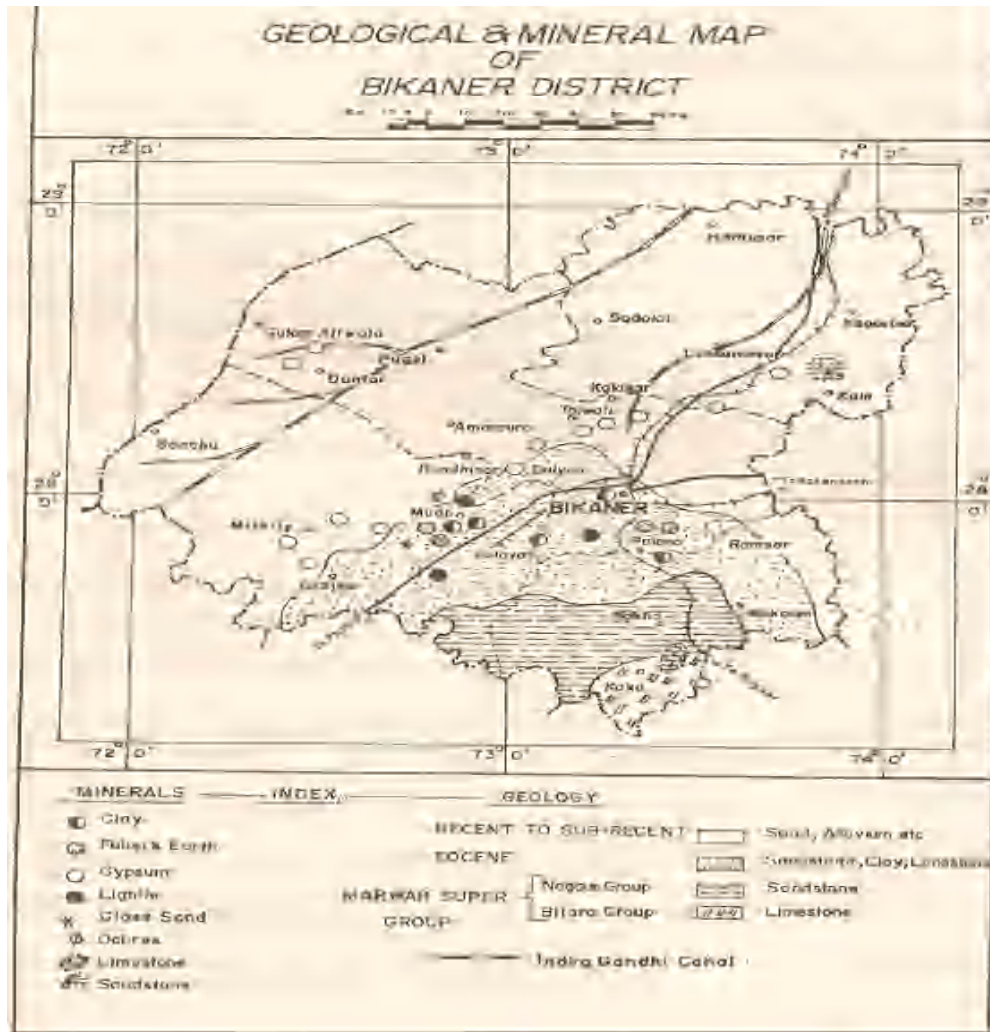
<b>AGE</b>	<b>FORMATION</b>	<b>ROCK TYPE</b>
Recent	Quaternary Sediments	Sands and sandy alluvium calcareous grit, Kankar and semi consolidated conglomerate and selenite.
Pleistocene	Bap Boulders and Lambariyan diamicite	Associated pebbles, cbbles, boulders and erratice of granite, quartzite, rhyolite and dolomite.
----- <b>UNCONFORMITY</b> -----		
Lower to Middle Eocene	Jogiara Formation	Shaly and crystalline Limestone with foraminifers and fuller's earth with lamellibranchs and gastropods.
----- <b>DISCONFORMITY</b> -----		
Upper Palaeocene	Marh Formation	Ferruginous gritty sandstone with white plastic clay bands, siltstone with leaf impressions.
Lower Palaeocene	Palana Formation	Fine grained Sandstone, Carbonaceous shale and lignite
----- <b>UNCONFORMITY</b> -----		
Paleozoic Cambrian Marwar Supergroup	Nagaur Formation of Nagaur group	Brick red to fine grained sandstone with shales gypsum and conglomerates.

(Source: GSI After Mukhopadhyay, A.K.1970-75 and Ghosh, R.N.1970-71)

Rock formation belonging to Nagaur group of Trans Aravali Vindhyan (Marwar Supergroup) includes basal conglomerates, sandstone, siltstone, shale, clay, limestone, anhydrite & halite.

Tertiary rocks are represented by Palana, Marh and Jogjira formation comprising fine grained sandstone, sandy clay variegated clays and lignite. Quarternary formation includes. Sandy alluvium-sand, Kankar, Iron stone nodule etc. (Source: Department of Mines & Geology, Rajasthan)

Figure 3. 3: Geological & Mineral Map of District Bikaner



### 3.3.2 Local Geology

Almost the entire district is devoid of rock exposures except near Kolayat and at a few places in the southern parts of Nokha and Dulmera. The district Bikaner is thus vast sandy tracks except Kolayat are covered with sand of Rock locally known as “Magra” are found in parts Kolayat tehsil. In the magra areas various types of sand stone, clay and lime stone are found at different levels. Fuller’s earth viz Mulatani Miti, Clay lignite and gypsum, white clay, yellow ochre and grit and important economic minerals being produced in the district. Gypsum beds up to 3 meters thick, found in

Bikaner, Khajuwala, Kolayat & Pugal Tehsil. There are deposits of fuller earth at Village Palana (Bikaner tehsil) and Mudh (Kolayat tehsil). Red sand-stone quarries are located near dulmera village (Loonkaransar tehsil). Simultaneously impure lime stone is excavated all over the district. Glass sand is found near Madh and lignite is available at various places in kolayat tehsil and Palana. Sand stone lime stone, Bajri and grit and Kankar are the main building materials found in the district (Source: MSME Jaipur, Govt. of India)

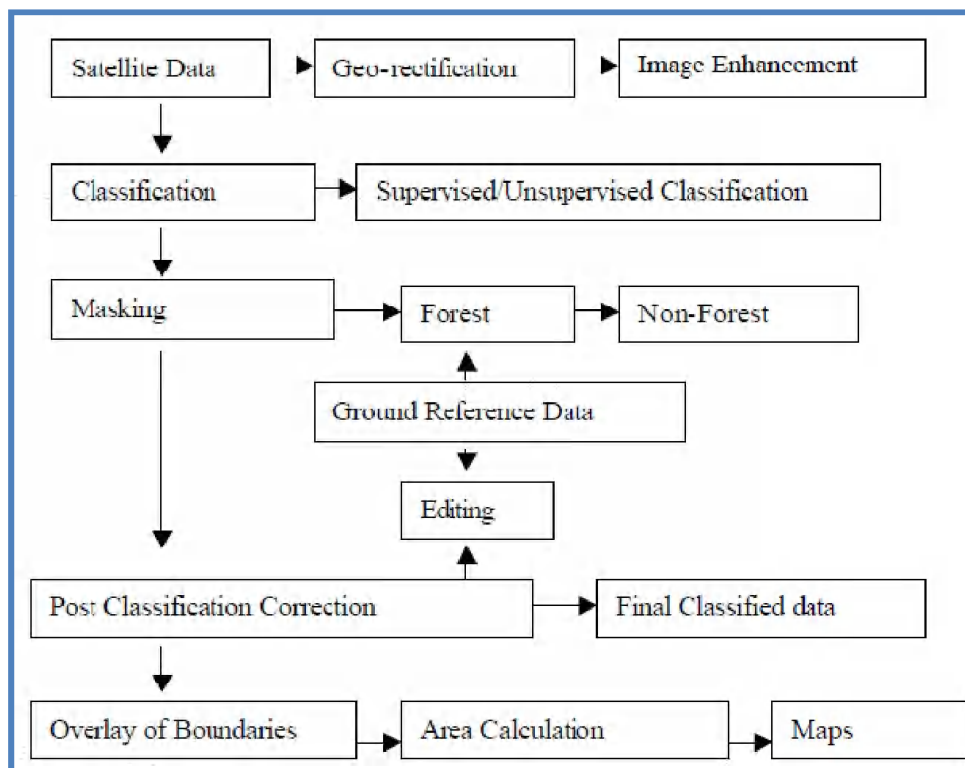
### 3.3.3 Study of the Land Use Pattern of the Project Site

The study was taken up to prepare current land use / land cover within 10 Km area around the mine area of Dhani Abdulla wali at District – Bikaner Rajasthan. Area statistics of land use classes has also been generated for area within 10 Km radius of lease mine lease area.

#### (A) Data Used

Land use / Land cover map preparation, Base map creation; Geometric and Radiometric correction of satellite image has been processed using ERDAS Imagine 9.2 and ArcGIS 9.3 Software. The methodology used for present LU/LC of study area is shown in **Figure 3.4** and is detailed below:

Figure 3. 4: Methodology use for Landuse classification & mapping



**(B)Methodology Adopted For Thematic Data Extraction From The Satellite Imageries:**

ERDAS image processing software and Arc GIS Software were used for the project. Erdas 9.2 Image Processing Software was used for digital processing of the spatial data. Digital image processing techniques were applied for the mapping of the land use/land cover classes of the provided area from the satellite data. The methodology applied comes under following steps:

**(C)Image Extraction:**

Satellite imageries were obtained and a sub set for the Area of Interest was created through ERDAS image processing software.

**(D)Geo-Rectification:**

Geometric correction includes correction for geometric distortions due to sensor, earth geometry variations and conversion of the data to real world coordinates (e.g. Latitude and Longitude) on the Earth's surface. The satellite imagery was geometrically rectified with reference to the geo-referenced toposheets and vector data.

**(E)Image Enhancement:**

Image enhancement is one of the important image processing functions primarily done to improve the appearance of the imagery to assist in visual interpretation and analysis. Various options of image enhancement techniques were tried out to get the best image for visual interpretation. Histogram equalized stretch enhancement techniques was applied to the imagery of the study area for better interpretation of different features in the satellite imagery.

**(F)Classification:**

Satellites images are composed of array of grid, each grid have a numeric value that is known as digital number. Smallest unit of this grid is known as a pixel that captures reflectance of ground features represented in terms of Digital number, which represent a specific land features. Using image classification technique, the satellite data is converted into thematic information map based on the user's knowledge about the ground area.

Hybrid technique has been used i.e. visual interpretation and digital image processing for identification of different land use and vegetation cover classes based on spectral signature of geographic feature. Spectral signature represents various land use classes. Image interpretation keys are developed based on image characteristics like color, tone, size, shape, texture, pattern,

shadow, association etc which enables interpretation of satellite images for ground feature. Training sites are then assigned based on their spectral signature and interpretation elements. Land use/Land cover Map has been broadly classified into five classes namely Agriculture, Forest Land, Built-up Area, Water Bodies and Waste Land and all other land uses have been categorized in others class. Using image classification algorithm land use map is then generated.

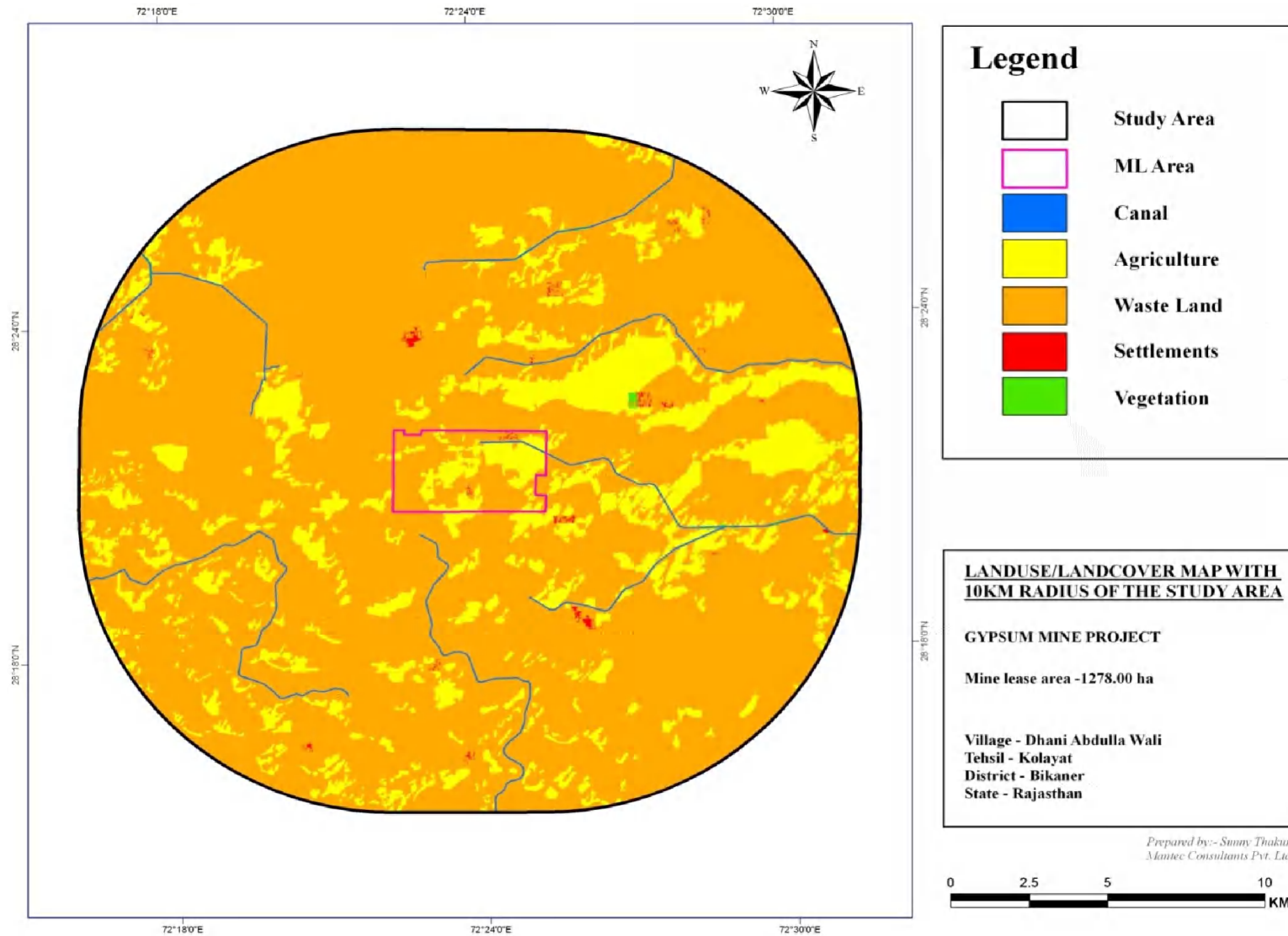
### 3.3.4 Land use pattern of the study area

The existing land use pattern of the study area based on the latest satellite imagery is given in **Table 3.1** as follows and is shown in **Figure 3.5**

Table 3. 1: Land Use Pattern of the Study Area

S.No.	Feature	Area in Hectare	Area in %
1	Agriculture	7028.74	14.70
2	Water Bodies	34.42	0.07
3	Settlement	74.88	0.16
4	Waste Land	40631.73	84.97
5	Vegetation	49.89	0.10
	Total Area	<b>47819.6</b>	<b>100</b>

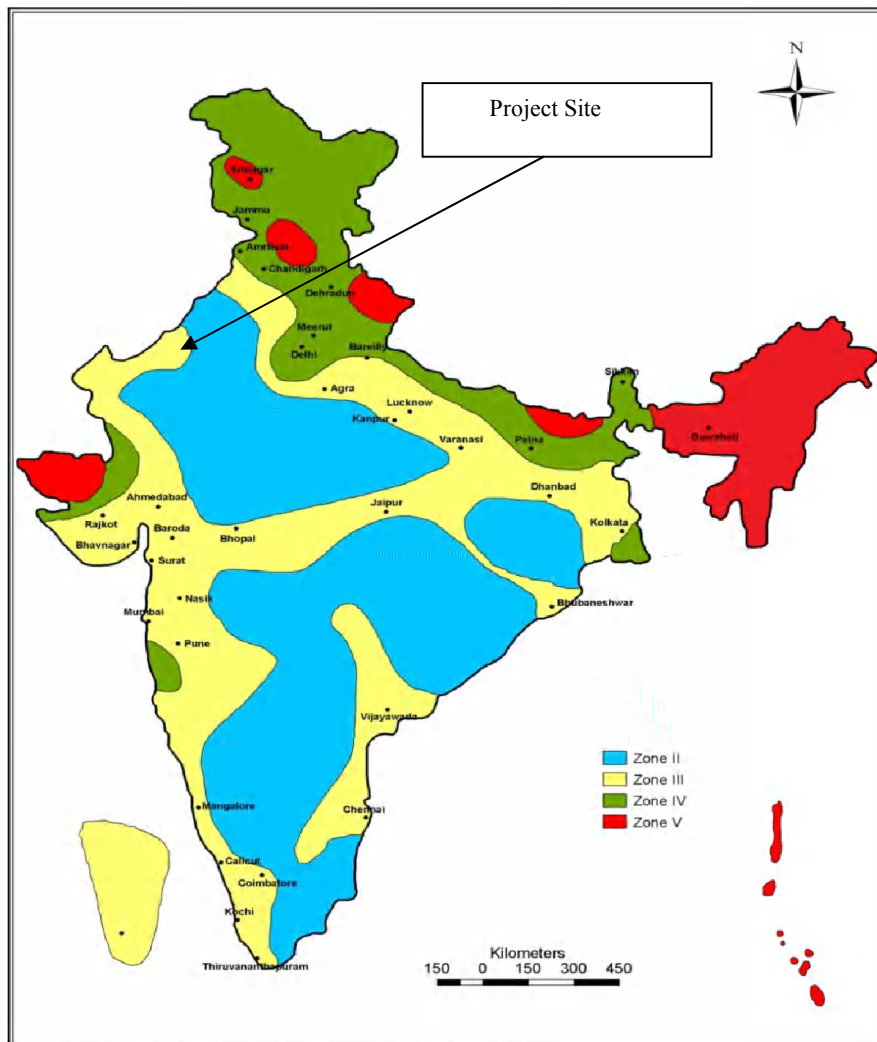
Figure3. 5: Landuse map showing 10 km radius of the study area



### 3.4 Seismicity of the Area

Many parts of the Indian subcontinent have historically high Seismicity. Seven catastrophic earthquakes of magnitude greater than 8 (Richter scale) have occurred in the western, northern and eastern parts of India and adjacent countries in the past 100 years. By contrast, peninsular India is relatively less seismic, suffered only infrequent earthquakes of moderate type. The main seismogenic belts are associated with the collision plate boundary between the Indian and Eurasian plates. The area is located in the Zone III by National Standards. Seismic map of India is shown as **Figure no.3.6**. As per the hazard map of Rajasthan the mine lease area is located in the Zone-III (MSK VII) which is a low damage zone. Seismic map of Rajasthan is shown as **Figure no.3.7**

Figure3. 6: Seismic Map of the India



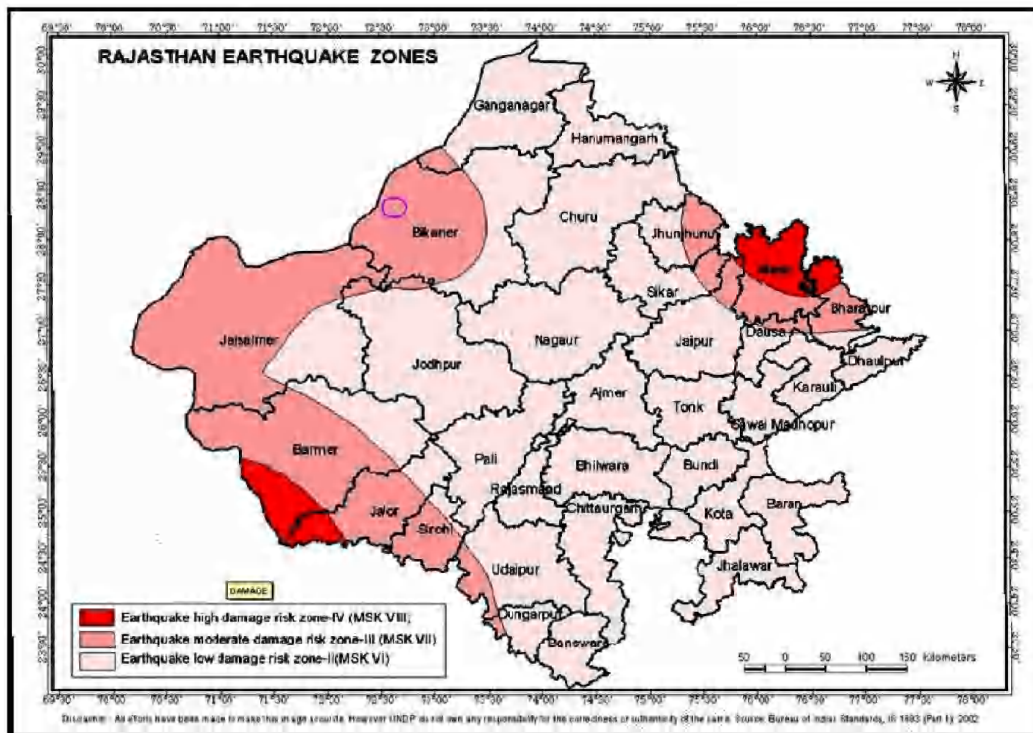
Seismic zoning map of India (Source : BIS, 2001, New Delhi)

### 3.4.1 Earthquake History of Zone III

Bikaner town lies in moderate damage risk zone with of Zone III. The area is moderate earthquakes zone as it is located on relatively stable geological plains based on evaluation of the available earthquake zone information.

This region is liable to MSK VII and is classified as the moderate damage risk zone. The earthquakes in this region had magnitudes of **M 5.0 or more** (instrumented events).

Figure 3. 7: Earthquake map of Rajasthan



(Source: Bureau of Indian Standard)

### 3.5 Major Problem of Rajasthan is-Drought

Rajasthan is the largest state in India covering an area of 34.22 million hectares, i.e., 10.5 percent of the country's geographical area, but sharing only 1.15 percent of its water resources. The state is predominantly agrarian as the livelihood of 70 percent of its people depends on agriculture-based activities. Most of the state (60-75%) is arid or semiarid. In the last 50 years, a threefold increase in the human population and a doubling of the livestock populations have put tremendous pressure on the fragile water and land resources of Rajasthan. Recurring and prolonged droughts, particularly in the western arid part of the state, is a common phenomenon exacerbating water shortages. The estimated annual, per capita water availability in the state during 2001 was 840 m<sup>3</sup>

and it is expected to be 439 m<sup>3</sup> by the year 2050, against the national average of 1,140 m<sup>3</sup> by 2050.

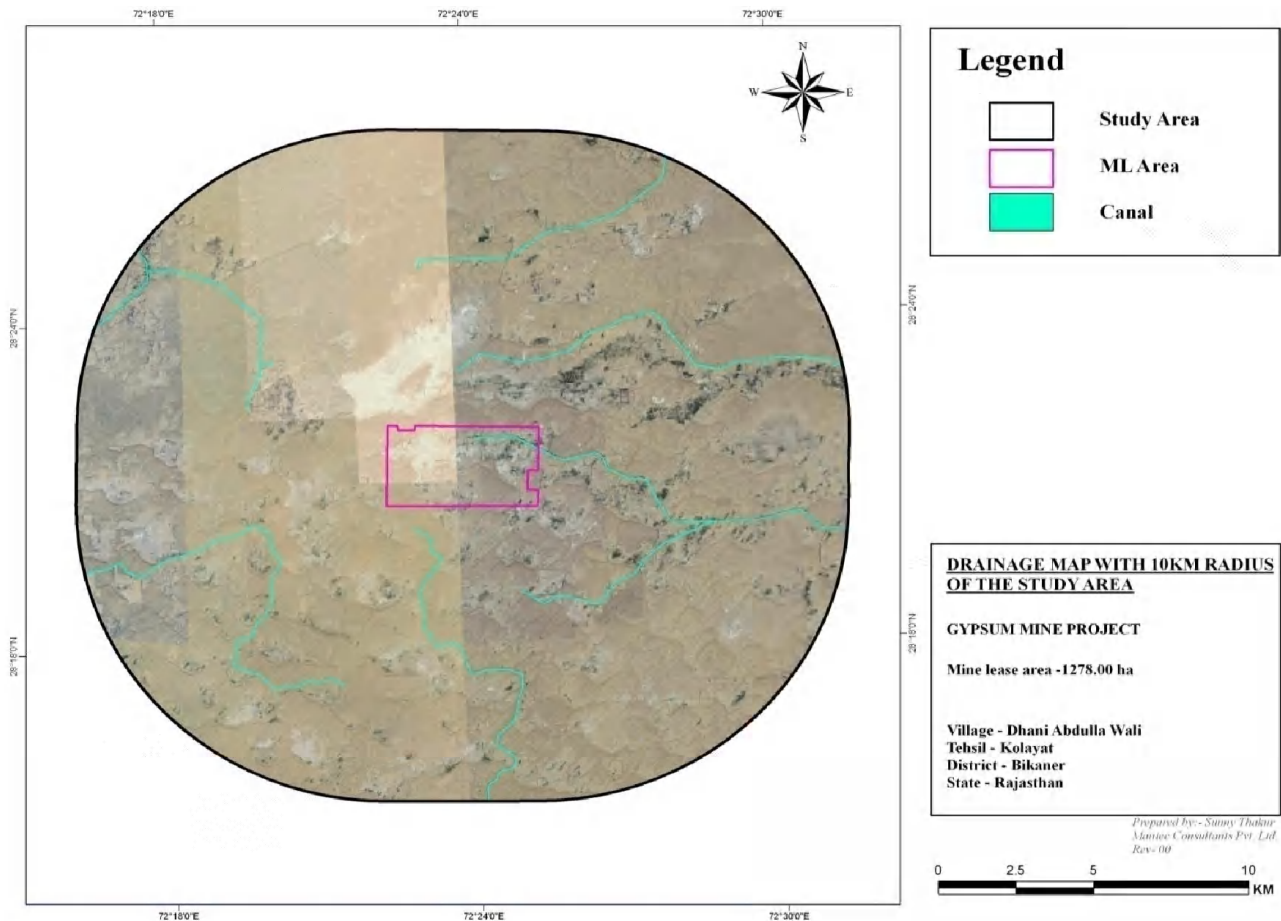
Groundwater is overexploited in many districts of the state.

Low rainfall coupled with erratic behavior of the monsoon in the State makes Rajasthan the most vulnerable to drought. During pre monsoon, shallow water level 9.59 to 38.92m bgl exists in Bikaner, Kolayat, Lunkaransar and Nokha blocks. Bikaner, Kolayat, Lunkaransar and Nokha blocks water level was 9.59 to 110.20 m bgl. During post monsoon, shallow water level 9.20 to 65.90 m bgl exists in Bikaner, Kolayat, Lunkaransar and Nokha blocks. Bikaner, Kolayat, Lunkaransar and Nokha blocks water level was 9.20 to 110.10 m bgl. (Source: CGWA, Rajasthan)

### 3.6 Drainage Pattern of district Bikaner

The District has no major drainage except a few short intermittent and ephemeral channels near Kolayat and few natural lakes or depressions are observed near Gajner, Kolayat, Nal and Lunkaransar. In the year of drought there is no run off (Source: Ground water Scenario 2009, CGWB Rajasthan)

Figure 3. 8: Drainage Map of the Project site showing 10 Km radius



### **3.7 Soil Environment**

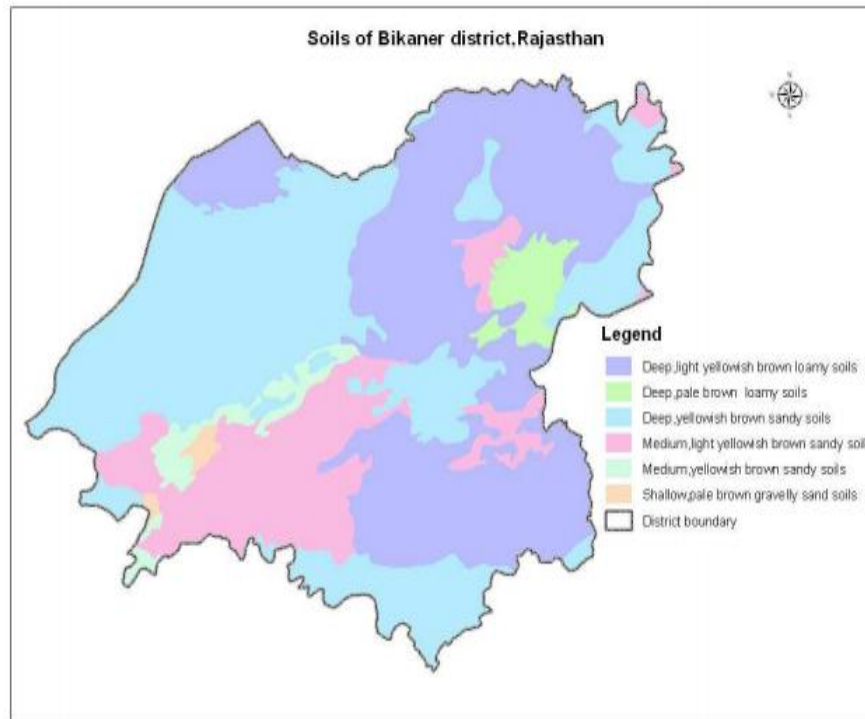
Soil is the largest pool of terrestrial organic carbon. Soil may be defined as a thin layer of earth's crust, which serves as a natural medium for the growth of plants. It is the environmental sieve that controls the fate of contaminants, and directs water in the various pathways of the hydrologic cycle. For studying soil quality of the region 4 samples were collected to assess the existing soil conditions in and around the area.

#### **3.7.1 Soil Profile of District Bikaner**

The soils of Bikaner district are predominantly light textured, weak – structured but well – drained. The arid climate with low rainfall, high temperature and high evaporation losses have resulted in physical and mechanical disintegration of the parent material giving rise to predominance of coarse fraction in the soil. Very little chemical weathering has been taking place and the development of soil is mostly indistinct.

Soils are generally of desertic type with poor fertility status and very low water retention capacity. In general the soils have good porosity (40%) and good to very good permeability. The pH of the soil in its upper surface horizons ranges between 7.9 and 8.1 and show an increase with depth in general. This gradual downward increase in pH may be due to the increase in lime content with depth. Similar trend of increase with depth is also observed in respect of values of electrical conductivity of the soil profile. Most of the soils are calcareous with a maximum lime content of 10.2% (at Lunkaransar). In general, the lime content in soil increases with depth whereas organic carbon decreases with depth and vary from 0.01 to 0.13% (Source: CGWB Rajasthan)

Figure 3. 9: Soil Profile of District Bikaner



### 3.7.2 Methodology of Baseline Data Generation

The soil survey was carried out to assess the soil characteristics of the area. For studying soil quality of the region, 4 samples were collected from 4 different locations in the study area (in and around the mine lease area) to assess the existing soil conditions. Distance and direction of soil sampling station from the mine site have been given below in **Table 3.2**

Table 3. 2: Details of Soil monitoring Locations

S. No.	Location code	Location Name	Distance (km)	Direction
1.	S1	Akasar	6.67	N
2.	S2	Maganwala	-	-
3.	S3	Miranwala	1.07	SE
4.	S4	Nasooma	4.64	S

The samples were collected by driving an auger into the soil up to the depth of 90cm. The present study on the soil quality establishes the baseline characteristics and identifies the incremental concentrations if any, due to the mining project. The objective of the sampling is:-

- To determine the baseline soil characteristics of the study area;

- To determine the impact of activity on soil characteristics and;
- To determine the impact on soil more importantly agriculture production point of view.

The soil samples were collected from three different depths viz. 30cm, 60cm and 90cm. The samples were then packed in polythene plastic bags and sealed. The samples from three different depths are homogenized and are then analyzed. Main test methodologies used for analysis of Soil are given below in **Table 3.3**

Figure 3. 10: Photograph showing the Soil samples collection



Table 3. 3: Methodologies Used for Soil Analysis

Sampling Parameters		Analytical Equipment	Methodology
Texture	Manual samples were collected by driving an auger. Soil samples collected once in a season	Hygrometer and measuring cylinder	IS: 2720 Part 4
Porosity		As per IS: 2720	IS: 2720 Part VII
Moisture		Electronic Balance	IS: 2720 Part 2
Cation Exchange Capacity		As per IS: 2720	IS: 2720 part 24
Electrical Conductivity		As per IS: 14767-2000	IS: 14767-2000
pH		pH Meter	4500 H+B
Calcium		EDTA Titration	3500 Ca B
Magnesium		EDTA Titration	3500 Mg B

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Sampling Parameters		Analytical Equipment	Methodology
Sodium (Na)		Flame Photometer	3500 Na B
Potassium		Flame Photometer	3500 K B

Map showing monitoring locations of soil monitoring stations are showing in Figure no.3.2

### 3.7.3 Results

The results of soil analysis for one season (Oct 2014-Dec 2014) collected from 4 different locations are given below in **Table 3.4**

Table 3. 4: Soil Quality Analysis Results

Sl. No	Parameters	Akasar Oct,2014	Maganwala Oct,2014	Miranwala Oct,2014	Nasooma Oct,2014
1	pH	8.69	8.89	8.41	8.25
3	BulkDensity	1.68	1.64	1.71	1.68
4	Conductivity	246	249	241	238
5	Moisture	18.7	19.6	14.6	16.2
6	Texture	Sand	Sand	Sand	Sand
7	Sand	90	89	91	90
8	Clay	6	8	5	6
9	Silt	4	3	4	4
10	Sodium	197.15	197.08	196.54	195.1
11	Potassium	102.45	102.44	101.3	100.35
12	CEC	4.62	5.56	3.92	4.5
13	Nitrogen	16.2	15.6	14.2	15
14	OrganicMatter	0.81	0.78	0.71	0.75
15	Phosphorous	22.96	22.78	22.61	21.9
16	Calcium	1378	1346	1302	1295
17	SAR	1.36	1.37	1.39	1.38
18	Magnesium	125.5	124.3	125.6	123.4

Monitoring data shows that the texture of soil at all locations is Sandy. The monitoring sites have sand ranging from 91% to 89% in soil samples. Silt content varies from 4% to 3%, while Clay content varies from 8% to 5% in the soil samples.

The data shows that value of pH ranges from 8.89 to 8.25 indicating that all soil samples are basic in nature. Location Manganwala shows maximum conductivity with 249  $\mu\text{mhos/cm}$ , while Nasooma shows minimum conductivity of 238  $\mu\text{mhos/cm}$ .

### 3.8 Water Environment

#### 3.8.1 Water Consumption & Sources

The projected water requirements for the mine site are likely to be in the range of 15 KLD. The major areas of water consumption are dust suppression (10 KLD), for domestic purposes (2 KLD) and green belt development (3 KLD). Water requirement will be met by tanker supply.

#### 3.8.2 Hydrology of the District Bikaner

The Palana sandstone member of the Palana series is the main aquifer in the district. Other aquifer formations are sandstone and limestone of Nagaur group of rocks. Jodhpur sandstone and Quaternary alluvium also form aquifer whenever they extend in the zone of saturation.

#### 3.8.3 Methodology for Baseline Data Generation

The assessment of present status of water quality within the study area was conducted by collecting water sample from surface water sources during the period of Oct-Dec' 2014. The sampling locations were identified on the basis of their importance within the study area. Four surface water samples were collected during the monitoring period. The details of locations of sampling stations for surface water are given below in **Table 3.5** and shown in **Figure 3.2**

Table 3. 5: Location of Water Monitoring Station

S.N.	Type of sample	Location code	Location Name	Distance (km)	Direction
1.	Surface water	SW1	Akasar	5.6	NE
2.	Surface water	SW2	Maganwala	3.96	SW
3.	Surface water	SW3	Miranwala	3.2	SE
4.	Surface water	SW4	Nasooma	5.71	S

Water samples were collected from all the sampling locations and analyzed for relevant physico-chemical and bacteriological parameters. Collection and analysis of the samples was carried out as per established standard methods and procedures, prescribed by RPCB, relevant IS Codes and Standard methods of examination of water.

Analyses of the parameters like temperature, pH, dissolved oxygen and alkalinity were carried out at the sampling stations immediately after collection of samples with the help of field analysis kits. For analysis of other parameters, the samples were preserved and brought to laboratory at Noida.

The metallic constituents like arsenic, mercury, lead, cadmium, chromium, copper, zinc, selenium, iron and manganese were analyzed with Atomic Absorption Spectrophotometer.

Figure 3. 11: Photograph showing surface water sample collection



### 3.8.4 Water Quality

Water quality is assessed with Water Quality Standards which are the foundation of the water quality-based pollution control program. Water Quality Standards define the goals for a water-body by designating its uses, setting criteria to protect those uses, and establishing provisions such as anti-degradation policies to protect water-bodies from pollutants.

The baseline data was collected and analyzed separately for ground water and surface water samples respectively. Results of both are discussed below separately.

#### (A)Ground Water Quality

Groundwater is the water located beneath the earth's surface in soil pore spaces and in the fractures of rock formations. Since groundwater moves through rocks and subsurface soil, it has a lot of opportunity to dissolve substances as it moves. Ground water quality comprises the physical, chemical and biological qualities of ground water. Temperature, colour, turbidity, odour and taste make up the list of physical water quality parameters. Mostly, groundwater is colourless, odourless and without specific taste so quality of groundwater is mostly concerned with chemical and biological qualities.

### (B) Surface Water Quality

Surface water is any source of water that is open to the atmosphere and is subject to runoff from the land. This includes canal, lakes, streams, rivers, ponds, springs, marine bays, estuaries, and oceans.

#### 3.8.5 Result

The sample of surface water have been collected from surface water body and analyzed for parameters prescribed as per IS-2296. The result of surface water analysis data for the monitoring period i.e. Oct 2014-Dec 2014 is presented below in **Table 3.6**

Table 3. 6: Surface Water Analysis Results

Characteristics of Surface Water samples					
		Akasar	Maganwala	Miranwala	Nasooma
S.No	Parameter	Oct'14	Oct'14	Oct'14	Oct'14
1	Colour,HU	<5	<5	<5	<5
2	Odour	Agr'ble	Agr'ble	Agr'ble	Agr'ble
3	Taste	-	-	-	-
4	Turbidity,mg/l	<5	<5	<5	<5
5	pH	7.39	7.48	7.29	7.40
6	Temperature, °C	25	25	25	25
7	Suspended solids,mg/l	6.40	8.40	7.00	7.60
8	Conductivity,µmhos/cm	316	374	267	338
9	Alkalinity as CaCO <sub>3</sub> ,mg/l	92.82	110.65	106.08	110.05
10	Total Dissolved Solids,mg/l	209	246	176	220
11	Total Hardness as CaCO <sub>3</sub>	121	198	155	278
12	Calcium as CaCO <sub>3</sub> ,mg/l	97	177	124	230
13	Magnesium as CaCO <sub>3</sub> ,mg/l	24	21	31	48
14	Chloride as Cl,mg/l	24	23	29	25
15	Phosphate as PO <sub>4</sub> ,mg/l	<2	<2	<2	<2
16	Nitrate as NO <sub>3</sub> ,mg/l	0.78	1.44	2.22	1.86
17	Sulphate as SO <sub>4</sub> ,mg/l	16.80	13.50	8.70	11.90
18	Phenolic Compound,mg/l	<0.001	<0.001	<0.001	<0.001
19	Copper as Cu,mg/l	<0.002	<0.002	<0.002	<0.002
20	Fluoride as F,mg/l	0.21	0.26	0.20	0.23
21	Dissolved Oxygen, mg/l	6.40	6.20	6.70	6.50
22	B.O.D.,mg/l	3.88	4.66	4.46	4.53
23	C.O.D.,mg/l	14.6	16	12.50	15.34
24	Mercury as Hg,mg/l	<0.001	<0.001	<0.001	<0.001
25	Cadmium as Cd,mg/l	<0.001	<0.001	<0.001	<0.001
26	Selenium as Se,mg/l	<0.01	<0.01	<0.01	<0.01
27	Total Arsenic as As,mg/l	<0.01	<0.01	<0.01	<0.01
28	Cyanide as CN,mg/l	<0.05	<0.05	<0.05	<0.05
29	Lead as Pb,mg/l	<0.01	<0.01	<0.01	<0.01

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30	Zinc as Zn,kg/l	<10	<10	<10	<10
31	Chromium as Cr <sup>+6</sup> ,mg/l	<0.05	<0.05	<0.05	<0.05
32	Aluminium as Al,mg/l	<0.03	<0.03	<0.03	<0.03
33	Manganese as Mn,mg/l	<0.02	<0.02	<0.02	<0.02
34	Boron as B,mg/l	ND	ND	ND	ND
35	Iron as Fe,mg/l	0.16	0.14	0.17	0.15

The value of pH ranges from 7.48 to 7.29 indicating that water is neutral in the study area. Maximum Conductivity observed is 374µmhos/cm at monitoring location Maganwala whereas minimum conductivity was observed at monitoring location Miranwala as 267 µmhos/cm. Total hardness ranges from 278 to 121mg/l. The observed values of Chloride vary from 29 mg/l to 23 mg/l.

### 3.9 Air Environment

Meteorological study exerts a critical influence on air quality as it is an important factor in governing the ambient air quality. The meteorological data recorded during the study period is used for interpretation of the baseline information as well as input for air quality simulation models.

#### 3.9.1 Metrology of the Project Site

Meteorological data was collected for post monsoon season. A meteorological station was installed in the project area at about 10 m above the ground level. All care was taken to see that the station is free from obstructions to free flow of winds. On-site monitoring was undertaken for various metrological variables in order to generate the site-specific data. Data was collected at site every hour continuously from Oct-Dec, 2014 covering post monsoon season.

The maximum and minimum temperatures of the study period are presented in **Table 3.7**

Table 3. 7: Summary of metrological data generated at site

S. No	Temperature <sup>0</sup> C		Wind Speed km/hr	
	Max	Min	Max	Min
Oct 2014	39	16	11	0
Nov 2014	43	11	7	0
Dec 2014	43	2	15	0

(Source: Field Monitoring)

##### 3.9.1.1 Wind Speed

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Wind speed and wind direction data recorded during the study period is useful in identifying the influence of meteorology on the air quality of the area. Based on the collected meteorological data, relative percentage frequencies of different wind directions are calculated and plotted as wind roses of Sixteen directions viz., N, NNE, NE, ENE, E, ESE, SE, SSE, S, SSW, SW,WSW,W,WNW,NW and NNW for eight hourly and twenty four hour duration respectively. The observed wind pattern during the study period is described below and is plotted for the study period. The predominant over all wind patterns for the study period is from North to South direction.

• **Frequency Distribution**

	Directions / Wind Classes (m/s)	0.5 - 2.1	2.1 - 3.6	3.6 - 5.7	5.7 - 8.8	8.8 - 11.1	>= 11.1	Total
1	348.75 - 11.25	182	2	0	0	0	0	184
2	11.25 - 33.75	58	0	0	0	0	0	58
3	33.75 - 56.25	78	0	1	0	0	0	79
4	56.25 - 78.75	56	0	2	0	0	0	58
5	78.75 - 101.25	62	0	0	0	0	0	62
6	101.25 - 123.75	35	0	0	0	0	0	35
7	123.75 - 146.25	21	0	0	0	0	0	21
8	146.25 - 168.75	29	0	0	0	0	0	29
9	168.75 - 191.25	17	0	0	0	0	0	17
10	191.25 - 213.75	3	1	0	0	0	0	4
11	213.75 - 236.25	14	0	0	0	0	0	14
12	236.25 - 258.75	40	2	0	0	0	0	42
13	258.75 - 281.25	93	0	0	0	0	0	93
14	281.25 - 303.75	65	3	0	0	0	0	68
15	303.75 - 326.25	95	16	2	0	0	0	113
16	326.25 - 348.75	42	5	0	0	0	0	47
	Sub-Total	890	29	5	0	0	0	924
	Calms							1284
	Missing/Incomplete							0
	Total							2208

• **Frequency Count**

	Directions / Wind Classes (m/s)	0.5 - 2.1	2.1 - 3.6	3.6 - 5.7	5.7 - 8.8	8.8 - 11.1	>= 11.1	Total (%)
1	348.75 - 11.25	8.24275	0.09058	0	0	0	0	8.33333
2	11.25 - 33.75	2.62681	0	0	0	0	0	2.62681
3	33.75 - 56.25	3.53261	0	0.04529	0	0	0	3.5779
4	56.25 - 78.75	2.53623	0	0.09058	0	0	0	2.62681

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5	78.75 - 101.25	2.80797	0	0	0	0	0	2.80797
6	101.25 - 123.75	1.58514	0	0	0	0	0	1.58514
7	123.75 - 146.25	0.95109	0	0	0	0	0	0.95109
8	146.25 - 168.75	1.31341	0	0	0	0	0	1.31341
9	168.75 - 191.25	0.76993	0	0	0	0	0	0.76993
10	191.25 - 213.75	0.13587	0.04529	0	0	0	0	0.18116
11	213.75 - 236.25	0.63406	0	0	0	0	0	0.63406
12	236.25 - 258.75	1.81159	0.09058	0	0	0	0	1.90217
13	258.75 - 281.25	4.21196	0	0	0	0	0	4.21196
14	281.25 - 303.75	2.94384	0.13587	0	0	0	0	3.07971
15	303.75 - 326.25	4.30254	0.72464	0.09058	0	0	0	5.11775
16	326.25 - 348.75	1.90217	0.22645	0	0	0	0	2.12862
	Sub-Total	40.308	1.31341	0.22645	0	0	0	41.8478
	Calms							58.1522
	Missing/Incomplete							0
	Total							100

Figure 3. 12: Wind Rose of the Area

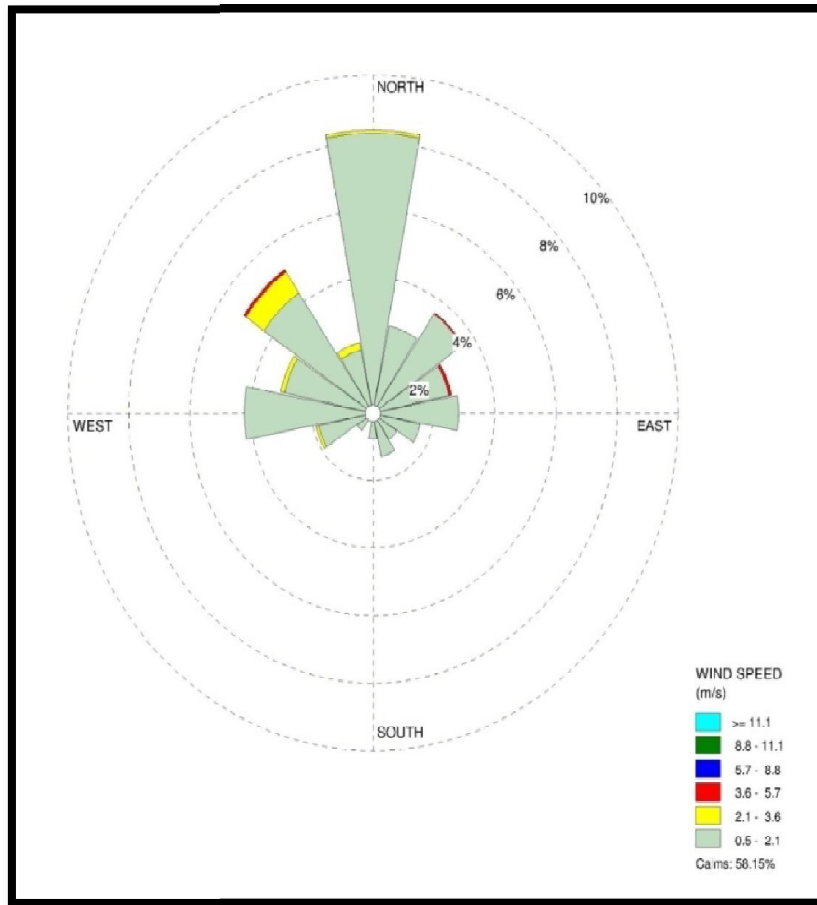
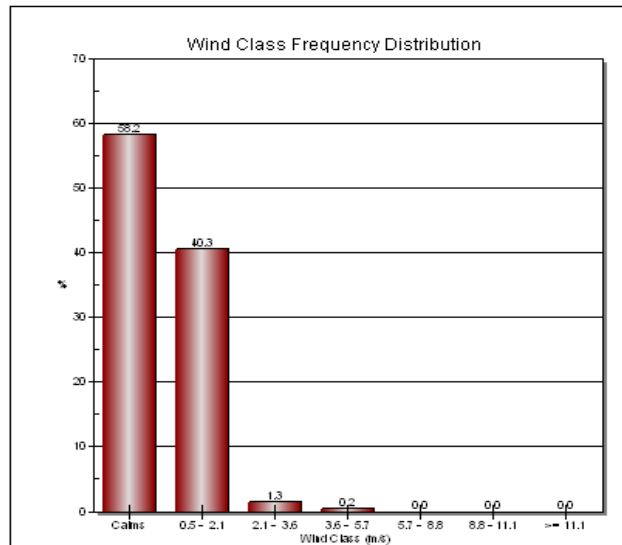


Figure 3. 13: Wind Class Distribution



### 3.9.2 Methodology for Baseline Data Generation

This section describes the sampling locations, frequency of sampling and methodology adopted for monitoring ambient air quality.

Calibrated Respirable Dust Samplers were used for the sampling of PM<sub>10</sub>, SO<sub>2</sub> and NO<sub>x</sub>. Ambient air sampling was performed continuously for 24 hours to determine 24-hour average concentrations. Ambient air quality monitoring was carried out with a frequency of two days per week at all 4 locations. The sampling was performed at a height of 1.5 m (approximately) from the ground level. Standard methods specified under "National Ambient Air Quality Standards" notification G.S.R. 176(E) were adopted for sampling and analysis. Four locations within the study area were scientifically selected and are based on the following considerations:

- Meteorological conditions;
- Topography of the study area;
- The direction of the wind;
- Representation of the region for establishing baseline status; and
- Representation with respect to likely impact areas.

The location of the monitoring stations with reference to the proposed site is given below in **Table 3.8** and shown in **Figure 3.2**

Figure 3. 14: Photograph showing Air quality monitoring



Table 3. 8: Ambient Air Quality Monitoring Locations

S. No.	Location code	Location Name	Distance (km)	Direction
1.	A1	Akasar	6.89	NE
2.	A2	Maganwala	-	-
3.	A3	Miranwala	2.35	SE
4.	A4	Nasooma	4.96	S

### 3.9.3 Sampling and Analytical Techniques

#### (A)Particulate Matter (10)

Calibrated 'Respirable Dust Samplers' with Whatman GF/A filter paper (size: 8"x10") was used for the collection of PM (10). A known volume of ambient air is passed through the cyclone to the initially preprocessed filter paper. The centrifugal force in cyclone acts on particulate matter to separate them into two parts and collected as followings: -

- Particles <10 μ size (Respirable) : GF/A Filter Paper
- Particles >10 μ size (Non Respirable) : Cyclone Cup

The differences in final and initial weight of filter paper and cyclone cup are used in estimation of particulate matter. The mass of particulates collected on the GF filter, divided by the volume of air sampled, gives the concentration of PM (10). The results are expressed in μg/m<sup>3</sup>.

**(B) Sulphur Dioxide**

Sampling and analysis of ambient SO<sub>2</sub> was performed by adopting the 'Improved West and Gaeke Method'. The ambient air passed through an impinger, containing a known volume of absorbing solution of Sodium Tetra chloro mercurate, at a pre-determined flow rate as per sampling duration. SO<sub>2</sub> in ambient air reacts with the tetra chloro mercurate to form a stable complex, dichloro-sulphito mercurate. On reacting with formaldehyde and p-rosaniline hydrochloride, the sulphite ion forms an intensely coloured compound, p-rosanilinemethyle sulphonic acid. The intensity of the colour developed is estimated by spectrophotometer at 560 nm wave length. The measured Optical Density (OD) is used to determine the concentration of SO<sub>2</sub> from the calibration curve already prepared against known concentrations of sulphite ion. The mass of SO<sub>2</sub> in the absorbing reagent, divided by the volume of sampled air provides the concentration of SO<sub>2</sub>, which is expressed as µg/m<sup>3</sup>.

**(C) Nitrogen Dioxides**

Sampling and analysis of ambient NO<sub>2</sub> was performed by adopting the Modified 'Jacob Hochheiser' (Na arsenite) method. The ambient air passed through an impinger, containing a known volume of absorbing solution of sodium arsenite and sodium hydroxide. Oxides of nitrogen react with the absorbing reagent to form a stable solution of sodium nitrite. The nitrate ion produced during the sampling is estimated calorimetrically, after reacting with phosphoric acid, sulphanilamide and naphthyl ethylenediamine dihydrochloride (NEDA), using spectrophotometer at 540 nm wavelength. The measured Optical Density is used to determine the concentration of NO<sub>2</sub> from the calibration curve already prepared against known concentrations of nitrite ion. The mass of NO<sub>2</sub> in the absorbing reagent, divided by the volume of air sampled provides the concentration of NO<sub>2</sub>, which is expressed as µg/m<sup>3</sup>.

Table 3. 9: National Ambient Air Quality Standards

S. No.	Pollutant	Time Weighted Average	Concentration in Ambient Air		
			Industrial Residential, Rural and Other Area	Ecologically Sensitive Area(notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1.	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Annual* 24 hours**	50 80	20 80	Improved West and Gracke Ultraviolet fluorescence
2.	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Annual* 24 hours**	40 80	30 80	Modified Jacob & Hochheiser (Na-Arsenite)

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					Chemiluminescence
3.	Particulate Matter (size less than 10 µm) or PM <sub>10</sub> µg/m <sup>3</sup>	Annual* 24 hours**	60 100	60 100	Gravimetric TOEM Beta attenuation

*\*Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.*

*\*\*24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.*

### 3.9.4 Air Quality

Airborne contaminants can present a significant threat to worker health and safety. Thus, identification and quantification of these contaminants through air monitoring is an essential component of a health and safety program at a hazardous waste site.

The basic mission of the Air Quality monitoring is to preserve and improve the quality of nation's air. To accomplish this, evaluate the status of the atmosphere as compared to clean air standards and historical information.

The results of ambient air quality monitoring for the period of Oct 2014-Dec' 2014, are presented in **Table 3.10 to 3.13**. Various parameters monitored from the study area have been described by their maximum, minimum and average values.

### 3.9.5 Results

The results of ambient air quality monitoring for the period of Oct 2014-Dec 2014, are presented in **Table 3.10 to Table 3.13**. Various parameters monitored from the study area have been described by their maximum, minimum and average values.

Table 3. 10: Air monitoring result of monitoring station A1-Akasar

SITE	A1- Akasar			
MONTH	DATE	PM10	SO <sub>2</sub>	NO <sub>2</sub>
October	01.10.2014	68.1	8.7	22.6
	05.10.2014	70.2	8.6	23.5
	09.10.2014	64.4	8.5	24.8
	13.10.2014	72.1	8.2	23.9
	17.10.2014	68.3	8.6	22.5

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	21.10.2014	72.4	8.9	22.9
	25.10.2014	70.6	8.6	23.6
	29.10.2014	66.3	8.8	21.6
<b>November</b>	03.11.2014	67.4	8.0	20.8
	07.11.2014	69.0	8.6	21.9
	11.11.2014	72.2	8.8	22.5
	15.11.2014	69.8	8.9	22.9
	19.11.2014	73.1	8.6	23.5
	23.11.2014	71.5	8.2	24.5
	27.11.2014	72.7	8.5	23.8
	30.11.2014	70.2	8.0	24.5
<b>December</b>	01.12.2014	67.3	8.8	21.5
	05.12.2014	69.2	8.6	22.6
	09.12.2014	68.4	8.7	23.5
	13.12.2014	68.1	8.9	24.3
	17.12.2014	69.4	8.5	22.9
	21.12.2014	66.5	8.2	20.8
	25.12.2014	73.3	8.6	22.6
	29.12.2014	74.9	8.8	21.5
<b>Minimum</b>		<b>64</b>	<b>8.0</b>	<b>21</b>
<b>Maximum</b>		<b>75</b>	<b>9</b>	<b>25</b>
<b>Average</b>		<b>69.8</b>	<b>8.6</b>	<b>22.9</b>
<b>98th Percentile</b>		<b>74.2</b>	<b>8.9</b>	<b>24.7</b>

Table 3. 11: Air monitoring result of monitoring station A2-Maganwala

<b>SITE</b>	<b>A2-Maganwala</b>			
<b>MONTH</b>	<b>DATE</b>	<b>PM10</b>	<b>SO<sub>2</sub></b>	<b>NO<sub>2</sub></b>
<b>October</b>	01.10.2014	47.2	5.5	22.3
	05.10.2014	50.1	5.8	21.5
	09.10.2014	45.6	5.9	22.6
	13.10.2014	48.9	5.4	22.1
	17.10.2014	46.3	5.8	20.5

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	21.10.2014	52.4	5.7	21.6
	25.10.2014	44.6	5.3	22.2
	29.10.2014	51.0	5.7	21.4
<b>November</b>	03.11.2014	49.5	5.5	22.6
	07.11.2014	45.3	5.9	22.8
	11.11.2014	43.8	5.4	23.5
	15.11.2014	47.2	5.9	22.4
	19.11.2014	44.6	5.5	22.9
	23.11.2014	40.1	5.3	21.5
	27.11.2014	48.9	5.9	23.5
	30.11.2014	45.6	5.7	22.8
<b>December</b>	01.12.2014	60.4	6.1	19.6
	05.12.2014	56.8	5.6	18.4
	09.12.2014	58.6	5.9	19.8
	13.12.2014	53.5	6.2	20.1
	17.12.2014	54.2	5.8	20.6
	21.12.2014	50.4	5.6	21.3
	25.12.2014	49.6	5.8	20.8
	29.12.2014	52.8	5.4	21.6
<b>Minimum</b>		<b>40</b>	<b>5</b>	<b>18</b>
<b>Maximum</b>		<b>60</b>	<b>6</b>	<b>24</b>
<b>Average</b>		<b>49.5</b>	<b>5.7</b>	<b>21.6</b>
<b>98th Percentile</b>		<b>59.6</b>	<b>6.2</b>	<b>23.5</b>

Table 3. 12 : Air monitoring result of monitoring station A3-Miranwala

<b>SITE</b>	<b>A3- Miranwala</b>			
<b>MONTH</b>	<b>DATE</b>	<b>PM10</b>	<b>SO<sub>2</sub></b>	<b>NO<sub>2</sub></b>
<b>October</b>	03.10.2014	45.3	5.9	22.8
	07.10.2014	43.8	5.4	23.5
	11.10.2014	52.4	5.7	21.6
	15.10.2014	44.6	5.3	22.2

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	19.10.2014	48.9	5.4	22.1
	23.10.2014	47.2	5.9	22.4
	27.10.2014	44.6	5.5	22.9
	31.10.2014	51.4	5.6	21.5
<b>November</b>	05.11.2014	50.1	5.8	21.5
	09.11.2014	60.4	6.1	19.6
	13.11.2014	56.8	5.6	18.4
	17.11.2014	58.6	5.9	19.8
	21.11.2014	50.4	5.6	21.3
	25.11.2014	49.6	5.8	20.8
	28.11.2014	52.8	5.4	21.6
	30.11.2014	52.4	5.7	21.4
<b>December</b>	03.12.2014	68.1	6.7	22.6
	07.12.2014	64.4	6.5	24.8
	11.12.2014	66.3	6.8	21.6
	15.12.2014	68.3	6.6	22.5
	19.12.2014	58.6	5.9	19.8
	23.12.2014	60.4	6.1	19.6
	27.12.2014	69.2	6.6	22.6
	31.12.2014	68.4	6.7	23.5
<b>Minimum</b>		<b>44</b>	<b>5.3</b>	<b>18</b>
<b>Maximum</b>		<b>69</b>	<b>7</b>	<b>25</b>
<b>Average</b>		<b>55.6</b>	<b>5.9</b>	<b>21.7</b>
<b>98th Percentile</b>		<b>68.8</b>	<b>6.8</b>	<b>24.2</b>

Table 3. 13: Air monitoring result of monitoring station A4-Nasooma

<b>SITE</b>	<b>A4 - Nasooma</b>			
<b>MONTH</b>	<b>DATE</b>	<b>PM10</b>	<b>SO<sub>2</sub></b>	<b>NO<sub>2</sub></b>
<b>October</b>	03.10.2014	50.4	6.6	21.3
	07.10.2014	49.6	6.8	20.8
	11.10.2014	47.2	6.9	22.4
	15.10.2014	48.9	6.4	22.1
	19.10.2014	52.4	6.7	21.6

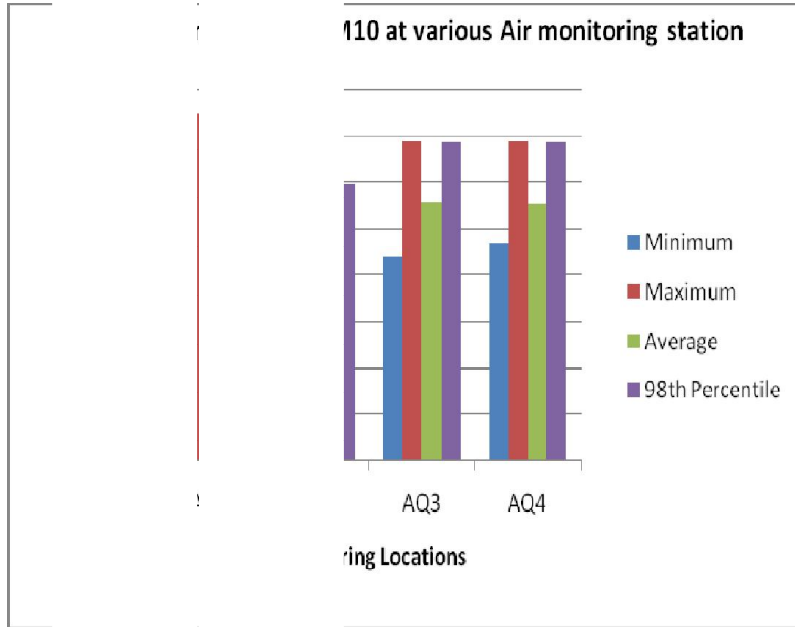
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	23.10.2014	50.4	6.5	21.3
	27.10.2014	49.6	6.8	20.8
	31.10.2014	51.4	6.6	21.5
<b>November</b>	05.11.2014	60.4	6.1	19.6
	09.11.2014	56.8	6.6	18.4
	13.11.2014	58.6	5.9	19.8
	17.11.2014	51.4	6.6	21.5
	21.11.2014	50.1	6.8	21.5
	25.11.2014	48.9	6.4	22.1
	28.11.2014	49.6	5.8	20.8
	30.11.2014	50.4	6.6	21.3
<b>December</b>	03.12.2014	67.3	6.8	21.5
	07.12.2014	69.2	6.6	22.6
	11.12.2014	68.4	6.7	23.5
	15.12.2014	60.4	6.1	19.6
	19.12.2014	56.8	5.6	18.4
	23.12.2014	58.6	5.9	19.8
	27.12.2014	52.8	6.4	21.6
	31.12.2014	60.4	6.1	19.6
<b>Minimum</b>		<b>47</b>	<b>5.6</b>	<b>18</b>
<b>Maximum</b>		<b>69</b>	<b>7</b>	<b>24</b>
<b>Average</b>		<b>55.2</b>	<b>6.4</b>	<b>21.0</b>
<b>98th Percentile</b>		<b>68.8</b>	<b>6.9</b>	<b>23.1</b>

### 3.9.6 Analysis

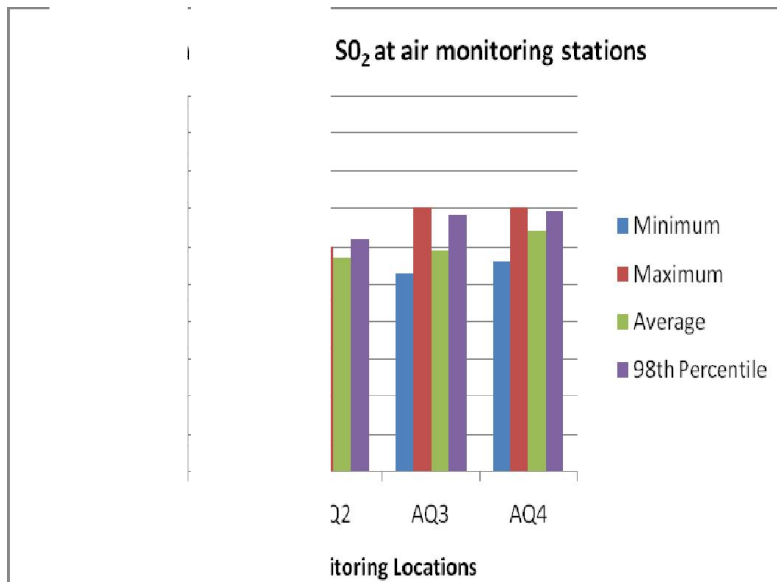
**PM<sub>10</sub>:** The maximum value for PM<sub>10</sub> is observed, as 75 µg/m<sup>3</sup> at Akasar and minimum value of 40 µg/m<sup>3</sup> at Maganwala while 24 hours applicable limit is 100µg/m<sup>3</sup> for industrial and mixed use areas. The average value ranges between 69.8 to 49.5 µg/m<sup>3</sup>. Graphical representation of PM<sub>10</sub> concentration at different locations is shown in **Figure 3.15**

Figure 3. 15: Concentration of PM10 at Air monitoring stations



**SO<sub>2</sub>:** The maximum value for SO<sub>2</sub> is observed, as 9.0 µg/m<sup>3</sup> at Akasar and minimum value is 5.0 at Maganwala while 24 hours applicable limit is of 80µg/m<sup>3</sup> for residential, industrial and other areas. Average value of SO<sub>2</sub> is between 8.6 to 5.7 µg/m<sup>3</sup>. The area observes SO<sub>2</sub> well below the prescribed range. Graphical representation of SO<sub>2</sub> concentration at different locations is shown in **Figure 3.16**

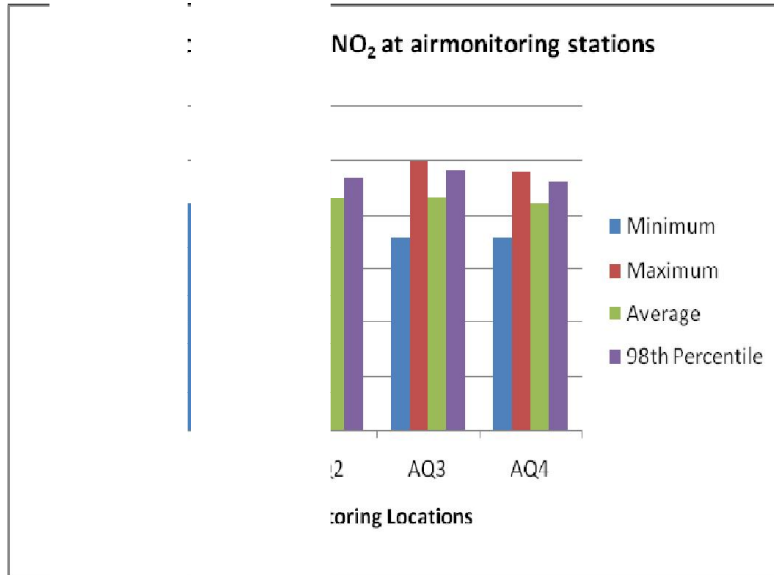
Figure 3. 16: Concentration of SO<sub>2</sub> at Air monitoring stations



**NO<sub>2</sub>:** The maximum value for NO<sub>2</sub> is observed, as 25.0 µg/m<sup>3</sup> at Akasar and Miranwala & minimum values is 18 µg/m<sup>3</sup> at Maganwala, Miranwala & Nasooma while 24 hours applicable limit is of 80µg/m<sup>3</sup> for residential, industrial and other areas. Average value of NO<sub>2</sub> is between to 22.9 to

21.0µg/m<sup>3</sup>. The area observes NO<sub>2</sub> well below the prescribed range. Graphical representation of NO<sub>2</sub> concentration at different locations is shown in **Figure 3.17**.

Figure 3. 17: Concentration of NO<sub>2</sub> at Air monitoring stations



### 3.10 Free Silica:

Results of free silica are given below in **Table 3.14**

Table 3. 14: Results of Free Silica in µg/m<sup>3</sup>

SiO <sub>2</sub> (µg/m <sup>3</sup> )	AQ1	AQ2	AQ3	AQ4
Minimum	0.68	0.53	0.66	0.72
Maximum	0.88	0.91	0.87	0.93

### 3.11 Noise Environment

Noise is said to be defined as an unwanted sound. It is, therefore, necessary to measure both the quality as well as the quantity of environment noise in and around the mining site.

#### 3.11.1 Type of Sound Fields

Based on the distance from the source of sound generation, the types of sound field are identified. They are of three type's viz. (a) Free Field (b) Near Field and (c) Far Field.

##### (A)Free Field

The sound waves that propagate without obstruction from source to the receiver are free field. The sound waves obey the inverse square law so that sound pressure level decreases by 6 dB (A) as the

distance is doubled. Few wavelengths of the source and it is also influenced by the dimensions of the source. Such a field is known as free field.

**(B) Near Field**

This field is located within the inverse square law does not apply in this field.

**(C) Far Field**

The far field has two parts one is known as free part and the other as reverberation part. In the free part of the far field, the sound pressures level obeys the inverse square law and propagate without obstruction from source to the receiver. The reverberant part of the field exists for enclosed situation where the reflected sound waves are superimposed on the incident sound waves. If there are many reflected waves from all possible direction, a diffuse sound field exists.

The intensity of sound energy in the environment is measured in a logarithmic scale and is expressed in a decibel (dB) scale. Ordinary sound level meter measures the sound energy that reaches the microphone by converting it into electrical energy and then measures the magnitude in dB. In a sophisticated type of sound level meter, an additional circuit (filters) is provided, which modifies the received signal in such a way that it replicates the sound signal as received by the human ear and the magnitude of sound level in this scale is denoted as dB (A). The sound levels are expressed in dB (A) scale for the purpose of comparison of noise levels, which is universally accepted by the international community.

**3.11.2 Methodology for Baseline Data Generation**

Noise levels were measured using an Integrating sound level meter manufactured by Cygnet (Model No. 2031). It has an indicating mode of Lp and Leq. Keeping the mode in Lp for few minutes and setting the corresponding range and the weighting network in “A” weighting set the sound level meter was run for one hour time and Leq was measured at all locations.

The sampling locations for noise are confined to residential, commercial and sensitive areas; however, no industrial area is present within the 10 km radius of the project site. 4 sampling locations were selected for the sampling of noise and are shown in **Fig 3.2** and also given in **Table 3.15**

Table 3. 15: Details of Noise Monitoring Locations

Code	Site Name	Distance	Direction
N1	Akasar	7.15	NE

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N2	Maganwala		
N3	Miranwala	3.03	SE
N4	Nasooma	5.17	S

The day noise levels have been monitored during 6.00 am to 10.00 pm and night noise levels during 10.00 pm to 6.00 am, at all the 4 locations covered in 10 km radius of the study area.

The L10, L50, L90, Leq, Ld and Ln were computed based on the sound pressure level recorded.

- Leq - 24 Hourly equivalent continuous noise levels
- Ld - Daytime Leq that has computed from 6.00 am to 10.00 pm
- Ln - Nighttime Leq that is computed from 10.00 pm to 6.00 am

Figure 3. 18: Photograph showing Noise monitoring



### 3.11.2.1 Noise Level Survey

A preliminary reconnaissance survey was undertaken to identify the major noise generating sources in the area. The noise survey was conducted in the month of Oct 2014 to assess the background noise levels in different zones viz. commercial and residential and silence zones.

### 3.11.2.2 Noise Quality Standards

Ministry of Environment & Forests and climate change (MoEF & CC) has notified the noise standards vide gazette notification dated February 14, 2000 for different zones under the Environment Protection Act (1986). These standards are given in **Table 3.16**

Table 3. 16: Ambient Noise Quality Standards in respect of Noise

Area Code	Category of Area	Noise dB (A) $L_{eq}$	
		Daytime*	Night time*
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

**Note:**

1. Daytime from 6.00am to 10.00 pm and Night time from 10.0 0pm to 6.00 am.
2. Silence zone is defined as area up to 100 meters around premises of hospitals, educational institutions and courts. Use of vehicle horns, loud speakers and bursting of crackers are banned in these zones.

**Result**

The ambient noise quality result for Oct' 2014 is presented below in **Table 3.17**

Table3. 17: Ambient Noise Quality of the Study Area

Location Code	Location Name	Category	Noise Level dB(A)		Reference Level dB(A)	
			Daytime (Ld)	Night-time (Ln)	Daytime (Ld)	Night-time(Ln)
N1	Akasar	Rural	50.2	41.4	55	45
N2	Maganwala	Rural	52.8	42.8	55	45
N3	Miranwala	Rural	53.6	43.1	55	45
N4	Nasooma	Rural	53.1	41.9	55	45

Ambient noise levels were measured at 4 locations around the project site. A noise level varies from 53.6 to 41.4 dB during day time and night time. Maximum & minimum noise levels recorded during the day time were from 53.6 dB and 50.2 dB respectively and maximum & minimum level of noise during night time were 43.1 dB and 41.4 dB respectively. Thus noise levels at all locations were observed to be within the prescribed limits.

From the above study and discussions it can be concluded that noise levels in the study area are well within the prescribed limits as prescribed by the RPCB and State Pollution Control Board.

### **3.12 Biological Environment**

#### **3.12.1 Introduction**

An ecological study of the ecosystem is essential to understand the impact of any project on existing flora and fauna of the study area. Studies on various aspects of ecosystem play an important role in identifying sensitive issues for under taking appropriate action to mitigate the impact, if any. The biological study was under taken as a part of the EIA study report to understand the present status of ecosystem prevailing in the study area, to compare it with past condition with the help of available data, to predict changes in the biological environment as a result of present activities and to suggested measures for maintaining its health.

A survey was conducted to study the flora around 10 km radius. Some of the information was gathered from the local habitants. All the collected data were classified to interpret the impact of pollution on the flora and fauna of that region. Survey of the mild plants as well as cultivated crop plants was made and all the available information was recorded.

#### **3.12.2 Study Area**

The climate in the study area varies from sub tropical to moist temperate. 10 km (radial distance from the proposed mining lease) study area was taken for the assessment of terrestrial ecology of flora and fauna based on topography, land use, vegetation pattern, etc. The study area is divided into core zone and buffer zone. The observations were taken in agriculture fields, hills, plain area, and village wasteland prescribed by the objectives and guidelines for Preliminary Environmental Examination. All observations were taken during the month of Oct 2014.

#### **3.12.3 Survey Methodology**

##### **3.12.3.1 Flora**

The present study on the floral assessment for the project activity is based on extensive field survey of the area. The study has been conducted in post monsoon season. The plant species were identified with the help of taxonomists of related fields and nearby Institutions. Besides the collection of plant species, information was also collected with vernacular names of plant species made by local inhabitants. In this process the whole study area was divided into different sections to get the maximum diversity of plant species. The sampling sites were selected based on land use pattern, topography and floristic composition of the study area. The other relevant data on bio-

Diversity, like economically important plant species and medicinal plant, Rare and endangered species in the study area have been collected from secondary sources like forest and wild life departments. The plant species found in the area are mentioned below.

Table 3. 18: Flora of the 10 Km radius of the project site

(a) Flora in buffer zone

Local Name	Botanical Name
Khejri	<i>Prosopis cineraria</i>
Babool	<i>Acacia arabica</i>
Rohira	<i>Tecomella undulate</i>
Moonj	<i>Saccharum munja</i>
Ber	<i>Zizyphus jujube</i>
<b>Shrubs</b>	
Kumat	<i>Acacia senegal</i>
Bui	<i>Aerva tomentosa</i>
Phog	<i>Calligonum polygonoides</i>
Aak	<i>Calotropis procera</i>
Kair	<i>Capparis aphylla</i>
Goondi	<i>Cordia rothii</i>
Khimp	<i>Leptadenia spartium</i>
Jal-pilu	<i>Salvadora oleoides</i>
<b>Grasses</b>	
Lampla	<i>Aristida sp.</i>
Bharut	<i>Cenchrus catharticus</i>
Servan	<i>Lasirus indicus</i>
Ghancod	<i>Panicum antidotale</i>
Murat	<i>Panicum turgidium</i>
Kans	<i>Saccharum spontaneum</i>
Ganthil	<i>Dactyloctenium scindicum</i>

(b) Flora in core zone

Local Name	Botanical Name
<b>Trees</b>	
Vilayaty Kikar	<i>Prosopis juliflora</i>
Babul	<i>Acacia arabica</i>
Ber	<i>Zizyphus jujuba</i>
<b>Shrubs</b>	
Bui	<i>Aerva tomentosa</i>

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Phog	<i>Calligonum polygonoides</i>
Aak	<i>Calotropis procera</i>
<b>Grasses</b>	
Bharut	<i>Cenchrus catharticus</i>
Dhaman	<i>Cenchrus ciliaris</i>

Figure3. 19: Flora of the 10 Km radius of the project site



*Prosopis cineraria*



*Tecomella undulate*



*Calligonum polygonoides*



*Aerva tomentosa*

### 3.12.3.2 Fauna

The study of fauna takes substantial amount of time to understand the specific faunal characteristics of the area. The assessment of fauna have been done on the bases secondary data collected from different government offices like forest department, wildlife department etc. The presence of wildlife was also confirmed from the local inhabitants depending on the animal

sightings and the frequency of their visits in the project area. In addition review of secondary data was another source of information for studying the fauna of the area. In addition the following sources were also used.

- Sighting during ecological studies
- Animal call
- Foot mark and excreta

Table3. 19: Flora of the 10 Km radius of the project site

English Name	Zoological Name	Schedule as per
<b>Mammals</b>		
Jackal	<i>Canis aureus</i>	Schedule-II
Stripped squirrel	<i>Funambulus pennatii</i>	Schedule-IV
Wild boar pig	<i>Sus scrofa cristatus</i>	Schedule-III
<b>Reptiles</b>		
Cobra	<i>Naja naja</i>	Schedule-II
Krait	<i>Bengarus fasciatus</i>	Schedule-IV
Viper	<i>Vipera russelli</i>	Schedule-II
<b>Birds</b>		
House crow	<i>Corvus splendens</i>	Schedule-V
Jungle crow	<i>Corvus macrorhynchos</i>	Schedule-V
Red vented bulbul	<i>Pycnonotus cafer</i>	Schedule-IV
House sparrow	<i>Passer domesticus</i>	Schedule-IV
Barn owl	<i>Tyto alba</i>	Schedule-IV
Black Kite	<i>Milvus migrans</i>	-
Rock pigeon	<i>Columba livia</i>	Schedule-IV
Sand grouse	<i>Pterocles exustus</i>	Schedule-IV
Grey partridge	<i>Perdix perdix</i>	Schedule-IV
Common Duck	<i>Tadorna tadorna</i>	Schedule-IV
Pea fowl	<i>Pavo crisatus</i>	Schedule -I
Snipe common	<i>Capella gallinago</i>	Schedule-IV
Grey shrike	<i>Lanius excubitor</i>	-

Figure3. 20 : Fauna found in the study area

**(A) Mammals Found In the Study Area**



*Funambulus pennatii*



*Canis aureus*

**(B) Avifauna Found In the Study Area**



*Passer domesticus*



*Columba livia*

**3.12.3.3 Endangered and Threatened Species:**

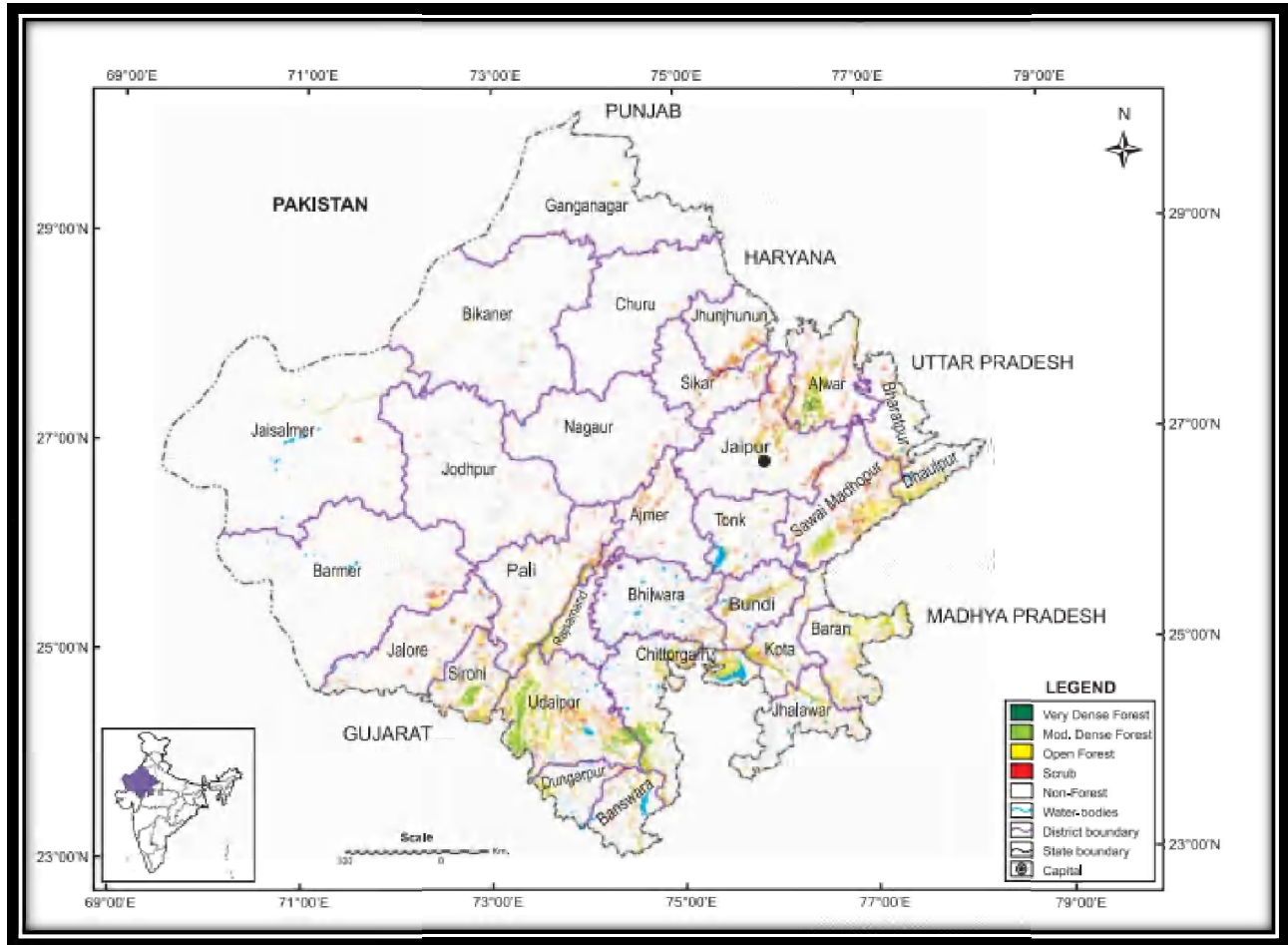
No endangered and threatened animals of India have been listed in the Schedule I of the Wildlife (Protection) Act, 1972 (amended in 2001).

**3.13 Forest and Forest Types Observed In the Study Area**

The floral wealth of Rajasthan is rich and varied. The western half is desert terrain, most of the area under forest is restricted to eastern and southern parts of the state. In the terms of forest canopy density classes of the state has total 32638.64 sq.km of forest area (12778.47 sq.km Reserved forest, 17415.95 sq.km Protected forest and 2768.86 sq.km Un-classified forest).

Bikaner district has total 1248.73 sq.km of the forest area (234.29 sq.km protected forest and 1014.45 unclassified forest)

Figure3. 21: Map showing forest area of district Rajasthan



### 3.14 Socio-Economic Environment

Bikaner is a district of the state of Rajasthan in western India. The historic city of Bikaner is the district headquarters. Bikaner is also Division with the four districts Bikaner, Churu, Sri Ganganagar and Hanumangarh. Bikaner district has five sub-divisions: Bikaner, Nokha, Loonkaransar, Khajuwala and Dungargarh. In Bikaner there are seven tehsils Bikaner, Kolayat, Khajuwala, Pugal, Loonkaransar, Nokha, and Dungargarh. There are 923 villages and 219 Gram panchayats. There is one Municipal Corporation (Bikaner) and six Municipal Councils Deshnok, Nokha, Dungargarh, Khajuwala, Loonkaransar and Napasar.

### 3.14.1 Bikaner District Population 2011

In 2011, Bikaner had population of 2,363,937 of which male and female were 1,240,801 and 1,123,136 respectively. In 2001 census, Bikaner had a population of 1,674,271 of which males were 886,075 and remaining 788,196 were females.

#### 3.14.1.1 Growth Rate

There was change of 41.19 percent in the population compared to population as per 2001. In the previous census of India 2001, Bikaner District recorded increase of 29.62 percent to its population compared to 1991.

#### 3.14.1.2 Literacy Rate 2011

Average literacy rate of Bikaner in 2011 were 65.13 compared to 57.36 of 2001. If things are looked out at gender wise, male and female literacy were 75.90 and 53.23 respectively.

#### 3.14.1.3 Sex Ratio 2011

With regards to Sex Ratio in Bikaner, it stood at 905 per 1000 male compared to 2001 census figure of 890. The average national sex ratio in India is 940 as per latest reports of Census 2011 Directorate. In 2011 census, child sex ratio is 908 girls per 1000 boys compared to figure of 916 girls per 1000 boys of 2001 census data.

#### 3.14.1.4 District at a Glance

Table 3. 20: District Profile

Description	2011	2001
Actual Population	2,363,937	1,674,271
Male	1,240,801	886,075
Female	1,123,136	788,196
Population Growth	41.19%	29.62%
Area Sq. Km	30,239	30,239
Density/km <sup>2</sup>	78	63
Proportion to Rajasthan Population	3.45%	2.96%
Sex Ratio (Per 1000)	905	890
Child Sex Ratio (0-6 Age)	908	916
Average Literacy	65.13	57.36
Male Literacy	75.90	70.65
Female Literacy	53.23	42.45
Total Child Population (0-6 Age)	400,554	326,680
Male Population (0-6 Age)	209,952	170,480
Female Population (0-6 Age)	190,602	156,200

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KOLAYAT AND DISTRICT BIKANER

Literates	1,278,801	766,862
Male Literates	782,399	501,257
Female Literates	496,402	265,605
Child Proportion (0-6 Age)	16.94%	19.51%
Boys Proportion (0-6 Age)	16.92%	19.24%
Girls Proportion (0-6 Age)	16.97%	19.82%

### 3.14.1.5 Kolayat

Kolayat is a town in the Indian state of Rajasthan. It is also the headquarters of the tehsil in the Bikaner Sub-division with the same name. The town is 51 kilometres from Bikaner on the highway to Jaisalmer.

### 3.14.1.6 Approach & Methodology Adopted

Study has been conducted based on the primary as well as Secondary Data: Socio-economic profile has been compiled from census data (2001 & 2011), while primary verification has been carried out by using sample site survey. As the study area is too large so the study has been carried out at district level representing the whole study area for detailed socio-economic analysis.

Figure 3. 22: Photograph showing Socio-Economic survey



### 3.14.1.7 Concepts & Definition

**(a) Study Area:** The study area, also known as impact area has been defined as the sum total of core area and buffer area with a radius of 10 Kilometers from the periphery of the core area. The study area includes all the land marks both natural and manmade, falling therein.

**(b) QoL:** The Quality of Life (QoL) refers to degree to which a person enjoys the important possibilities of his/her life. The 'Possibilities' result from the opportunities and limitations, each person has in his/her life and reflect the interaction of personal and environmental factors. Enjoyment has two components: the experience of satisfaction and the possession or achievement of some characteristic.

**(c) Household:** A group of persons who normally live together and take their meals from a common kitchen are called a household. Persons living in a household may be related or unrelated or a mix of both. However, if a group of related or unrelated persons live in a house but do not take their meals from the common kitchen, then they are not part of a common household. Each such person is treated as a separate household. There may be one member households, two member households or multi-member households.

**(d) Sex Ratio:** Sex ratio is the ratio of females to males in a given population. It is expressed as 'number of females per 1000 males.

**(e) Literates:** All persons aged 7 years and above who can both read and write with understanding in any language are taken as literate. It is not necessary for a person to have received any formal education or passed any minimum educational standard for being treated as literate. People who are blind but can read in Braille are also treated as literates.

**(f) Literacy Rate:** Literacy rate of population is defined as the percentage of literates to the total population aged 7 years and above.

**(g) Labour Force:** The labour force is the number of people employed and unemployed in a geographical entity. The size of the labour force is the sum total of persons employed and unemployed. An unemployed person is defined as a person not employed but actively seeking work. Normally, the labour force of a country consists of everyone of working age (around 14 to 16 years) and below retirement (around 65 years) that are participating workers, that is people actively employed or seeking employment. People not counted under labour force are students, retired persons, and stay-at home people, people in prisons, permanently disabled persons and discouraged workers.

**(h) Work:** Work is defined as participation in any economically productive activity with or without compensation, wages or profit. Such participation may be physical and/or mental in nature. Work involves not only actual work but also includes effective supervision and direction of work. The work may be part time, full time, or unpaid work in a farm, family enterprise or in any other economic activity.

**(i) Worker:** All persons engaged in 'work' are defined as workers. Persons who are engaged in cultivation or milk production even solely for domestic consumption are also treated as workers.

- **Main Workers:** Those workers who had worked for the major part of the reference period (i.e. 6 months or more in the case of a year) are termed as Main Workers.
- **Marginal Workers:** Those workers who did not work for the major part of the reference period (i.e. less than 6 months) are termed as Marginal Workers

**(j) Work participation rate:** The work participation rate is the ratio between the labour force and the overall size of their cohort (national population of the same age range). In the present study the work participation rate is defined as the percentage of total workers (main and marginal) to total population.

### 3.15 Description of the Study Area

#### 3.15.1 Buffer Zone

The area of the 10 km. radius from the project site is considered as the study area. A study was undertaken with respect to demography, occupational pattern, literacy rate and other important socio-economic indicators of village likely to be affected by the project within 10 km. radius from the project site. The villages and their inhabitants in the buffer zone will not be disturbed from their settlements due to the mining operations. There is no inhabitation within the lease area. Therefore neither villages nor any part of village or any hamlet will be disturbed during the entire life of the mine. As the mining operations will not disturb or relocate any village or settlement, no adverse impact is anticipated on any human settlement.

#### 3.15.2 Core Zone

There is no human settlement in the core zone fall in the Gypsum mine.

##### 3.15.2.1 Study Area

The study area covers all the villages/ part of villages located in the 10 Km radius around the project area periphery. In case of Dhani Abdulla Wali Gypsum Mine (1278 Ha) project at all village in tehsil Kolayat the study area is spread over 4 villages in district of Bikaner in the state of Rajasthan. The list of villages along with the Tehsil & District is given in **Table: 3.21**

Table3. 21: List of villages in the study area

S.No.	Village Name	Sub District	District
1.	Akasar	Khajuwal	Bikaner
2.	Nasooma	Kolayat	Bikaner

3.	Karnisar	Kolayat	Bikaner
4.	Miranwala	Kolayat	Bikaner

### 3.15.3 Demographic Profile of the Study Area

The proposed main mine project covers 4 major village of Bikaner District namely and in the state of Rajasthan. A study was undertaken with respect to demography, occupational pattern, literacy rate and other important socio-economic indicators of these districts to reveal the socio-economic structure of the entire project area.

#### 3.15.3.1 Population

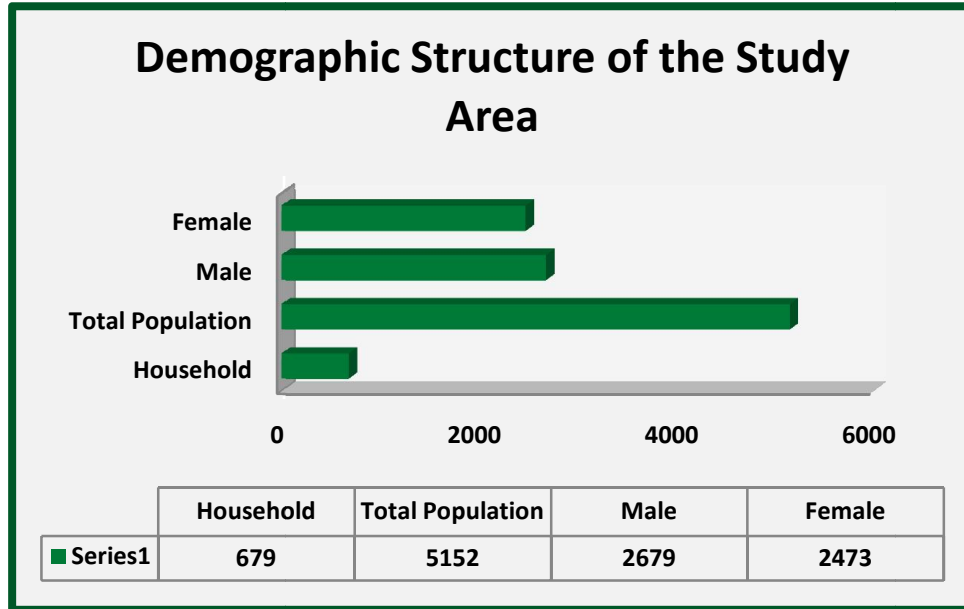
The total population of study area is **5152** the percentages of male & female population are **52.00% & 48.00%** respectively. Breakup of the population for male and female is given in following **Table 3.22**-consisting of gender-wise details of population as per census data 2011.

Table3. 22: Demographic Structure of the study area

Village	Household	Total Population	Male	Female	Sex Ratio
Akasar	526	4243	2186	2057	941
Nasooma	23	141	72	69	958
Karnisar	97	606	339	267	788
Miranwala	33	162	82	80	976
<b>Total</b>	<b>679</b>	<b>5152</b>	<b>2679</b>	<b>2473</b>	<b>923</b>

**(Source: As per Census Data 2011)**

Figure3. 23: Demographic Structure of the study area



### 3.15.3.2 Social Structure

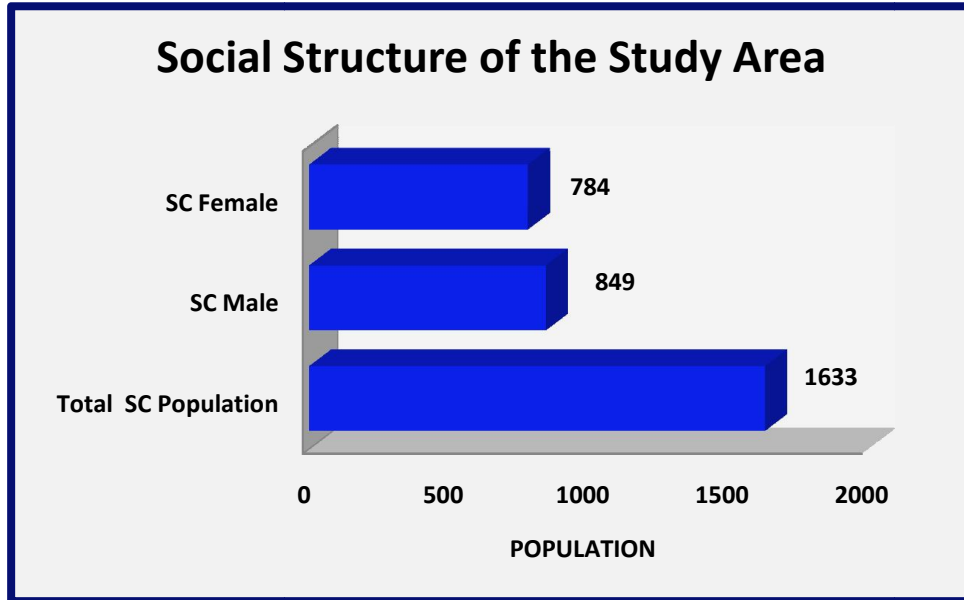
The Schedule Caste (SC) population within the study area is **31.70%** of the total population with **51.99 %** Male and **48.01 %** are female. The Schedule Caste (SC) population within the study area is **31.70%** of the total population with a sex ratio of **900 female/1000males**. Schedule Tribe (ST) population in the study area is 0.04% of the total population. Detailed status of social structure is given below in **Table3.23**

Table 3. 23: Social Structure of the study area

Village	Total SC Population	SC Male	SC Female	Sex Ratio
Akasar	1555	810	745	920
Nasooma	10	4	6	1500
Karnisar	26	13	13	1000
Miranwala	42	22	20	909
	<b>1633</b>	<b>849</b>	<b>784</b>	<b>923</b>

(Source: As per Census Data 2011)

Figure 3. 24: Social Structure of the study area



### 3.15.3.3 Literacy

The total number of literate within the study area is 2737 which are 52.13% of total population.

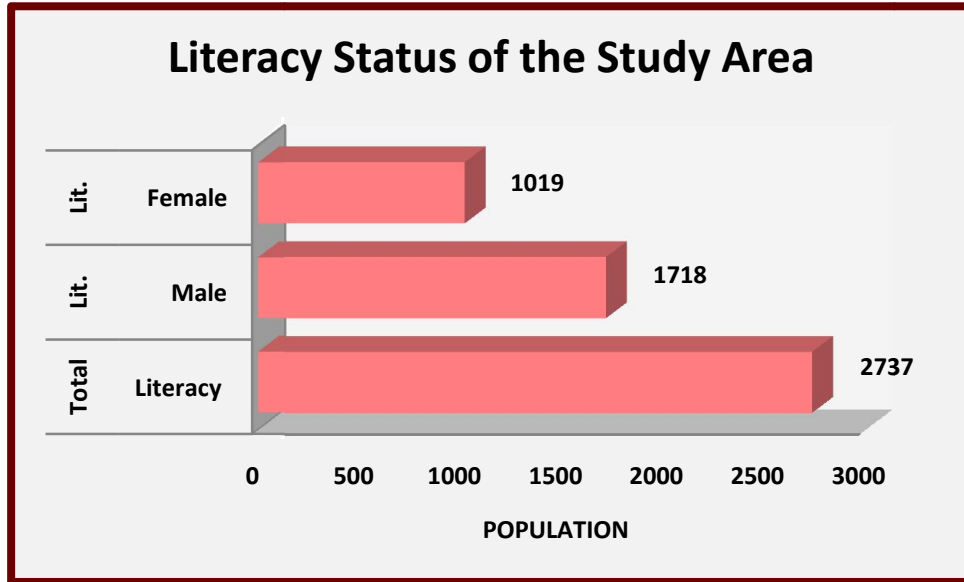
Male literacy rate of the study area is 62.77% and female literacy rate is 37.23%. Detailed status of literacy is given below in Table 3.24

Table 3.24: Literacy Status of the study area

Village	Total Literacy	Lit. Male	Lit. Female
Akasar	2436	1505	931
Nasooma	61	39	22
Karnisar	176	133	43
Miranwala	64	41	23
	<b>2737</b>	<b>1718</b>	<b>1019</b>

(Source: As per Census Data 2011)

Figure 3.25: Literacy Status of the study area



### 3.15.3.4 Occupational structure

The occupational structure of the population in the study area has been studied with reference to the total workers and non-workers. Further total workers grouped into two categories main workers and marginal workers. Main workers have been grouped into four categories namely: Cultivators, agricultural labourers, household workers and other workers. The details of these groups are discussed given below in **Table 3.25**

### 3.15.3.5 Total workers

Work is defined as participation in any economically productive activity with or without compensation, wage. Such participation may be physical and/ or mental in nature. Work involves not only actual work but also include supervision and direction of work. It even includes part time help or unpaid work on farm, family enterprise or its economic activity. All persons engaged in 'work' as defined above are workers.

The number of total workers in the study area is **1901** which are **36.90%** of total population. Out of which **71.49%** is male and only **28.51%** is female. Total workers further divided into main workers and marginal workers.

- **Main workers**

Those workers who had worked for the major part of the reference period (i.e. 6 months or more) are term main workers. Total number of main workers in the study area is **1412** which are **74.28%** of total workers and **27.41 %** of total population.

- **Marginal Workers**

The marginal workers are those workers, who are engaged in some work for a period of less than six months, during the reference year prior to the census survey. Total number of marginal workers in study area is **489** which is approx. **25.72%** of the total workers.

- **Cultivators:**

A person is classified as cultivator if he or she is engaged in cultivation of land own or from government or held from private persons or institutions for payment in money, kind or share. Cultivation work includes effective supervision or direction in cultivation. A person who has given out her/his land to another person or institution(s) for cultivation for money, kind or share of crop and who does not even supervise or direct cultivation process is not treated as cultivator. Similarly, a person working on another person's land for wages in cash or kind or combination of both is not treated as cultivator.

Total cultivators in study area are **1193** out of which **86.76%** is male and **13.24%** is female.

- **Household Worker:**

Persons working in others household for wages are treated as household worker .the total workers of this category are about **110**(**0.53%** of total workers) in which **95.45%** are male and **4.55%** are female.

- **Non Workers:**

The non-workers include those engaged in unpaid household duties, students, retired persons, dependants, beggars etc. The total number of non-workers population is **3251** which are **63.10%** of the total population. Out of which **40.60%** is male and **59.40%** is female

- **Agricultural Labourers**

Persons working on the land of others for wages or share in the yield have been treated as agricultural laborers. The total workers of this category are about **62** in which **91.94%** are male and **8.06%** are female.

- **Other Workers**

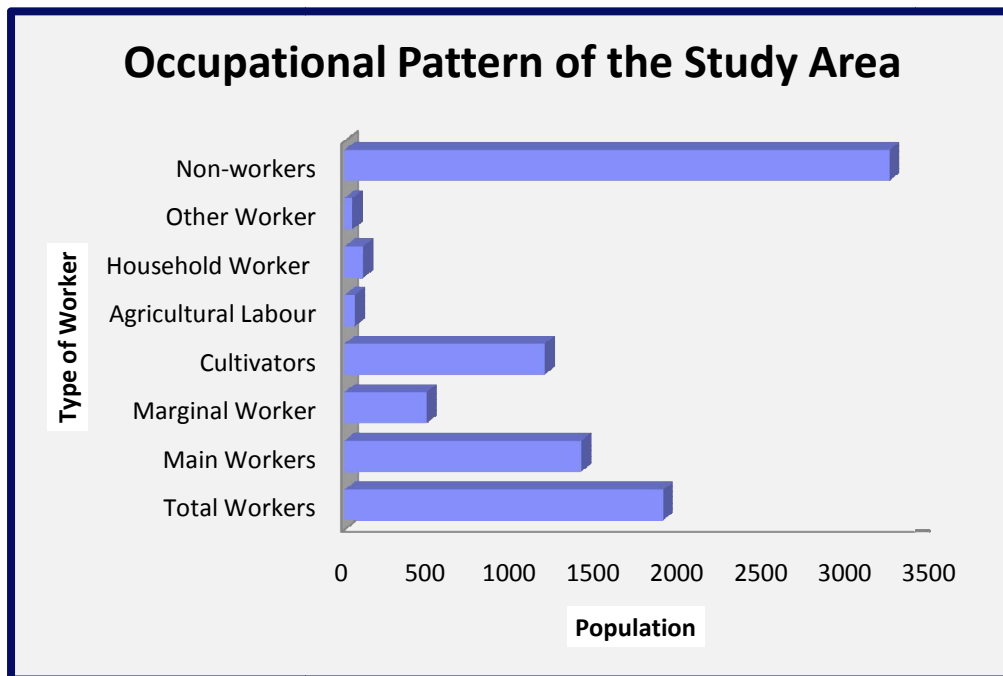
All workers, i.e., those who have been engaged in some economic activity during the last one-year are other workers. The type of workers that come under this category is government servants, municipal employees, teachers, factory workers, plantation workers, those engaged in trading, transport, banking, mining, construction, political or social work, priests, entertainment artist, etc. In effect, all workers except cultivators or agricultural laborers or household industry workers are other workers. The total workers of this category are about **47** (**2.47%** of total workers) in which **91.49%** are male and **8.51%** are female.

Table 3.25: Occupational Pattern of the study area

S. No.	Particulars	Number of Workers in the study area			Proportion (%)
		Total	Male	Female	
1.	Total Workers	1901	1359	542	39.88
2.	Main Workers	1412	1240	172	13.87
3.	Marginal Worker	489	119	370	310.92
4.	Cultivators	1193	1035	158	15.27
5.	Agricultural Labour	62	57	5	8.77
6.	Household Worker	110	105	5	4.76
7.	Other Worker	47	43	4	9.30
8.	Non-workers	3251	1320	1931	146.29

(Source: As per Census Data 2011)

Table 3.26: Occupational Pattern of study area



### 3.15.3.6 Infrastructural Facilities and Amenities in the Study Area:

A review of infra structural facilities and amenities existing in the area has been done on the basis of the information given in census Data of 2011. The Infra structural facilities and amenities like education, Health, Drinking Water, Electrification and transport and communication network.

**(a)Medical Facilities:**

According to the village directory, census data of 2011, medical facilities (primary health centre, allopathic & homeopathic dispensary, maternity and child welfare centre) are poor in the study area. Only one primary health center available of study area the status of study area is given in

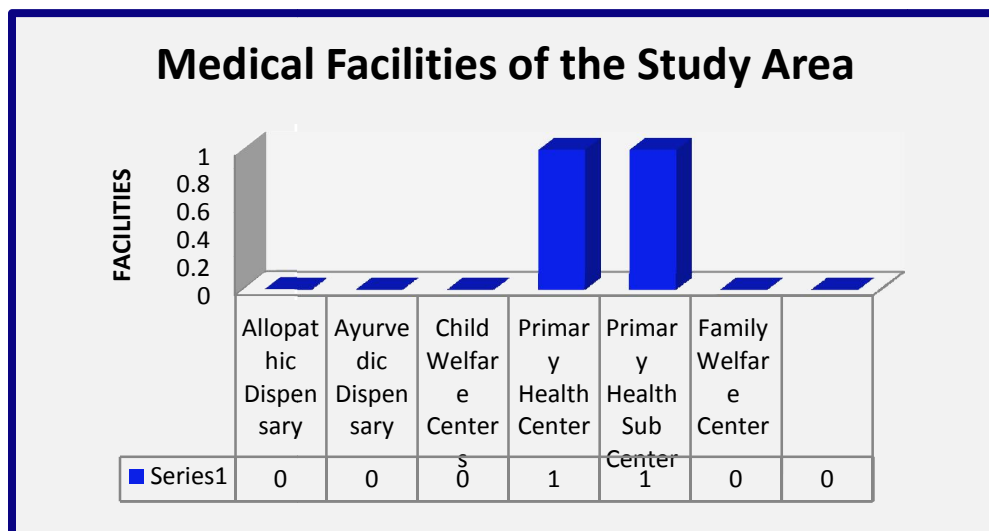
**Table 3.26** and represented in the form of a bar chart as given in **Figure: 3.27**

Table 3.27 : Medical Facilities of the Study Area

Medical Facilities	Number
Allopathic Dispensary	0
Ayurvedic Dispensary	0
Child Welfare Centers	0
Primary Health Center	1
Primary Health Sub Center	1
Family Welfare Center	0
Registered Private Medical Practitioners	0
<b>Total Numbers</b>	<b>2</b>

(Source: Village Directory of Rajasthan for 2011)

Figure 3.26: Medical Facilities



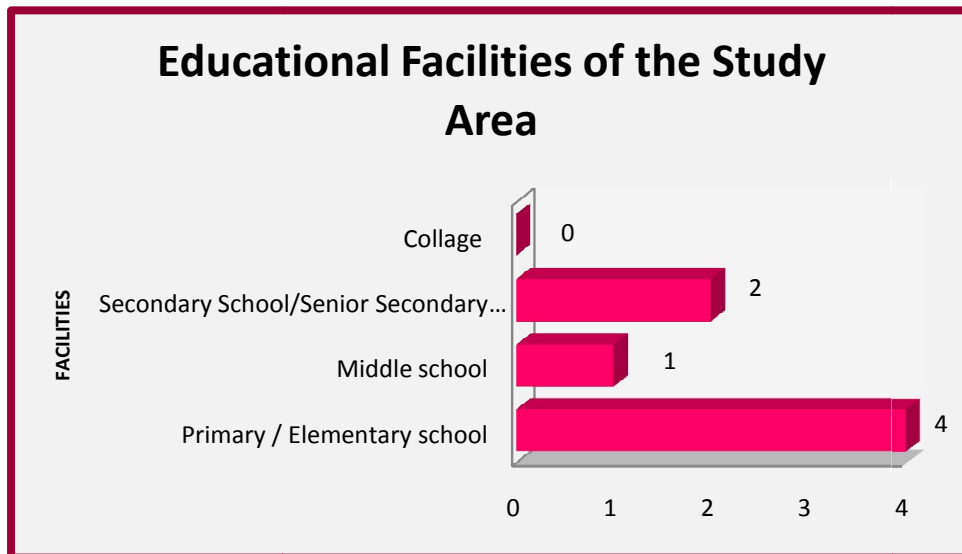
**(b) Educational Facilities:**

Primary schools, middle schools / secondary schools and college are good enough in the study area. The educational facilities within the study area are presented in **Table no.3.28** and represented in the form of a bar chart as given in **figure: 3.27**

Table 3.28: Educational Facilities

Educational Facilities	No. of Institution
Primary / Elementary school	4
Middle school	1
Secondary School/Senior Secondary School	2
Collage	0
<b>Total</b>	<b>7</b>

Figure 3.27: Educational Facilities



**(c) Drinking Water:**

The entire villages in the study area is dependent for drinking water on local water reservoirs constructed by district administration /land owners for storage of water from Indira Gandhi Canal.

**(d) Power Supply**

4 villages in the study area have power supply. The 4 villages having electricity for domestic agriculture and for all purpose.

**(e) Transport:**

The mode of transport in the study area are camel carts Tractor along with private bus services.

**(f) Livestock**

The livestock predominantly consists of Cow, Ox, Buffalo, Sheep, Goat and Camel. Cattle provide an important source of livelihood, particularly for the people of the villagers are obliged to keep large herds both for their domestic and agricultural needs as well as to augment their meagre agricultural income. A few heads of cow, ox, buffalo, goat and sheep are a common possession of most rural families, particularly the tribal.

### 3.15.3.6 Conclusion

The socio economic study of the study area for the observed village's gives clear picture of its population, average household size, literacy rate, and sex ratio etc, the literacy rate is good. A part of population is suffering from the lack of permanent job to run their day to day life and get basic facilities. Proposed Dhani Abdullah Wali Gypsum mine Project (1278 Ha). The infrastructure and amenities available in the area denote the economic wellbeing of the region. The study area as a whole possesses average of infrastructural facilities. However, in comparison with the facilities available in other parts of the district this area lacks higher level of amenities like higher education, health, drinking water. Villagers have to commute from their villages for higher education. This area needs more medical facilities. The area does not have maternity and child care centre to this big population, primary health centre and sub centers. The area is well connected with road transport and communication facilities.

### 3.16 Traffic Study

Traffic study measurements were performed at Dantor to Godu road to assess impact on local transport infrastructure due to this mining project. The monitoring was performed in Oct 2014. Traffic data was collected continuously for 14(6 AM to 10 PM) hours by visual observation and counting of vehicles under three categories, viz., heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at station during each shift- one person on each of the two directions for counting the traffic. At the end of each hour, fresh counting and recording was undertaken. The results are shown in **Table no.3.29**

Table 3.29: Traffic distribution (6 am to 10 pm) at Dantor to Godu Road

Types of vehicles	Total No. Vehicles
H.M.V	288
L.M.V	393
2/3 Wheeler	524

### **3.17 Cropping Pattern of Project Area**

As the district is regularly drought prone one, it should have some feed and fodder reserves at any point of the year for mobilization to the drought affected villages. The main crops grown are Pearl millet, ground nut, cluster bean, mothbean, gram, mustard and wheat etc.

## **4. CHAPTER: ANTICIPATED IMPACTS & MITIGATION MEASURES**

### **4.1 Introduction**

Environment and development should be considered as mutually complementary, interdependent, and an instrument of reinforcing the quality of life. Environmental Impact Assessment (EIA) is the important aspect of overall environmental management strategy and an important tool for sustainable development. It identifies major impacts of mining and associated activities on environment and provides guideline to prepare the necessary control measure termed as Environmental Management Plan (EMP).

Alteration or modification of the above attributes may cause hazardous impact on ecological equilibrium of site. Besides this there will be some other reasons which will affect the environment viz. traffic network, and other vehicular movements, impacts on flora & fauna of that area, surface drainage, and change in air, water and soil quality. While for purpose of development and economic up-liftment of people, there is need for establishment of industries and mining, but these have to be environmental friendly. Therefore, it is essential to assess the impacts of mining on different environmental parameters, before starting the mining operations, so that abatement measures could be planned in advance for eco-friendly mining in the area. The increasing awareness among the people about ecological imbalance and environmental degradation has raised many apprehensions. The impacts on different environmental parameters due to this mining project are discussed below:

1. Land Environment

2. Water Environment
3. Air Environment
4. Soil Environment
5. Noise Environment
6. Biological Environment
7. Socio-Economic Environment
8. Solid Waste
9. Traffic Environment

## 4.2 Land Environment

### 4.2.1 Anticipated Impact

Since mining is being carried out by opencast mechanized method, it is expected to affect the land environment essentially. Impact assessment study on land environment can be done by considering land use pattern/ land cover, topography, drainage pattern and geological features of the mine site as well as the study area.

Dhani Abdullah wali Gypsum mine is having a lease area of 1278 ha. Mining is proposed in an area of 150.566 ha. Proposed landuse of the mine lease area is as given below:

Table 4.1: Proposed Landuse of the mine lease area

S. No.	Particulars	Area (ha)
1.	Area under mining	150.566
2.	Mineral storage	5.00
3.	Mineral blending area	4.00
4.	Vehicle parking place	4.00
5.	Agricultural Land	641.434
6.	Government barren Land	462.62
7.	Roads	10.38
<b>Total</b>		<b>1278</b>

### 4.2.1 Mitigation Measures

Adopting suitable, site-specific mitigation measures can reduce the degree of impact of mining on land. Some of the land-related mitigation measures are as follows:

- A substantial plantation program was carried out undertaken along the public road.
- The excavated land will be backfilled & leveled.

### 4.3 Water Environment

#### 4.3.1 Anticipated Impact

**(a) Water Quality:** No water is discharged to environment from Gypsum mining at the project site. Quantity of water will remain the same. The existing background level of water quality as indicated by the baseline data (Chapter 3) revealed that impact on water environment will be insignificant in this project.

#### **(b) Water Resources**

The major source of the water in the region is south-west monsoon and very small contribution to the area. As the area is being located in the hot-tropical belt, the temperature regime is very high. Due to excessive heat, the loss of moisture through evaporation is considerably high. Water collected in low-lying area and is thus ultimately absorbed in the top soil cover and become part of the ground water flow.

#### **C) Ground Water**

The mining will not intersect ground water table (aquifer) thus avoiding a major impact on water regime.

**(d) Contamination of flowing rain water:** The surface run-off passing through the stacked overburden is likely to carry silt and fines in suspension thus polluting the water quality. At the project site Impact on water Regime & Its Significance are given as under:

Table 4.2: Impact on water Regime & Its Significance

S.No	Impact	Significance
1.	Discharge of sewage etc.	The sewage discharges from mine not cause any significant impact on water quality. The Sewage will go to septic tank followed by soak pit.
2.	Natural drain	Impact on disturbance in natural drainage is negligible.
3.	Overburden quality and characteristics of waste	Waste does not contain any toxic metals
4.	Impact on ground water	There will be no impact on ground water during the mining activity.
5.	Impact on surface water	There will be no impact on surface water during the mining activity.

### 4.3.2 Mitigation Measure

- No waste water will be generated from the mine.
- No toxic water will be generated.
- Water monitoring will be done.
- Water conservation measure will be followed.

## 4.4 Air Environment

### 4.4.1 Impact through Mathematical Modeling for Mining Project

#### 4.4.4.1 Air Quality Models- ISCST3 Dispersion Model

The Industrial Source Complex (ISC) Short Term model provides options to model emissions from a wide range of sources that might be present at a typical industrial source complex. ISCST3 is US-EPA approved model to predict the air quality. The model uses urban dispersion and regulatory defaults options as per guidelines on air quality models (PROBES/70/1997-1998). Emission sources are categorized into four basic types of sources, i.e., point sources, volume sources, area sources, and open pit sources. The volume source option and the area source option may also be used to simulate line sources. The model assumes receptors on flat terrain. The ISC short term area source model is based on a numerical integration over the area in the upwind and cross wind directions of Gaussian plume formula. This can be applied to the Point, Area, Line or Volume sources simultaneously and their resultant incremental concentration of the pollutant can be predicted.

#### 4.4.4.2 Gaussian Plume Model

Ground Level Concentration ( $\chi$ ) (GLC) from a point source at any receptor is given by –

$$\chi = \frac{Qg_1g_2}{(2\pi\sigma_y\sigma_zu)} \quad \text{(USEPA ISCST3, 1987)}$$

Where,

$$g_1 = \exp(-y^2/2\sigma_y^2)$$

$$g_2 = \exp[-(z-H)^2/2\sigma_z^2] + \exp[-(z+H)^2/2\sigma_z^2]$$

Q = source strength

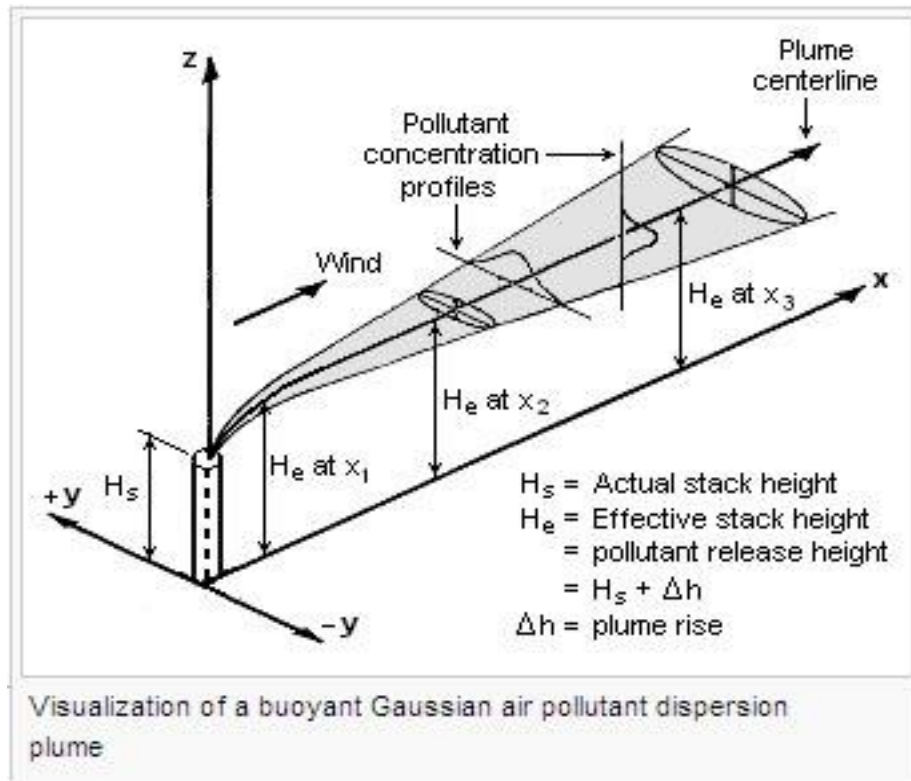
Z = receptor height above the ground

H<sub>e</sub> = effective stack height (Plume rise + Physical stack height)

u = wind speed at stack level

$\sigma_y$  &  $\sigma_z$  = dispersion parameters

Figure4. 1: Gaussian Plume Model



#### 4.4.3 Model Setup

##### 4.4.3.1 Mining Data for Source Strength Estimation

An emissions factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant.

The general equation for emissions estimation is:

$$E = A \times EF \times (1-ER/100)$$

Where:

E = emissions;

A = activity rate;

EF = emission factor, and

ER = overall emission reduction efficiency, %

The proposed mining activity includes various activities like excavation, handling and transport of Gypsum.

These activities have been analyzed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in **Table 4.3**

Table 4.3: Estimated emission rate of PM10

<b>Project: Dhani Abdullah</b>	
<b>Estimated emission rate of PM10</b>	
<b>Emission source</b>	<b>Details</b>
<b>Mineral excavation</b>	
1. Production capacity of the mine, TPA	591916
2. Operational hours,	4200
3. Activity rate, TPH	140.932381
4. Activity rate (A), T/second	0.039147884
5. USEPA emission factor (EF), kg/MT	0.94021669
6. Emission rate (A*EF*1000), g/second	36.80749354
7. Area of activity, m <sup>2</sup>	12780000
8. Uncontrolled emission rate, g/m <sup>2</sup> /s	2.88009E-06
9. Controlled (80%)emission rate, g/m <sup>2</sup> /s	5.76017E-07
10. Controlled PM10 (50%) emission, g/m <sup>2</sup> /s	2.88009E-07
<b>Mineral Loading</b>	
1. US EPA emission factor, kg/MT	0.00434373
2. Emission rate, g/s	0.170047836
3. Area of activity, m <sup>2</sup>	12780000
4. Uncontrolled emission rate, g/m <sup>2</sup> /s	1.33058E-08
5. Controlled (80%)emission rate, g/m <sup>2</sup> /s	2.66116E-09
6. Controlled PM10 (50%) emission, g/m <sup>2</sup> /s	1.33058E-09
<b>Haulage emission</b>	
1. Truck capacity, MT	25
2. No. of truck trips	5.637295238
3. Road length travelled, km	5
4. Emission factor, g/VkmT	0.00952821
5. Emission rate, g/s	7.46019E-05
6. Activity area of haulage, m <sup>2</sup>	12780000
5. UnControlled emission rate, g/m <sup>2</sup> /s	5.83739E-12
7. Controlled emission rate, g/m <sup>2</sup> /s	1.16748E-12
8. Controlled PM10 (50%) emission, g/m <sup>2</sup> /s	5.83739E-13
<b>Overall emission rate, g/m<sup>2</sup></b>	<b>2.8934E-07</b>

#### **4.4.3.2 Modeling Procedure**

Prediction of Ground Level Concentrations (GLC's) due to proposed mines has been made by Industrial Source Complex, Short Term (ISCST3) as per RPCB guidelines. ISCST3 is US-EPA approved model to predict the air quality. The model uses rural dispersion and regulatory defaults options as per guidelines on air quality models (PROBES/70/1997-1998). The model assumes receptors on flat terrain.

#### **4.4.3.3 Model Options Used For Computations**

- Plume rise has not been considered;
- Calms processing routine is used by default;
- Flat terrain is used for computations;
- It is assumed that the pollutants do not undergo any physico-chemical transformation and that there is no pollutant removal by dry deposition;
- Washout by rain is not considered
- Meteorological inputs required are hourly wind speed and direction, ambient temperature, stability class, and mixing height.

#### **4.4.3.4 Mixing Height**

As site specific mixing heights were not available, mixing heights based on IMD publication, "Atlas of Hourly Mixing Height and Assimilative Capacity of Atmosphere in India", has been considered for Industrial Source Complex model to establish the worst case scenario.

#### **4.4.3.5 Meteorological Data**

Data recorded at the continuous weather monitoring station on wind speed, direction, and temperature at one hour interval for the monitoring period was used as meteorological input.

#### **4.4.4 Presentation of Results**

##### **Resultant Concentrations after Commencement of Mining Operations**

Model simulations have been carried out using the hourly Triple Joint Frequency data viz., stability, wind speed, mixing height and temperature. Short-term simulations were carried to estimate concentrations at the receptors to obtain an optimum description of variations in concentrations over the site in 10-km radius covering 16 directions.

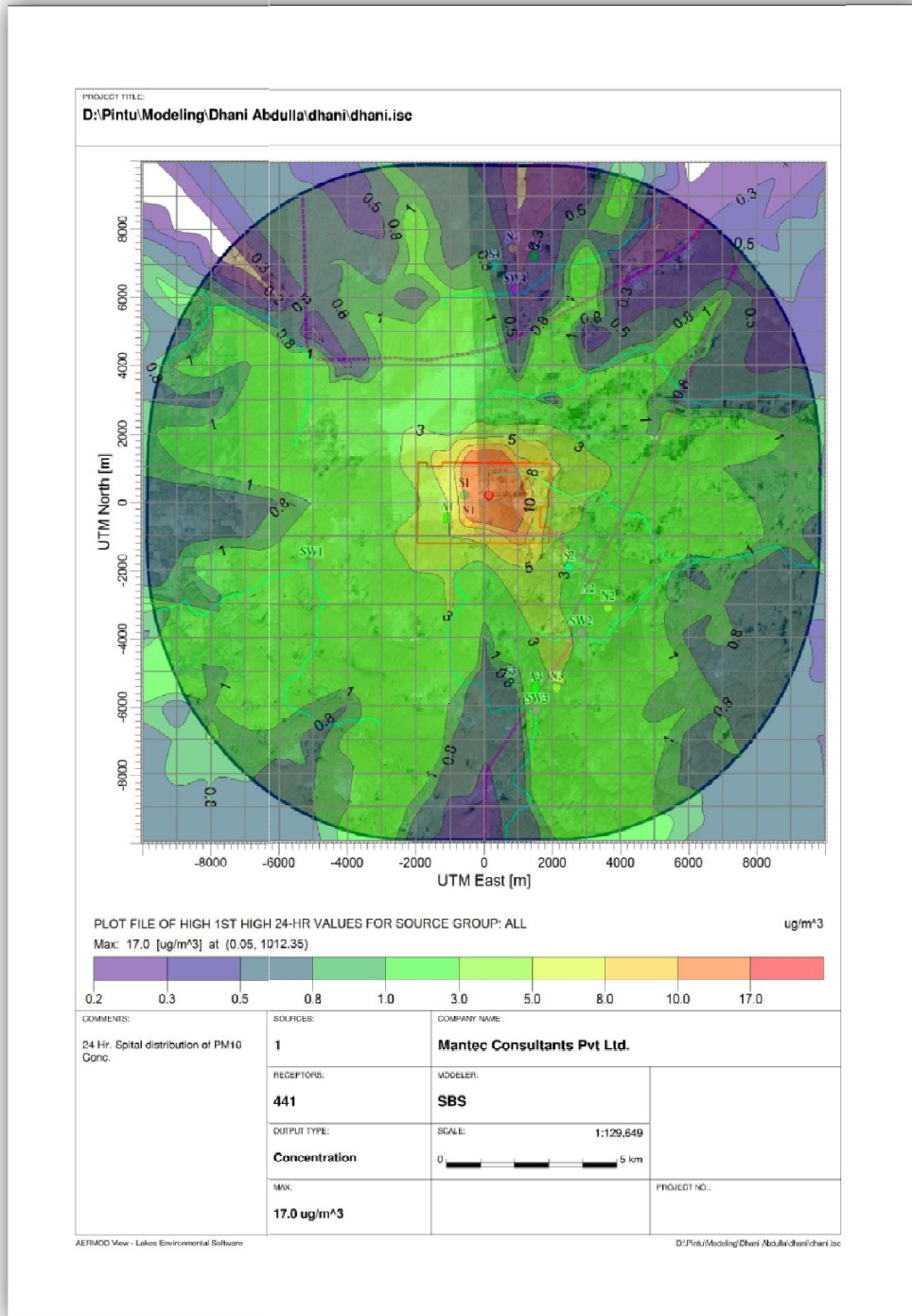
The maximum incremental GLCs for PM<sub>10</sub>, due to mining are found to be 8.0 µg/m<sup>3</sup> respectively, within the mine lease area. The maximum incremental GLCs are superimposed on the maximum baseline PM<sub>10</sub> concentrations recorded during monitoring period i.e. Post monsoon season 2014 to arrive at the likely resultant concentrations after implementation of the proposed mining. The cumulative concentrations (baseline + incremental) after implementation of the project are tabulated below in **Table 4.4**

Table 4.4: Incremental Concentration of PM10 in the Study Area

Site Code	Site Name	PM <sub>10</sub> concentration (µg/m <sup>3</sup> )		
		Baseline	Incremental	Cumulative
A1	Akasar	75.0	8.0	83.0
A2	Maganwala	60.0	2.0	62.0
A3	Miranwala	69.0	1.5	70.5
A4	Nasooma	69.0	0.3	69.3
<b>Maximum</b>		<b>75.0</b>	<b>8.0</b>	<b>83.0</b>

The resultant concentrations of PM<sub>10</sub> at all locations are well within the NAAQS standard limits. Isopleths were drawn for the pollutant distribution in the area and are shown in **Figure 4.2**

Figure 4.2: Isoleths showing Incremental Concentration of PM10 in Study Area



From the above, it could be clearly seen that due effective implementation of various control measures, there will not be any significant impact on the ambient air quality in the region.

#### **4.4.4.1 Mitigation Measures**

- The speed of trucks on haul road will be controlled as increased speed increases dust emissions. Overloading of transport vehicles will be avoided.
- Proper mitigation measures like water sprinkling will be adopted to control dust emissions.
- Masks will be provided to workers.
- To control the emissions regular preventive maintenance of equipment will be carried out on contractual basis.
- Green belt of adequate width will be developed.
- 

#### **4.5 Soil Environment**

##### **4.5.1 Anticipated Impact**

No major impact on soil of the study area is envisaged due to mining activities as there is no waste water, heavy metal, and fugitive emission shall remain confined locally within working area and emission at haul roads will be controlled by water sprinkling and plantation.

##### **4.5.2 Mitigation for Soil Environment**

There is no waste water & toxic water will be generated.

#### **4.6 Noise Environment**

##### **4.6.1 Anticipated Impact**

- Transportation vehicles used for the transportation of mineral are a source of noise pollution at the site.
- Loading & unloading of waste & minerals also source of noise pollution.

##### **4.6.2 Mitigation Measures**

Periodical monitoring of ambient noise will be done as per RPCB guidelines.

- No other equipment except the transportation vehicles and excavator for loading will be allowed.
- Noise generated by these equipments shall be intermittent and does not cause much adverse impact.
- Proper maintenance of all equipments/machines will be carried out which help in reducing noise during operations.

- Plantation will be taken up along the approach roads and side. The plantation minimizes propagation of noise and also arrests dust.

## **4.7 Biological Environment**

### **4.7.1 Anticipated Impact**

#### **Flora**

- None of the plants will be cut during operational phase of the mine.
- There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.

#### **Fauna**

- The fauna in the vicinity of the mine is restricted to few common small species.
- There will be no significant impact on fauna due to this mining project.

### **4.7.2 Mitigation Measures**

#### **Flora**

- No adverse impacts will be envisaged on the flora of the area.
- Plantation will be done along the approach roads. These activities will help to improve the floral cover of the area, which helps counter soil erosion.
- All the preventive measures will be taken for growth & development of flora.
- Although, the project will not lead to any tree cutting, it is proposed to improve the greenery of the locality by plantation services. To avoid dust emissions, the mined materials will be covered with tarpaulin during transportation.

#### **Fauna**

- The workers shall be directed to not venture out of the leased area for collecting fuel wood, or hunting. They shall also be trained to not harm any wildlife, should it come near the project site. No work shall be carried out after 6.00 pm.
- Suitable plan for conservation of Schedule-I Species have prepared and necessary fund for implement for the same will be made.
- All the preventive measures will be taken for growth & development of fauna.
- Creating and development awareness for nature and wildlife in the adjoin villages

## **4.8 Impacts on Socio-Economic Environment**

### **4.8.1 Anticipated Impact:**

- As the project is proposed government & private land. No Resettlement & Rehabilitation is required.
- Increased funding to improve social infrastructure and cultural maintenance programs. Since the surrounding study area is an undeveloped area, the overall Socio-economic status of the local population is below average.
- From the primary Socio-economic survey & through secondary data available from established literature and census data 2001 & 2011, it is found that Socio-economic condition of the nearby area is good. They have ample opportunity for employment and there is positive impact on the current employment scenario as the purposed project will create additional job opportunities.
- The villages and their inhabitants in the buffer zone will not be disturbed from their settlements due to the mining operations. There is no inhabitation within the lease area. Therefore neither villages nor any part of village or any hamlet will be disturbed during the entire life of the mine. As the mining operations will not disturb or relocate any village or settlement, no adverse impact is anticipated on any human settlement.
- The local people only employment to depend on is agriculture, which is seasonal. In the absence of any high employment potential activities, the people are economically backward.

### **4.8.2 Mitigation Measures**

- Through mining activities, jobs and opportunities will be created in local people, and significant contributions are made to the State's economy. Mining can provide a significant source of revenue through profit related royalty payments and fixed taxation.
- It is suggested that during mining the site services like rest room shelter, first aid box, drinking water & toilet facilities of a portable toilet and portable disposal system of fecal sewage will be provided for the workers at the mine site.
- Various direct and indirect employment opportunities will be generated.
- A better standard of living due to increased access to employment, business opportunities training and education.

- The area is poor in the health care facilities. The project authorities would provide mobile vans for emergency services in the area.

## 4.9 Solid Waste

### 4.9.1 Anticipated Impacts

- Impact of runoff from overburden, top soil, low-grade ore on water bodies (siltation, contamination etc) shall be negligible.
- No loss of vegetation and wildlife habitat is anticipated.
- Impact on surrounding agricultural land shall be negligible.
- Impact on groundwater quality due to leachate shall be negligible.
- Impact of hazardous wastes and liquids is not anticipated so that the mine waste is negligible.

### 4.9.2 Mitigation Measures

- Overburden is backfilled into the worked out pits.
- Plantation program was carried out.

## 4.10 Traffic Density

### 4.10.1 Anticipated Impact

The previous load of the H.M.V on the survey road is Nos.288 (6am to 10 pm).Due to mining operation there are 12 nos. of H.M.V are exceed on the road per day.

Table 4.5: Impact of Traffic density (Dhantore-Godu Road)

<b>Traffic load on Dhantore-Godu Road</b>	
<b>Types of vehicles</b>	<b>Total No. Vehicles</b>
H.M.V	288
L.M.V	393
2/3 Wheeler	524
<b>Increment load of traffic</b>	
Total Production/annum	1.0 Lac TPA
Total no. of working days	300
Mineral transport/day	333.33 TPA
Working hr/day	14 hrs
Capacity of Truck	28 Tones
Total no. of trips/day	12
No. of truck deployed	12

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Increment in H.M.V Load in working hr (6am to 10pm)in 2 Shift	12 trucks per day
Total Load on road	300 Trucks

#### 4.10.2 Mitigation Measure

- It is being ensured that all transportation vehicles will carry a valid PUC certificate.
- Speed limit of the vehicles will be followed. To avoid accidents the speed of vehicles will be low near habitation areas.
- Un- necessary blowing of horn will be avoided.

## 5. CHAPTER: ANALYSIS OF ALTERNATIVES

### 5.1 General

Consideration of alternatives to a project proposal is a requirement of EIA process. During the scoping process, alternatives to a proposal can be considered or refined, either directly or by reference to the key issues identified. A comparison of alternatives help to determine the best method of achieving the project objectives with minimum environmental impacts or indicates the most environmentally friendly and cost effective options.

### 5.2 Alternative for Technology and other Parameters

Some alternatives considered during EIA study are discussed below in **Table 5.1**

Table 5.1: Alternatives Considered During EIA Study

S. No	Particular	Alternative Option 1	Alternative Option 2	Remarks
1	Technology	Open-cast Manual mining	Open-cast Mechanical mining	Open-cast Manual Mining is preferred. <b>Benefits</b> No electrical power requirement Minimal noise will be generated Minimal air pollution will be generated Overburden will not be generated
2	Employment	Local Employment	Outsource Employment	Direct or indirect Employment opportunities will be generated for villagers. <b>Benefits</b> No residential building/housing is required for locals.
3	Laborer Transportation	Public Transport	Private Transport	Local labours will be deployed so they will either reach mine site by camelcart or by foot. <b>Benefits</b> Cost of transportation of men will be negligible

EIA REPORT OF EXPANSION PRODUCTION CAPACITY FOR DHANI ABDULLAH WALI GYPSUM MINE BY M/S  
RAJASTHAN STATE MINE & MINERAL LTD LOCATED AT VILLAGE DHANI ABDULLAH WALI TEHSIL  
KOLAYAT AND DISTRICT BIKANER

4	Material Transportation	Public Transport	Private Transport	Material will be transported through truck/trolley provided by customers. <b>Benefits</b> It will give indirect employment
5	Water Requirement	Tanker Supply	Groundwater/ Surface water supply	Tanker supply will be preferred <b>Benefits</b> No change in the surface water or ground water quality It will provide indirect employment
6	Road	Haul Road	Metallic Road	Haul road will be considered for linking mine site from metallic road for transportation purpose. Minimum distance will be measured along with less number of trees for considering optimum haul road route. <b>Benefits</b> Less distance; less fuel used Minimum or negligible number of trees will be cut in best opted haul road route.

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## **6. CHAPTER: ENVIRONMENTAL MONITORING PROGRAM**

### **6.1 General**

Regular monitoring of environmental parameters is of immense importance to assess the status of environment during project operation. With the knowledge of baseline conditions, the monitoring programme will serve as an indicator for any deterioration in environmental conditions due to operation of the project, which will enable to take suitable mitigatory steps in time to safeguard the environment.

Monitoring is important to measure the efficiency of control measures. An environmental impact assessment study is carried over for a specified period of time and the data generated for that specific period cannot bring out all variations induced by the natural or human activities. Therefore, regular monitoring programme of the environmental parameters is essential to take into account the changes in the environmental quality. The objectives of monitoring are to:-

- Verify effectiveness of planning decisions;
- Measure effectiveness of operational procedures;
- Confirm statutory and corporate compliance; and
- Identify unexpected changes.

### **6.2 Identify unexpected changes, Environmental Monitoring & reporting Procedure**

Monitoring will confirm that emissions are within the prescribed limits. This will take the form of direct measurement and recording of quantitative information, such as quantity and concentrations of emissions and wastes for measurement against corporate or statutory standards, consent limits or targets. It may also require measurement of ambient environmental quality in the vicinity of a site using ecological/biological, physical and chemical indicators.

The preventive approach by management may also require monitoring of process inputs, for example, type and method used, resource consumption, equipment and pollution control performance etc. Monitoring will also be required to meet compliance with statutory and corporate requirements. Finally, monitoring results will provide the basis for auditing.

### **6.3 Environmental Monitoring Schedule**

Post project monitoring will be carried out as per conditions stipulated in Environmental Clearance Letter issued by MoEF, Consent issued by SPCB as well as according to RPCB guidelines.

Details of the proposed environmental monitoring schedule, which will be undertaken for various environmental components, are detailed below in **Table 6.1**

Table 6.1: Proposed Environmental Monitoring Programme

S. N.	Activity	Schedule
<b>Air Pollution Monitoring</b>		
1.	Ambient air monitoring of parameters specified by RPCB in their air consents from time to time within the mining lease	Twice in a year on the basis of 6 months interval
2.	Ambient air monitoring of parameters specified by RPCB in their air consents from time to time at stations outside the mining lease	Twice in a year on the basis of 6 months interval
<b>Water Quality Monitoring</b>		
3.	Monitoring of Ground Water sample as per IS: 10500	Once in Six Month
4.	Monitoring of Surface Water sample as per IS: 2296	Once in Six Month
<b>Noise Quality Monitoring</b>		
5.	Noise in the ambient atmosphere near the mine lease area	Once in Six Month
<b>Greenbelt Maintenance</b>		
6.	Monitor schedule for Greenbelt development as per approved mining plan	Once in a year
<b>Soil Quality Monitoring</b>		
7.	Soil quality ananlysis from the samples collected from the mine site and nearby areas	Twice in a year on the basis of 6 months interval

## 6.4 Monitoring of Various Parameters

### 6.4.1 Monitoring Methods

The Mine site is considered as core zone and the area lying within 10 km radius from the mine site is considered as buffer zone.

#### **6.4.1.1 Liquid Effluent**

This is no liquid effluent generation from the proposed operation. However the domestic and service building effluents are collected by sewerage system and biological treatment is adopted by means of septic tanks & soak pits.

#### **6.4.1.2 Air Quality Monitoring**

Ambient air quality should be monitored both upwind & downwind directions along with adequate meteorological measurement for proper interpretation of data of PM<sub>10</sub>, SO<sub>2</sub> and NO<sub>x</sub>. The number of monitoring stations, air pollutants and frequency of monitoring will be decided as per the RPCB guidelines in 2009. Meteorological stations will be monitored for wind direction and speed, rainfall, temperature & humidity and evaporation.

#### **6.4.1.3 Water Quality Monitoring**

Monitoring of surface run-off and ground infiltration will be done once in six month except monsoon. Quality of ground water and surface water samples will be analyzed for all the parameters as per IS-10500 and IS-2296 respectively.

#### **6.4.1.4 Noise Quality Monitoring**

Noise level monitoring will be done at the work zone to assess the occupational noise exposure levels. Noise levels will also be monitored at the noise generating sources like mineral handling arrangements, vehicle movements and also nearby villages for studying the impact due to higher noise levels for taking necessary control measures at the source.

#### **6.4.1.5 Occupational Health & Safety**

Health check-up for the workers will be conducted at regular intervals of one year. The health camps status will be monitored and the information will be furnished to the approving authority. Environment Management Cell will also coordinate with general public, regulatory authorities, local administration to appraise environmental performance of the mine.

### **6.5 Reporting Schedule of Monitoring Data**

The frequency of reporting of monitored data will be on six monthly bases to the State PCB and to Regional Office of MoEF&CC, New Delhi. Compliance report will be submitted twice in a year for 6

months interval. The Environmental statement will be prepared for the entire year of operations and will be regularly submitted to regulatory authorities.

Table 6.2: Compliance for Environmental Clearance

S.No	Applicable Law/Act/Rules	Project Proponent doable
1.	Environmental Protection Act 1986	EC to be procured
2.	Air ( Prevention & Control) Act 1981	NOC/CTO to be procured if DG sets is installed on site or temporary.
3.	Water( Prevention & Control) Act 1974	NOC/CTO to be procured
4.	Water Cess Act 1977	Yearly Cess to be paid if ground water is utilized.
5.	Noise Pollution (Regulation & Control) Rules 2000	Noise monitoring to be carried out as per RPCB norms & standard to be met.
6.	As per RPCB emission standards for DG sets	Stack height as per RPCB rules to be provided & acoustic enclosure is compulsory. If the Dg sets is used at site.
7.	Effluent discharge standards by RPCB	Treated effluent sewage shall meet discharge standard
8.	Hazardous waste (Handling & Management) 1989	DG set waste oil hazardous waste authentic shall be procured. If Dg sets used at site or for Temporary shelter.

## 7. CHAPTER: ADDITIONAL STUDIES

### 7.1 Public Consultation

As per the notice of Public hearing published in Rajasthan Patrika and Indian Express dated 09.07.2015 the Public hearing was held in Village Dani Abdulla within open area of proposed mine lease area on dated 10.08.2015 at 11:00 A.M for the inviting view/ suggestion/ objections (if any) from the local public/ gathering in respect of ToR issued by Ministry of Forest and Climate Change, New Delhi vide dated 07.05.2014 issued in the name of M/s Rajasthan State Mines & Minerals Limited, near Village – Dani Abdulla wali, Tehsil- Kolayat, Dist- Bikaner as per notification of MoEF & CC , GOI of 2006. The public from the nearby villages attended the hearing and the proceedings were video graphed.

The proceeding was chaired by Mr. Hari Prasad Pipraliya, Additional District Magistrate, District- Bikaner and R.C. Mathur, Regional officer of Rajasthan State Pollution Control Board. RO, RSPCB appraised to the public about the requirement of conducting the public hearing before the grant of Environmental Clearance under EIA Notification No. 1533 (E) dated 14/09/2006 of the Ministry of Environment & Forests, Govt. of India, New Delhi. The issues raised by the public and village representative with reply and action plan by project proponent are as under

Table 7.1: Public Hearing Proceedings

S.No	Name & Address	Issues/Suggestions raised	Reply	Action Plan
1	Haji Janu kha 20 SMD, Dani	Told that mining operation by M/s RSMML is beneficial for the villagers as they are getting labour works. He requested for repairing and maintenance of road connecting from mines to nearest Kolta road. He has also requested for plantation work for the coming monsoon season. He informed that the land become more fertile after	Replied that repairing and maintenance of the haul roads will be carried out to Gram panchayat or local villagers.  Sanction for plantation work has been given.  --	We will discuss with Gram Panchayat.  Villagers undertaken plantation work through gram panchayat.  --

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		the excavation of gypsum		
2.	Sarpanch Jaggasar	She was agreed with the views of Haji Janu kha, that villagers are getting work at mines. I am thankful for such facilities for villagers.  She also requested for arrangement of water tanker to suppress dust and for community building.	--  Water tankers are being provided through local villagers on contract basis. The issue of community builder will be decided with mutual consent of place with Gram Panchayat	--
3.	Dilip Kumar Beniwala, 23 SMD	He requested to repair temporary culvert on irrigation branches and for water sprinkling by tractor-tanker combination at mines.	Assured for work required by Dilip Kumar	Arrangement for water sprinkling has been made.
4	Hari Prasad Pipraliya, Additional District Magistrate, District- Bikaner	What is the planning for plantation?  Advised that PWD will be repaired and maintain PWD road and Rural road will be prepared and maintained by project proponent.	5000 plants have been provided to the Gram Panchayat for planting during this rainy season.  Rural road is being maintained through labour work by villagers	Plantation has already been undertaken by the Gram Panchayat.  ---
*Note:- The issue raised by public about the illegal mining of gypsum outside the mining lease area of M/s RSMML was problem related to Mines Department and District Administrative for which time to time action are being taken by them.				

## **7.2 Risk Analysis and Preventive/Corrective measures**

### **7.2.1 Risk Analysis**

Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening. The possible risks in the case of gypsum mining project following natural/industrial problems which may be countered during the mining operation are given below:

- Accident due to movement of vehicles
- Occupational injuries
- Fires on large surface vehicles through ignition of fuel/hydraulic fluids
- Storage of diesel

Keeping the above points of risk accidents, safety of the mine and employees will be taken care of by the mining rules & regulations, which are well defined with laid down procedure for safety.

## **7.3 Preventive/Corrective Measures**

### **7.3.1 Preventive and Corrective Measures for Accidents Due To Trucks & Dumpers**

- All transportation within mine lease should be carried out directly under the supervision and control of the management.
- The vehicles condition will be checked thoroughly at least once in a month by the competent person authorized for the purpose by the management
- Road signs will be provided at each and every turning point up to the main road
- A statutory provision of the demarcation, constant education, training etc. will go a long way in reducing the incidents of such accidents

### **7.3.2 Preventive and Corrective Measures for Occupational Injuries**

- Training will be given to the workers on how to use hand equipments
- First aid will be provided on-site only if any accident occurs
- In-case of poor condition of any equipment, it will be changed immediately

### **7.3.3 Preventive and Corrective Measures for Fires on large surface vehicles through ignition of fuel/hydraulic fluids**

- Availability of fire extinguishers on-site throughout the operational phase of mine
- Maintenance of vehicles on monthly basis

#### **7.4 Natural Resource Conservation**

The plan of action for conservation of natural resources and recycle of waste materials has been formulated and given as below:

- Groundwater or surface water will not be abstracted as water requirement will be met by tanker supply
- Groundwater will not get polluted as the mining depth is up to about 3 meters.
- Plantation programme have been proposed along the village roads/tracks.
- All the machineries and equipments shall be properly maintained so as to reduce the green house gas emissions and to conserve the fuel & energy

#### **7.5 Rehabilitation & Resettlement (R&R)**

There is no a human settlement or hutments in the mine lease area. Hence, no Rehabilitation & Resettlement (R&R) is envisaged.

#### **7.6 Corporate Social Responsibility**

As per the primary analysis and secondary data available the mine site is located in a remote location with scanty of available social infrastructure available. RSMML will make best of its efforts to provide:

- Medical Camp facilities for the neighborhood villages. In each camp Medicinal costs are met by the Company.
- First aid training will be regularly imparted to trainees from the neighboring villages.
- The Company also distributes saplings to the local villagers as a part of social forestry.
- Give financial assistance for construction work in schools, for community Centre etc. through gram panchayat.
- Give financial assistance to Government Hospitals for their modernization and purchase of required equipment.

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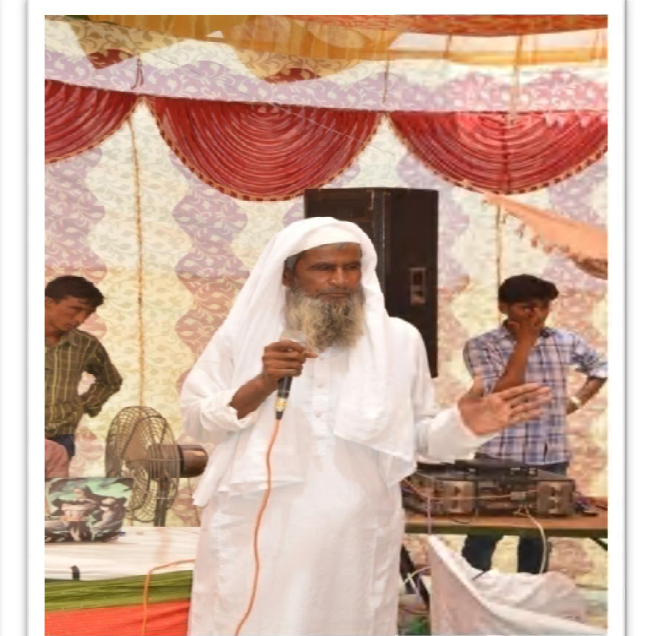




Figure 7.1 : Public Hearing Photographs

## **8. CHAPTER: PROJECT BENEFITS**

### **8.1 General**

Mining Lessee of gypsum mine at village Dhani Abdullah wali is very much conscious of their obligations to society at large. The management will help in overall development of the area. The project has lot of positive factors for development & growth of local peoples.

### **8.2 Improvement in Social Infrastructure**

The mining in the area create rural employment. It has been observed that conditions of the villages around mining areas are better than that of distant villages. The mining activity in the region have positive impact on the social economic condition of the area by way of providing employment to the local in-habitants; wages paid to them will increase the per capita income, housing, education, medical and transportation facilities, economic status, health and agriculture.

A detailed programme for socio economic development of the area has been framed. The salient features of the programme are as follows-

- Social welfare program like provision of medical facilities educational facilities, water supply for the employees as well as for nearby villagers will be taken.
- Supplementing Govt. efforts in health monitoring camps, social welfare and various awareness programs among the rural population.

### **8.3 Employment Potential**

The project is providing the indirect employment to local people in different activities such as transportation, plantation, weighment activities, water tanker supply, hand equipments etc. Besides labours managerial and administrative staff are also be employed.

### **8.4 Tangible Social Benefits**

- ✓ Medical Camp facilities for the neighborhood villages. In each camp Medicinal costs are met by the Company.
- ✓ First aid training will be regularly imparted to trainees from the neighboring villages.
- ✓ The Company also distributes saplings to the local villagers as a part of social forestry.
- ✓ Give financial assistance for construction work in schools, for community Centre etc. through gram panchayat.
- ✓ Give financial assistance to Government Hospitals for their modernization and purchase of required equipment.

## 8.5 Green Belt Development

Plantation activity in an area of 5 ha was proposed as per the approved mine plan & granted Environment Clearance but the survival rate is about 50% due to desert climate.

As per revised scheme of mining most of the land covered under mining has been taken from private land owner on the basis of mutual agreement and shall be returned back to them immediately after excavation of gypsum, backfilling & leveling; for use of cultivation. In such system it is difficult to propose plantation in the mined out area by RSMML but the plantation programme have been proposed along the village roads / tracks after consultation with *Panchayat*. The species of plants selected for proposed plantation are suitable to the desertic climate and the survival rate is expected to be better than before. The year-wise plants proposed to be provided to land owner through *Panchayat* during the tentative period of five years is given below:

Table 8.1: Plantation Program during the tentative period of five years

Year	No. of plants	Species of Plants
1 <sup>st</sup> Year	200	Neem( <i>Azadirachta indica</i> ), Ber ( <i>Zizyphus jujube</i> ), <i>Parkinsonia</i> , Khejri ( <i>Prosopis cineraria</i> ), babool ( <i>Acacia indica</i> )
2 <sup>nd</sup> Year	200	
3 <sup>rd</sup> Year	200	
4 <sup>th</sup> Year	200	
5 <sup>th</sup> Year	200	
Total	1000	

## 8.6 Conclusion

The management will recruit the semi-skilled & unskilled workers from the nearby villagers. The project activity and the management will definitely support the local Panchayat and provide other form of assistance for the development of public amenities in this region. The company management will contribute to the local schools, dispensaries for the welfare of the villagers. Green belt development/plantation will be taken up in the mine premises, along the approach roads/trucks.

## 9. CHAPTER: ENVIRONMENTAL MANAGEMENT PLAN

### 9.1 Introduction

Environmental Management Plan details the environmental quality control measures which are proposed for this project to achieve the production of 6 Lac TPA by complying with the stipulated standard limits specified by State Pollution Control Board and RPCB. The environmental management plan includes all preventive as well as mitigation measures to minimize impact on environment for the mined out Gypsum.

Environmental Management Plan, which is to be implemented in the project has detailed under the following heads:

- Land use pattern and environment
- Air Environment
- Noise Environment
- Water Management
- Solid Waste Management
- Biological Environment including Plantation Development
- Implementation of EMP and Monitoring Program

The mining in the area has been proposed with time bound Management Plan so that impacts on different environmental parameters are least at every stage of mining. Environment Policy approved by Managing Director of M/s RSMML has been enclosed as **Annexure-14)**

### 9.2 Land use pattern

Mining practices causing loss of properties and degradation surrounding of landscape.

Thus for environmental friendly major mining the following control/abatement measures will be followed:

- Extraction of gypsum will be carried out by using hydraulic excavator and as per approved schematic mining.

### 9.3 Air Environment

In order to minimize impacts of mining on air and to maintain it within the prescribed limits of RPCB/SPCB, an Environmental Management Plan (EMP) has been prepared. This will help in resolving all environmental and ecological issues likely to cause due to mining in the area.

- During the course of mining no toxic substances are released into the atmosphere as such there seems to be no potential threat to health of human beings.
- In the mining activities, the only source of gaseous emissions is from the engines of vehicles. Proper maintenance of engines will improve combustion process and brings reduction in pollution
- The un-metalled haul roads should be adequately compacted before being put into use.
- Water should be sprinkled on these roads periodically every-day (twice in a day), to wet the surface.
- Over loading of transport equipments should be avoided to prevent spillage.
- During the transportation covered vehicles to prevent fugitive dust emission.
- Regular checking and maintenance of vehicles should be conducted once in every two months and pollution under control certificate be obtained.
- It will be ensured that all transportation vehicles carry a valid PUC certificate.

#### **9.4 Noise Environment**

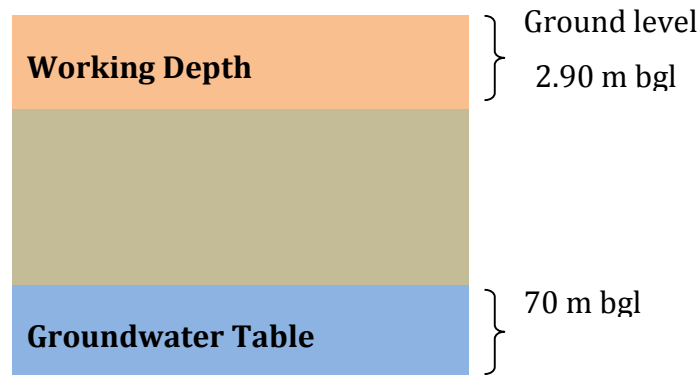
- Proper maintenance of all machines is being carried out, which help in reducing generation of noise during operations.
- No other equipments accept the transportation vehicles and Excavator & Loaders (as & when required) for loading is allowed.
- Noise generated by these equipments is intermittent and does not cause much adverse impact.
- Ear plugs will be provided to workers during the operational hours of mine.
- Periodical monitoring of noise will be done to adopt corrective actions wherever needed.
- Plantation will be taken up along the approach roads. The plantation minimizes propagation of noise and also arrests dust

#### **9.5 Water Environment**

During the operational phase of mine no waste water or industrial effluent will be generated. The environmental management for water pollution control includes:

- Water requirements for drinking, plantation and dust suppression will be met by tanker supply on the daily basis.

- Local people will be employed and no permanent housing will be done on the project site so no permanent drainage pattern for sewerage system is required as domestic sewage shall be disposed off into septic tank followed by soak pits.
- Mining activities will not intersect the ground water level.
- Monitoring of water quality of nearby surface water, ground water and domestic water will be conducted once in every season except monsoon to evaluate the performance of the mitigation measures.



## 9.6 Solid Waste Management

- No solid waste is generated from the said mining operations.
- There is no toxic element present in the mineral which may contaminate the soil.

## 9.7 Biological Environment

- To study the floral and faunal diversity of the 10 km radius a detailed biological study has been carried out and suggested mitigation measures are proposed therein so that there will be no impact on the biological diversity of the forests falling in the proximity of the site.

## 9.8 Socio-Economic Environment

In general, socio-economic environment will have positive impact due to the mining project in the area.

### 9.8.1 Human Settlement

The villages and their inhabitants in the buffer zone will not be disturbed from their settlements due to the mining operations. There is no inhabitation within the lease area. Therefore neither villages nor any part of village or any hamlet will be disturbed during the entire life of the mine. As

the mining operations will not disturb or relocate any village or settlement, no adverse impact is anticipated on any human settlement.

### **9.8.2 Employment**

The area is considered as industrially backward in the absence of any high employment potential activates, the people are economically backward. The mining operation will provide employment to local people various indirect employment opportunities, will also we generated. Such as employment through contractors, running of trucks, tractors and buses on hire different kind of shop and transport related business avenues.

### **9.8.3 Recommendations**

- Need to Established vocational training programs for the local workforce to promote development of skills.
- Need to develop instructional materials for use in area schools to educate the local communities.
- Medical and health care facilities in the industry need to be extended to the residents of nearby areas.
- Need to encourage Infrastructural Development Activities in its Operational Area. This would include construction of Water Supply & Transportation Facilities like Roads, Permanent Shelters for Bus Stops etc.

## **9.9 Occupational Health and Safety**

- Occupational Health and Safety professionals develop and coordinate safety and health systems and strategies within organizations.
- They identify workplace hazards, assess risks to employee health and safety, and recommend solutions.
- Increasingly, Health and Safety Professionals are also responsible for many of the environmental aspects of their workplace.
- As this profession matures there is an increased emphasis on risk management strategy and on the development of workplace culture.

### **9.9.1 Tasks of Occupational Health and Safety professionals in the minerals industry**

The collection of major minerals from the gypsum mine does not cause any occupational ill effects.

- Except dust generation there is no source which can show a probability for health related diseases and proper dust suppression will control dust generation and dispersion.
- Dust masks will be provided to the workers working in the dust prone areas as additional personal protective equipment.
- The occupational health hazards have so far not been reported.
- Awareness program will be conducted about likely occupational health hazards so as to have preventive action in place.
- Any workers health related problem will be properly addressed.
- Periodical medical checkup will be conducted.
- Promote occupational health and safety within their organization and develop safer and healthier ways of working.
- Help supervise the investigation of accidents and unsafe working conditions, study possible causes and recommend remedial action.
- Regular Health check up of Employee.
- Develop and implement training sessions for management, supervisors and workers on health and safety practices and legislation.
- Coordinate emergency procedures, mine rescues, fire fighting and first aid crews.
- Communicate frequently with management to report on the status of the health and safety strategy and risk management strategy, and Develop occupational health and safety strategies and systems, including policies, procedures and manuals.

### 9.10 Cost of Environment Control Measures

As a part of responsibility towards protection of environment, project proponent has allocated budget for regular Environment monitoring and Environmental management. The same is detailed in **Table 9.1**

Table 9.1: Proposed Cost of Environment Control Measures

Components	Schedule and Duration of Monitoring/Execution	Implementing Agency	Approximate Unit Cost (per location)	Total Cost (per year)
<b>Air</b>	Once in Six Month except monsoon (4 location)	RSMML	5000/-	40,000/-
<b>Water</b>	Once in Six Month(4 location)	RSMML	3000/-	24,000/-
<b>Noise</b>	Once in Six Month(4 location)	RSMML	3000/-	24,000/-

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Components	Schedule and Duration of Monitoring/Execution	Implementing Agency	Approximate Unit Cost (per location)	Total Cost (per year)
Soil	Once in Six Month (4 location)	RSMML	3000/-	24,000/-
<b>TOTAL</b>				1,12000/-

The total cost of EMP is Rs. 3.0 Lac/annum

Sr. No.	Item	Annual Cost (Rs. In lacs)
1.	Environmental Training /awareness	1.0
2.	Pollution abatement-Water sprinkling	1.5
3.	Plantations	1.0
	<b>Total</b>	3.0

### 9.11 Environment Management System

RSMML shall conduct all its operations in a manner that is protective of the environment and health & safety of employees, customers and the community. In fulfillment of this commitment, they shall maintain continuing efforts to:

- Comply with all applicable safety, health and environment laws and regulations.
- Enhance Safety, Health and Environment (SHE) awareness among employees and associated stakeholders through effective communication and training.
- Investigate all workplace incidents and illness in order to promptly correct any unsafe conditions or practices.
- Integrate SHE considerations into business planning and decision making.

Champion SHE responsibility among our employees in their practices, and promote and value their involvement in achieving the goals of this policy. Environment Policy of RSMML is attached as

#### **Annexure-14**

## 10. CHAPTER: SUMMARY & CONCLUSION

### 10.1 Introduction

M/s. Rajasthan State Mines & Mineral Ltd has proposed for mining of Gypsum on 1278 ha lease area. As per EIA Notification dated 14th September, 2006 this project falls under Category "A" 1 (a) (mining lease area  $\geq$  50 ha)-{Mining of Minerals} as the lease area is 1278 ha.

The lease was granted in the favour of M/s Rajasthan State Mines & Minerals Ltd. (RSMML) vide GOR order no. P.3 (14) Khan/Group-1/2007, dated 31.07.2009 for a period of 20 years from the date of registration of mining lease agreement i.e. 20.01.2010.

The mine being operated as per the environmental Clearance for has been granted by the ministry of Environment & Forest, Government of India vide order no. J -11015/573/2007-IA.II(M) dated 28.05.2008 for gypsum capacity 5 Lac TPA.

The existing consent to operate from Rajasthan State Pollution Control Board, Jaipur for mines is valid upto 31.01.2015. RSMML has applied for renewal of consent to operate at RPCB, Jaipur in time.

Project Proponent proposed to enhance the production capacity from 5 Lac TPA to 6 Lac TPA of gypsum. Therefore this project requires Environmental Clearance from (EAC) MoEF as per EIA Notification dated 14th September, 2006 for enhancement of production capacity.

### 10.2 Project Description

**Project Area:** Out of the total mine lease area of 1278 ha; out of which 805 ha is agricultural land, 462.62 ha is Government barren land (wasteland) and 10.38 ha roads/village tracks. No forest land is involved. Mining shall be carried out for a targeted production of 6 lakh tonnes per annum (0.6 million TPA) of gypsum by opencast mechanized method without involving drilling and blasting.

Table10.1: Project Description

S. NO.	PARTICULARS	DETAILS
A.	<b>Nature &amp; Size of the Project</b>	Gypsum (ML Area - 1278 Ha.) available for mining for production capacity of 6 Lac TPA
B.	<b>Location</b>	
	District	Bikaner
	State	Rajasthan
	Latitude	Latitude: 28°20'3.25"N to 28°21'39.2"N

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Longitude	Longitude: 72°22'52.97"E to 72°25'34.97"E
Toposheet No.	44D/7 ' Restricted'
<b>C. Lease Area Details</b>	
Lease Area	1278 Ha
Type of Land	Private Agricultural Land
Topography	Flat
Site Elevation Range	140 m to 118 m AMSL
<b>D. Cost Details</b>	
Cost of the project	Rs. 258 per tonne
Cost for EMP	Rs. 0.50 per tonne
<b>E. Details of Environmental Setting</b>	
Ecological Sensitive Areas (National Park, Wild Life Sanctuary, Biosphere Reserve, Reserve/Protected Forest etc.) within 10 km radius	No Ecological Sensitive Areas (National Park, Wild Life Sanctuary, Biosphere Reserve, Reserve/Protected Forest etc.) within 10 km radius
Archaeological Important Place	None within 10 km radius of the project
Nearest Town	Town Kolayat at a distance of 76 km (approx.)in SE direction
Nearest major city	District Bikaner at a distance of 91km.(approx.)in SE direction
Nearest Railway Station	Kolayat Railway Station at a distance of 76 km. (approx.) in SE direction
Nearest National Highway	NH-15 at distance of 72km. (approx.) in the direction SE
Nearest Airport	Jodhpur Airport at a distance of 219 km. (approx.) by road.
Seismic Zone	Zone III as per IS 1893:2002

### 10.3 Estimation of Reserve

The minable reserve of gypsum is considered as 75% of the geological resources with estimation that 25% may be earth/argillaceous material within total geological bearing area. As on 30.09.2011, the geological reserve of gypsum at mines is about 43.39 Lakh MT and Mineable reserve of gypsum is 34.18 Lakh MT

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## 10.4 Method of Mining

Mining of gypsum shall be accomplished by opencast mechanized method of working. It is planned to achieve a target production of 5, 96,916 tons per annum. A barrier zone of 7.5 m will be left all along the lease boundary.

### 10.4.1 Overburden removal

Overburden shall be scraped by using a tractor having a 2.3 m long iron scraper blade attachment having a height of about 0.6 m to 0.75 m. Scraped Overburden is disposed off into the worked out area. The tractor makes requisite number of passes and clears the area of overburden exposing gypsum bed ready for extraction. The earth/clay/silt pockets in the gypsum bearing area are isolated during the mining operations are further loosened and almost leveled with the help of tractor/scraper/ plough attachment for making the land suitable for cultivation.

### 10.4.2 Extraction of gypsum by opencast mining method

Extraction of gypsum will be carried out by using hydraulic excavator. After extraction gypsum shall be loaded directly to buyers' trucks for dispatch to destined places or may be sent to unload at separate place earmarked as stockyard for blending of low grade gypsum with high grade gypsum before the final dispatch to the buyers.

### 10.4.3 Blasting

Drilling & Blasting is not involved in the mining activity.

## 10.5 Project Requirement

### 10.5.1 Land

The area available for mining is 1278 hectare which is free from forest. As the entire area is out of total land of 1278 ha, 805 ha is agricultural land, 462.62 ha is Government barren land (wasteland) and 10.38 ha roads/village tracks.

### 10.5.2 Water Requirement

Total water requirement for the mining project is 15KLD. Water will be required for the Domestic purpose, Dust Suppression & Green belt development.

Table10.2: Water requirement of the Project

S. No.	Water demand	Requirement (in KLD)	Source of supply
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4.	Domestic	2	Tanker supply from Indira Gandhi Canal
5.	Dust suppression	10	
6.	Green belt development	3	
Total		<b>15 KLD</b>	

### 10.5.3 Power requirement

As the mining will be carried out mainly during daytime, hence power is not required for the mining operations. Also for the power requirements of mine office and other ancillary facilities which is already taken by the common line of Jodhpur Vidyut Vitran Nigam Limited (JDVVNL)

### 10.5.4 Man Power Requirement

Mining at Dhani Abdullah Wali Gypsum Mine is being carried out by opencast mechanized method. As per MMR 1961, Mines officials & other competent persons are deployed for effective supervision of mines. Mostly supervisors & skilled persons are required for looking after various aspects of operations including gypsum mining, loading & quality control etc. Details of manpower deployed in Dhani Abdullah Wali Gypsum Mine are as given below

Table10.3: Employment details

S. No.	Details	Number
7.	Mines manager (Mining Engineer)	1
8.	Foreman	3
9.	Mining mate	3
10.	Operators	3
11.	Helpers	3
12.	Unskilled labourers	3

## 10.6 Description of Environment

To achieve these objectives, our team monitored the environmental parameters within the study area (10 km. radial distance from the mine site) in accordance with the guidelines for EIA issued by the Ministry of Environment & Forests, Govt. of India. Field studies carried out during the Post monsoon season year 2014 (October to December).

### 10.6.1 Land use pattern of the study area

The existing land use pattern of the study area based on the latest satellite imagery is given below:

Table10.4: Land Use Pattern of the Study Area

S.No.	Feature	Area in Hectare	Area in %
1	Agriculture	7028.74	14.70
2	Water Bodies	34.42	0.07
3	Settlement	74.88	0.16
4	Waste Land	40631.73	84.97
5	Vegetation	49.89	0.10
	Total Area	<b>47819.65532</b>	<b>100</b>

### 10.6.2 Soil Characteristic

Monitoring data shows that the texture of soil at all locations is Sandy. The monitoring sites have sand ranging from 91% to 89% in soil samples. Silt content varies from 4% to 3%, while Clay content varies from 8% to 5% in the soil samples. The data shows that value of pH ranges from 8.89 to 8.25 indicating that all soil samples are basic in nature. Location Manganwala shows maximum conductivity with 249  $\mu\text{mhos/cm}$ , while Nasooma shows minimum conductivity of 238  $\mu\text{mhos/cm}$ .

### 10.6.3 Water Environment

The value of pH ranges from 7.48 to 7.29 indicating that water is neutral in the study area. Maximum Conductivity observed is 374  $\mu\text{mhos/cm}$  at monitoring location Maganwala whereas minimum conductivity was observed at monitoring location Miranwala as 267  $\mu\text{mhos/cm}$ . Total hardness of ranges from 278 to 121  $\text{mg/l}$ . The observed values of Chloride vary from 29  $\text{mg/l}$  to 23  $\text{mg/l}$ .

### 10.6.4 Air Environment

**PM<sub>10</sub>**: The maximum value for PM<sub>10</sub> is observed, as 75  $\mu\text{g/m}^3$  at Akasar and minimum value of 40  $\mu\text{g/m}^3$  at Maganwala while 24 hours applicable limit is 100  $\mu\text{g/m}^3$  for industrial and mixed use areas. The average value ranges between 69.8 to 49.5  $\mu\text{g/m}^3$ .

**SO<sub>2</sub>**: The maximum value for SO<sub>2</sub> is observed, as 9.0  $\mu\text{g/m}^3$  at Akasar and minimum value is 5.0 at Maganwala while 24 hours applicable limit is of 80  $\mu\text{g/m}^3$  for residential, industrial and other areas. Average value of SO<sub>2</sub> is between 8.6 to 5.7  $\mu\text{g/m}^3$ . The area observes SO<sub>2</sub> well below the prescribed range.

**NO<sub>2</sub>:** The maximum value for NO<sub>2</sub> is observed, as 25.0 µg/m<sup>3</sup> at Akasar and Miranwala & minimum values is 18 µg/m<sup>3</sup> at Maganwala, Miranwala & Nasooma while 24 hours applicable limit is of 80µg/m<sup>3</sup> for residential, industrial and other areas. Average value of NO<sub>2</sub> is between to 22.9 to 21.0µg/m<sup>3</sup>. The area observes NO<sub>2</sub> well below the prescribed range. Graphical representation of NO<sub>2</sub> concentration at different locations is shown

#### **10.6.5 Noise Environment**

Ambient noise levels were measured at 4 locations around the project site. A noise level varies from 53.6 to 41.4 dB during day time and night time. Maximum & minimum noise levels recorded during the day time were from 53.6 dB and 50.2 dB respectively and maximum & minimum level of noise during night time were 43.1 dB and 41.4 dB respectively. Thus noise levels at all locations were observed to be within the prescribed limits.

#### **10.6.6 Biological Environment**

An ecological study of the ecosystem is essential to understand the impact of any project on existing flora and fauna of the study area. Studies on various aspects of ecosystem play an important role in identifying sensitive issues for under taking appropriate action to mitigate the impact, if any. Bikaner district has total 1248.73 sq.km of the forest area (234.29 sq.km protected forest and 1014.45 unclassified forest).

No endangered and threatened animals of India have been listed in the Schedule I of the Wildlife(Protection) Act, 1972 (amended in 2001).

#### **10.6.7 Socio Economic Environment**

The socio economic study of the study area for the observed village's gives clear picture of its population, average household size, literacy rate, and sex ratio etc, the literacy rate is good. A part of population is suffering from the lack of permanent job to run their day to day life and get basic facilities. Proposed Dhani Abdullah Wali Gypsum mine Project (1278 Ha). The infrastructure and amenities available in the area denote the economic wellbeing of the region. The study area as a whole possesses average of infrastructural facilities. However, in comparison with the facilities available in other parts of the district this area lacks higher level of amenities like higher education, health, drinking water. Villagers have to commute from their villages for higher education. This area needs more medical facilities. The area does not have maternity and child care centre to this big population, primary health centre and sub centers. The area is well connected with road transport and communication facilities.

## 10.7 Anticipated Impact & Mitigation Measure

### 10.7.1 Land Environment

#### Anticipated Impact

Since mining is being carried out by opencast mechanized method, it is expected to affect the land environment essentially. Impact assessment study on land environment can be done by considering land use pattern/ land cover, topography, drainage pattern and geological features of the mine site as well as the study area.

Table10.5: Proposed Landuse of the mine lease area

S. No.	Particulars	Area (ha)
8.	Area under mining	150.566
9.	Mineral storage	5.00
10.	Mineral blending area	4.00
11.	Vehicle parking place	4.00
12.	Agricultural Land	641.434
13.	Government barren Land	462.62
14.	Roads	10.38
<b>Total</b>		<b>1278</b>

#### Mitigation Measures

- A substantial plantation program was carried out undertaken along the public road.
- The excavated land will be backfilled & leveled.

### 10.7.2 Water Environment

#### Anticipated Impact

- No water is discharged to environment from Gypsum mining at the project site.
- The mining will not intersect ground water table (aquifer) thus avoiding a major impact on water regime.

#### Mitigation Measure

- No waste water will be generated from the mine.
- No toxic water will be generated.
- Water monitoring will be done.

### **10.7.3 Air Environment**

#### **Anticipated Impacts**

- Mining Operation carried out by opencast mechanized method generate dust particles due to loading & unloading of gypsum and during transportation.
- The dust liberated in mining and other related operations is injurious to health if inhaled in sufficient quantity.
- Gases, such as, Sulphur Dioxide, Oxides of Nitrogen etc. from vehicular exhaust.

#### **Mitigation Measures**

- Proper mitigation measures like water sprinkling will be adopted to control dust emissions.
- Masks will be provided to workers.
- To control the emissions regular preventive maintenance of equipment will be carried out on contractual basis.

### **10.7.4 Soil Environment**

#### **Anticipated Impact**

No major impact on soil of the study area is envisaged due to mining activities as there is no waste water, heavy metal, and fugitive emission shall remain confined locally within working area and emission at haul roads will be controlled by water sprinkling and plantation.

#### **Mitigation for Soil Environment**

There is no waste water & toxic water will be generated.

### **10.7.5 Noise Environment**

#### **Anticipated Impact**

- Transportation vehicles used for the transportation of mineral are a source of noise pollution at the site.
- Loading & unloading of waste & minerals also source of noise pollution.

#### **Mitigation Measures**

- No other equipment except the transportation vehicles and excavator for excavation & loading will be allowed.
- Noise generated by these equipments shall be intermittent and does not cause much adverse impact.

- Proper maintenance of all equipments/machines will be carried out which help in reducing noise during operations.
- Plantation will be taken up along the approach roads and side. The plantation minimizes propagation of noise and also arrests dust.

#### **10.7.6 Biological Environment**

##### **Anticipated Impact**

- None of the plants will be cut during operational phase of the mine.
- There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.

##### **Mitigation Measures**

- Plantation will be done along the approach roads. These activities will help to improve the floral cover of the area, which helps counter soil erosion.
- All the preventive measures will be taken for growth & development of flora.
- Although, the project will not lead to any tree cutting, it is proposed to improve the greenery of the locality by plantation services. To avoid dust emissions, the mined materials will be covered with tarpaulin during transportation.
- The workers shall be directed to not venture out of the leased area for collecting fuel wood, or hunting. They shall also be trained to not harm any wildlife, should it come near the project site. No work shall be carried out after 6.00 pm.
- Suitable plan for conservation of Schedule-I Species have prepared and necessary fund for implement for the same will be made.

#### **10.7.7 Impacts on Socio-Economic Environment**

##### **Anticipated Impact**

- Increased funding to improve social infrastructure and cultural maintenance programs. Since the surrounding study area is an undeveloped area, the overall Socio-economic status of the local population is below average.
- The villages and their inhabitants in the buffer zone will not be disturbed from their settlements due to the mining operations. There is no inhabitation within the lease area. Therefore neither villages nor any part of village or any hamlet will be disturbed during the

entire life of the mine. As the mining operations will not disturb or relocate any village or settlement, no adverse impact is anticipated on any human settlement.

- The local people only employment to depend on is agriculture, which is seasonal. In the absence of any high employment potential activities, the people are economically backward.

#### **Mitigation Measures**

- Through mining activities, jobs opportunities will be created in local people, and significant contributions are made to the State's economy. Mining can provide a significant source of revenue through profit related royalty payments and fixed taxation.
- It is suggested that during mining the site services like rest room shelter, first aid box, drinking water & toilet facilities of a portable toilet and portable disposal system of fecal sewage will be provided for the workers at the mine site.
- Various direct and indirect employment opportunities will be generated.
- A better standard of living due to increased access to employment, business opportunities training and education.
- The area is poor in the health care facilities. The project authorities would provide mobile vans for emergency services in the area.

#### **10.7.8 Solid Waste**

##### **Anticipated Impacts**

- Impact of runoff from overburden, top soil, low-grade ore on water bodies (siltation, contamination etc) shall be negligible.
- No loss of vegetation and wildlife habitat is anticipated.
- Impact on surrounding agricultural land shall be negligible.
- Impact of hazardous wastes and liquids is not anticipated so that the mine waste is negligible.

##### **Mitigation Measures**

- Overburden is backfilled into the worked out pits.
- Plantation program was carried out.

#### **10.7.9 Traffic Density**

##### **Anticipated Impact**

The previous load of the H.M.V on the survey road is Nos.288 (6am -10pm). Due to mining operation there are 12 nos. of H.M.V are exceed on the road per day on proposed increase in production of gypsum.

#### **Mitigation Measure**

- It is being ensured that all transportation vehicles will carry a valid PUC certificate.
- Speed limit of the vehicles will be followed. To avoid accidents the speed of vehicles will be low near habitation areas.

### **10.8 Environmental Monitoring**

Monitoring is important to measure the efficiency of control measures. An environmental impact assessment study is carried over for a specified period of time and the data generated for that specific period cannot bring out all variations induced by the natural or human activities. Therefore, regular monitoring programme of the environmental parameters is essential to take into account the changes in the environmental quality. The objectives of monitoring are to:-

- Verify effectiveness of planning decisions;
- Measure effectiveness of operational procedures;
- Confirm statutory and corporate compliance; and
- Identify unexpected changes.

Environmental Management Plan details the environmental quality control measures which are proposed for this project to achieve the production of 6 Lac TPA by complying with the stipulated standard limits specified by State Pollution Control Board and RPCB. The environmental management plan includes all preventive as well as mitigation measures to minimize impact on environment for the mined out Gypsum.

Environmental Management Plan, which is to be implemented in the project has detailed under the following heads:

- Land use pattern and environment
- Air Environment
- Noise Environment
- Water Management
- Solid Waste Management
- Biological Environment including Plantation Development
- Implementation of EMP and Monitoring Program

The mining in the area has been proposed with time bound Management Plan so that impacts on different environmental parameters are least at every stage of mining.

### **10.9 Conclusion**

The project has positive impact to the local people as direct and indirect employment opportunity have been generated.

There will be no significant pollution of air, water, soil and noise. Regular monitoring of all the components of environment will be done. Increased social welfare measures taken by the company.

All possible environment aspects have been adequately assessed and necessary control measures have been formulated to meet statutory requirement.

## **11. CHAPTER: DISCLOSURE OF THE CONSULTANT**

Declaration by Experts contributing to the EIA of Dhani Abdullahwali Gypsum Mine at village Dhani Abdullahwali Tehsil Kolayat, Bikaner

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA.

### **EIA Coordinator**

Name : Dr. M.C. Dash

Signature & Date : 

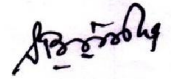
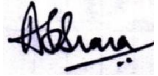
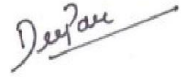
Period of involvement : April 2014 – Till date

EIA REPORT OF EXPANSION PRODUCTION CAPACITY FOR DHANI ABDULLAH WALI GYPSUM MINE BY M/S  
RAJASTHAN STATE MINE & MINERAL LTD LOCATED AT VILLAGE DHANI ABDULLAH WALI TEHSIL  
KOLAYAT AND DISTRICT BIKANER

**Functional Area Experts**

S.No.	Functional Areas	Name of the Experts	Involvement (task & period)	Signature & Date
1.	AP*	Mr. S.B. Sinha	Consultancy provided in functional area of Air Pollution Prevention, Monitoring & Control. (Oct '14–Jan'14)	
2.	WP*	Mr. S.B. Sinha	Consultancy provided in functional area of Water Pollution Prevention, Control & Prediction of impacts. (Oct '14–Jan'14)	
3.	SHW*	Mr. S.B. Sinha	Consultancy provided in functional area of Solid Waste & Hazardous Waste Management. (Oct '14)	
4.	SE*	Mr. Anil Kumar	Consultancy provided in functional area of Socio Economics (Oct '14–Dec'14)	
5.	EB*	Dr. Vivek N. Singh	Consultancy provided in functional area of Ecology & Biodiversity. (Oct '14–Dec'14)	
6.	HG*	Mr. R. K. Khanna	Consultancy provided in functional areas of Hydrology, Ground Water & Water Conservation. (Oct '14)	
7.	GEO*	Mr. B.M. Sinha	Consultancy provided in functional area of Geology. (Oct'14)	
8.	SC*	Dr. Vivek N. Singh	Consultancy provided in functional area of Soil Conservation. (Oct '14–Dec'14)	

EIA REPORT OF EXPANSION PRODUCTION CAPACITY FOR DHANI ABDULLAH WALI GYPSUM MINE BY M/S  
RAJASTHAN STATE MINE & MINERAL LTD LOCATED AT VILLAGE DHANI ABDULLAH WALI TEHSIL  
KOLAYAT AND DISTRICT BIKANER

9.	AQ*	Mr. S.B. Sinha	Consultancy provided in functional area of Meteorology, Air Quality Modeling & Prediction. (Oct '14–Jan'14)	
10.	N*	Mr. A.S. Brara	Consultancy provided in functional area of Noise study. (Oct '14–Jan'14)	
11.	LU*	Mr. Deepak Srivastav	Consultancy provided in functional area of Land Use. (Oct '14–Nov'14)	

**Declaration by the Head of the Accredited Consultant Organization**

I, A. S. Brara, hereby, confirm that the above mentioned experts prepared the EIA of Dhani Abdullah wali Gypsum mine. I also confirm that I shall be fully accountable for any mis-leading information mentioned in this statement.

**Signature**

: 

**Name**

: Mr. A.S. Brara

**Designation**

: C M D

**Name of the EIA Consultant Organization:** Mantec Consultants Pvt. Ltd.

**NABET Certificate No. & Issue date** : NABET/EIA/RA023/024 & Nov 13, 2014

S.No.	Functional Area Code	Complete name of the Functional Areas
1.	AP	Air Pollution Prevention, Monitoring & Control
2.	WP	Water Pollution Prevention, Control & Prediction of impacts
3.	SHW	Solid Waste & Hazardous Waste Management
4.	SE	Socio-Economics
5.	EB	Ecology & Biodiversity
6.	HG	Hydrology, Ground Water & Water Conservation
7.	GEO	Geology
8.	SC	Soil Conservation
9.	AQ	Meteorology, Air Quality Modeling & Prediction

EIA REPORT OF EXPANSION PRODUCTION CAPACITY FOR DHANI ABDULLAH WALI GYPSUM MINE BY M/S  
RAJASTHAN STATE MINE & MINERAL LTD LOCATED AT VILLAGE DHANI ABDULLAH WALI TEHSIL  
KOLAYAT AND DISTRICT BIKANER

10.	NV	Noise/Vibration
11.	LU	Land Use
12.	RH	Risk Assessment & Hazard Management



Regional office

# Rajasthan State Pollution Control Board

Plot No. 33 Special, Bichhawal Industrial Area, Bikaner

Tele Fax: - 0151-2250006, email: rorpcbikaner@gmail.com, Website: www.rpcb.nic.in

No. RPCB/R.O./BIKANER/Tech/R-73/ 1970

Date. 17/11/15

Member Secretary  
Rajasthan State Pollution Control Board,  
Jaipur

Sub:- Public hearing for Environmental Clearance of M/s Rajasthan State Mines & Minerals Limited, Dhani Abdullawali Gypsum Mines (M.L. No 32/2005, Area 1278 Hectares) near village-Dhani Abdullawali, Teh-Kolayat, Dist-Bikaner for expansion of mining capacity from 5 Lac MTPA to 6 Lac MTPA.

Ref:- Public Hearing conducted on dated 10.08.2015

Sir,

Please find enclosed herewith minutes of meeting of public hearing of M/s Rajasthan State Mines & Minerals Limited, Gypsum mines M.L. No 32/2005, near village-Dhani Abdullawali, Teh-Kolayat, Dist-Bikaner for expansion of mining capacity from 5 Lac MTPA to 6 Lac MTPA, conducted at open place in mining lease area under the Chairmanship of Add. District Magistrate (Administration), Bikaner on 10.08.2015. DVD of the videography & photograph of the public hearing are enclosed for further necessary action.

- Incl:-
1. Minutes of Public Hearing (2 Pages) with attendance sheet.
  2. DVD of the Videography & Photographs.
  3. Advertisement of public hearing

Yours Faithfully

(R.C. Mathur)  
Regional Officer

Copy to:-

1. Add. District Magistrate (Administration), Bikaner with one set of minutes, CD of the videography & photography of public hearing.
2. Analyst Cum Programmer, Rajasthan State Pollution Control Board, Jaipur to display minutes on website of Board.
3. M/s Rajasthan State Mines and Minerals Limited, 02 Gandhi Nagar Scheme, Bikaner

R-9115  
20/11/15

per  
19/11/15  
S. M. (Geo)

20/11/15  
D.M. (Geo) : Sh. Arvind

Regional Officer

मैसर्स राजस्थान राज्य खान एवं खनिज लिमिटेड (एम.एल नं. 32/2005), निकट ग्राम ढाणी अब्दुल्लावाली, तहसील-कोलायत, जिला-बीकानेर स्थित खदान की उत्पादन क्षमता बढ़ाने के लिये पर्यावरण स्वीकृति हेतु दिनांक 10.08.2015 को खनन लीज क्षेत्र के खुले स्थान पर आयोजित जन सुनवाई की बैठक का कार्यवृत्त

मैसर्स राजस्थान राज्य खान एवं खनिज लिमिटेड, बीकानेर द्वारा निकट ग्राम ढाणी अब्दुल्लावाली, तहसील कोलायत, जिला बीकानेर स्थित खदान (एम.एल नं. 32/2005) की उत्पादन क्षमता बढ़ाने के लिये आयोजित जन सुनवाई की परियोजना हेतु, पर्यावरण एवं वन मंत्रालय, भारत सरकार की अधिसूचना दिनांक 14 सितम्बर 2006 में वर्णित प्रावधानों के अनुसार क्षेत्रीय अधिकारी, राजस्थान राज्य प्रदूषण नियंत्रण मण्डल बीकानेर द्वारा लोक सुनवाई की विज्ञप्ति राज्य स्तरीय दैनिक समाचार पत्र राजस्थान पत्रिका में एवं राष्ट्रीय स्तरीय दैनिक समाचार पत्र इण्डियन एक्सप्रेस में 9 जुलाई 2015 को प्रकाशित करवाई गई थी तथा जन सामान्य से आपत्ति/आक्षेप दिनांक सुचना के प्रकाशन की तिथि से तीस दिवस के भीतर तक आमंत्रित किये गये थे।

लोक सुनवाई की अधिसूचना दिनांक 14 सितम्बर 2006 में वर्णित प्रावधानों के अनुसार लोक सुनवाई की कार्यवाही नियत समय व स्थान पर दिनांक 10.08.2015 को प्रातः 11.00 बजे निकट ग्राम ढाणी अब्दुल्लावाली, तहसील कोलायत, जिला बीकानेर के खनन लीज क्षेत्र के खुले स्थान पर अतिरिक्त जिला कलेक्टर (प्रशासन) जिला-बीकानेर, हरि प्रसाद पिपरालिया तथा आर. सी. माथुर, क्षेत्रीय अधिकारी राजस्थान राज्य प्रदूषण नियंत्रण मण्डल, बीकानेर की अध्यक्षता में प्रारम्भ हुई। सर्वप्रथम राज० राज्य प्रदूषण नियंत्रण मण्डल बीकानेर के क्षेत्रीय अधिकारी श्री आर० सी० माथुर ने अतिरिक्त जिला कलेक्टर (प्रशासन) से लोक सुनवाई प्रारम्भ करने की अनुमति प्राप्त कर लोक सुनवाई प्रारम्भ की।

लोक सुनवाई की कार्यवाही को आगे बढ़ाते हुए डी.एस. आचार्य (आरएसएमएम प्रतिनिधि)- मे डी.एस.आचार्य, राजस्थान राज्य खान एवं खनिज लिमिटेड की तरफ से यहाँ उपस्थित ए. डी. एम. साहब, आर. आ. साहब, जन प्रतिनिधि और जो भी यहाँ के जो आमजन उपस्थित है, उन सभी का स्वागत करता हूँ। जैसे सर्वविदित है कि यह खदान पहले से ही पांच लाख टन की क्षमता पर चल रही है। आस-पास के क्षेत्रों में आगे भविष्य में कुछ खदानें बंद हो सकती हैं, उन सब को ध्यान में रखते हुए मैनेजमेंट ने यह निर्णय लिया है की इस खदान की जो क्षमता है वो एक लाख टन बढ़ा दी जाए, और एक लाख टन की क्षमता यदि बढ़ानी है तो उसके लिए हमें बढ़ी हुई क्षमता के लिए पुनः पर्यावरण स्वीकृति की आवश्यकता होती है। इसी स्वीकृति के लिए हमने राजस्थान स्टेट पॉल्यूशन कंट्रोल बोर्ड को आवेदन किया था। टीओआर भारत सरकार, वन एवं पर्यावरण मंत्रालय द्वारा स्वीकृत हो चुका है। टीओआर की शर्तों में जन-सुनवाई भी एक हिस्सा है। जिसमें की आम जनता का जो भी सुझाव है, जो भी उनके विचार हैं वो सब उसमें आ सके। इस सभी के साथ मैं ग्रामवासियों से अनुरोध करता हूँ कि उनका यदि कोई सुझाव है या कोई विचार है तो वो बिलकुल निःसंकोच यहाँ प्रस्तुत का सकते हैं।

इस प्रोजेक्ट के बारे में जैसे आप सभी को विदित है कि यह ढाणी अब्दुल्लावाली जिप्सम खदान के नाम से चल रही है और बीच-बीच में कुछ अन्य कारणों से यहाँ प्रोडक्शन कम भी हुआ है। लेकिन आगे हमारी पूरी कोशिश रहेगी कि इस खदान को हम पूर्ण क्षमता के साथ चलायें, जिसमें की ग्रामवासियों को जो प्रत्यक्ष या अप्रत्यक्ष रूप से जो भी फायदे मिल रहे हैं वो मिलते रहे क्योंकि जब खदान चलती है तो ग्रामवासियों को कुछ न कुछ रोजगार के साधन तो निश्चित रूप से मिलते हैं। पर्यावरण स्वीकृति के लिए हमने नियमानुसार ईआईए-ईएमपी रिपोर्ट बनवाई है। वायु, जल, ध्वनि और मिट्टी के यहाँ जो सैंपल हैं उनके एनालिसिस करवाए हैं। इसके लिए हमने मेनटेक कंसल्टेंट को अपना कंसल्टेंट अर्पीइंट किया था। उसने अक्टूबर माह से लेकर दिसम्बर माह के बीच में विभिन्न स्थानों से अपनी स्टडी की, डाटा इकट्ठे किये और सबसे बड़ी खुशी की बात ये है कि हमारे जो भी डाटा हैं वो जो प्रदूषण के मानक से नीचे हैं। इसलिए अन्य स्थानों पर या अन्य बड़ी खदानों पर जो प्रदूषण की समस्या पैदा होती है उस तरह की समस्या अपने यहाँ पर नहीं है। यहाँ की जमीन वापिस खेती के काम में आ सकती है। ये भी एक बहुत अच्छा अपने लिए सौभाग्य है क्योंकि जिप्सम से

हार्ड पैन है वो ऊपर से निकल जाएगा, यदि आपको पानी उपलब्धता मिल रही है तो खेती निश्चित रूप होगी। जहाँ तक सवाल है पौधरोपण का, हमारा निरंतर यह प्रयास है कि गाँव के द्वारा लोगों को पौधे वितरित होते रहें। अभी इस साल भी हमने ग्राम पंचायत को पांच हजार पौधे उपलब्ध करवा दिए हैं। उन पौधों में से जो भी यहां के जो लोकल जो भी काश्तकार हैं, अपने पौधे लेने चाहें तो ग्राम पंचायत से लेकर के वो अपना पौधरोपण करे, अभी बरसात का समय है इस सब संक्षिप्त विवरण के साथ मैं आम जनता से अनुरोध करता हूँ कि उनका यदि कोई विचार है उनका उनकी तरफ से यदि कोई और सुझाव है तो वो निश्चित तौर पर देवें।

(पीछे से आवाज़)– साब को दे दिया लिखा के।

ए. डी. एम. साहब–ढाणी अब्दुल्लावाली ग्राम पंचायत हेडक्वार्टर है? या ग्राम पंचायत हेडक्वार्टर दूसरा है?

ग्रामीण– जग्गासर है साहब । जग्गासर।

ए. डी. एम. साहब– हैं?

ग्रामीण– जग्गासर।

दूसरा ग्रामीण– जग्गासर।

ए. डी. एम. साहब– तो इस गाँव से आपके वार्ड पंच वगैरह वो सब भी होंगे?

ग्रामीण–हम सरपंच वगैरह के साथ हैं।

ए. डी. एम. साहब– और पंचायत के सरपंच से भी बातचीत आपने की होगी।

ग्रामीण– हाँ जी।

ए. डी. एम. साहब– और उनको बुलाया भी होगा।?

ग्रामीण– हाँ।

ए. डी. एम. साहब– तो उनके हालाँकि दो-तीन में एप्लीकेशन देख रहा था। ग्राम पंचायत की तरफ से एप्लीकेशनस आई हुई है।

ग्रामीण– हाँ जी, जी-जी।

ए. डी. एम. साहब– तो मैं चीज़ अपन जो हैं । पर्यावरण से रिलेटेड कोई भी बात हो न इसके दस पंद्रह किलोमीटर के एरिये में... मैंने अपने दस किलोमीटर एरिया। (आरओ से प्रश्न करते हुए)– यही है माथुर साहब करीबन?

आर.ओ. साहब– हाँ साहब पांच किलोमीटर।

ए. डी. एम. साहब– अपने जो खदान में जो एक्सटेंशन का काम करा रहे हैं, एक लाख टन ज्यादा उत्पादन करेंगे।

ग्रामीण–जी, जीहां।

ए. डी. एम. साहब–उत्पादन बढ़ाने के लिए। खनन तो पहले से चल रहा है यहाँ पे।

ग्रामीण– हाँ! चल रहा है, साहब ।

ए. डी. एम. साहब– उसका उत्पादन बढ़ाने के लिए इन्होंने जो ये एप्लीकेशन लगाई है, और उसके ऊपर आप सभी लोगों से जो है हम लोग, ये अगर किसी भी प्रकार की कोई आपत्ति पहले आपको कोई महसूस हुई हो या अब महसूस हो रही हो तो उसके बारे में आप लोगों यहाँ पे, आप मौखिक भी बता सकते हैं लिखित में आप दे इंडिविजुअली देना चाहें इंडिविजुअल भी दे सकते हैं। पंचायत की तरफ से देना चाहें, पंचायत की तरफ से दे सकते हैं।

ग्रामीण– बस पंचायत की तरफ से आपने हमरा जो छोटा-छोटा मसला था लिखित में प्रस्तुत कर दिया।

हाजी जानु खां (ग्रामीण)– मैं हाजी खां, बीस एसएमडी से हूँ। हाजी अब्दुल्लाह की ढाणी का मूल निवासी हूँ। इसलिए आपकी जब भी आपके यहाँ से खनन चालू हुआ है, हम इसके साथ एक जुट हो के चले हैं, सुणे। और अगर जैसे कोई अवैध खनन है हम उसके खिलाफ हैं। आपके लोगो का साथ ले के, पुलिस का साथ ले के, तो इस खनन, हमारे गांव के लिए जैसे पहले, हमारे से पहले पुरानी बल्लर में चल रही थी तो उन लोगो को बहुत सहयोग मिल रहा था, तो हमारे को उस चीज़ को थोड़ा सोचते-सोचते इस चीज़ को समझी। समझने से हमारे को मालूम था की इस चीज़ अच्छी है हमारे गांव वालो के लिए बिलकुल ये बेनिफिट मिलेगा।तो इसलिए हमने इधर से यहाँ से क्या है कि यहाँ हमारी ये

जैसे तेईस एसएमडी में हम खड़े हैं, यहाँ का माल बल्लर जाता था और बल्लर तुलता था, तो वो बल्लर वाले लोग गरीब लोग मजदूरी करते, हमारे लोग वंचित थे। तो इसलिए हमने सोच के इधर के रास्ते बंद करवाये, इधर से कांटे (वे ब्रिज) खुलवाये। हमारी तहसील, वो पूगल तहसील और हमारी कौलायत तहसील का क्षेत्र है इसलिए उन लोगों के जो हमारे से कई ठकराव हुए कि आप यहाँ से बंद मत करो, आपके यहाँ से मजदूर भेज दो। लेकिन उन का इलाका अलग, हमारा इलाका अलग। जब ये हमारा यहाँ से ये रेगुलेशन चालू हुआ तो हमारे गांव वाले सब लोग जो कम से कम तीस चालीस हजार डेली पैसा कांटे (वे ब्रिज) से मजदूर लोग ले के शाम को घर पहुँचते थे। तो हमारी रोजी रोटी का सवाल, बहुत अच्छा हमारे को ये अच्छा प्रक्रिया लगा, हम इसके साथ जुड़े हैं। और हम इसको बढ़ाने में आप लोग बढ़ा लें, इसके लिए आपको बहुत बहुत धन्यवाद है। और बढ़ा रहें है हमारे लिए तो हम लोग इस जगह पर इस खनन के हम साथी हैं और हम साथ चलेंगे। जो गांव वाले, जो हमारे चको की आबादी वाले आपको साथ देंगे आपके कर्मचारियों को साथ देंगे, इसलिए कोई हुई तो हम इसका बिलकुल एकजुट होकर चलेंगे।

सरपंच (जग्गासर) – मैं जग्गासर पंचायत समिति से सरपंच और जो हाजीजी प्रक्रिया आपने बताई है, वो आज जो सहमति के समय आधार से हम चलेंगे, और हाजी जी ने जो बल्लर की बात बताई है, तो हमारे यहाँ गरीब लोग बहुत हैं, और यहाँ एक दस-दस किलोमीटर दूर जाकर मजदूरी करते हैं, तो यहाँ आपकी कृपा से ये मजदूरी यहाँ से हो जाये तो हमारी जनता बहुत खुश होगी। इसलिए मैं आपको धन्यवाद दे रहा हूँ आप अफसर लोगों को।

डी.एस. आचार्य(आरएसएमएम प्रतिनिधि)– और कोई? जनता में जो उपस्थित हैं उनमें से कोई बोलना चाहें।

ग्रामीण(दिलीप कुमार बेनीवाल)– मैं, तेईस एसएमडी से दिलीप कुमार बेनीवाल, इस माइंस से आठ साल हो गए जुड़े हुए। आज तक सभी का मेरी निगाह से देखते हुए आ रहा हूँ। हमारे चक में कई तकलीफें हैं। जैसे कि हरी-भरी फसल है उस पे धूल-मिट्टी उड़ती है इसी के लिए आपसे निवेदन करते हैं कि जिनके ऊपर कोई ट्रैक्टर से रास्ते पर पानी डालने की कृपा करें। दूसरी शिकायत ये है कि कई पुलिया हैं, ट्रक गुजरते हैं, तो पुलिया टूटी हुई हैं कई बनने वाली है, तो आपसे निवेदन करता हूँ कि ये पुलिया बनाई जाये। धन्यवाद !

डी.एस. आचार्य(आरएसएमएम प्रतिनिधि)– अभी दिलीप जी का जो सुझाव था वो काफी हद तक आगे विचारणीय है, और निश्चित रूप से वाटर टैंकर से पानी की व्यवस्था करवाई जाएगी, जो पुलियाँ टूटी हुई इन्होंने बताई हैं खनन क्षेत्र में, उनका सरपंच साहब से, ग्राम पंचायत से बातचीत करके हल निकाला जाएगा। और कोई बोलना चाहें? सुझाव किसी के और।

हाजी जानू खां– महोदय साब यही बढिया है और इतना ही बहुत है। सुझाव तो.... अब सारे बरसात पड़ जाएगी तो सारे खुश होंगे ? अब ये जो जरूरी काम है इतना ही काम है।

डी.एस. आचार्य(आरएसएमएम प्रतिनिधि)– नहीं पौधारोपण तो निश्चित रूप से अपने को चालु करना ही है, और वो माइंस मैनेजर साहब को कह दिया है।

जानू खां – जो साहब को लैटर पैड पर हमने जो लिख कर जो थोड़ी-थोड़ी हमारी दिक्कत थी दे दिया है।

डी. एस. आचार्य (आरएसएमएम प्रतिनिधि) – ये इसमें मैं अलग से बात करूंगा, बात करके और जो भी है उसमें समाधान करूंगा।

दूसरा ग्रामीण– जो दूसरे खाले (नहर)टूट जाते हैं जो पहले के बने हुए हैं उनमें बहुत कठिनाई आती है।

डी. एस. आचार्य (आरएसएमएम प्रतिनिधि) – नहीं नहीं ये बिलकुल इसमें आपको आश्वस्त करते हैं, ठीक हैं?

पी.पी. माथुर (एजेंट आरएसएमएम)– इसमें अपने बैठकर मीटिंग करके उसमें से समाधान निकालेंगे।

जानू खां–ऊपर से इसमें कंट्रोल करके यहाँ हमारा साथ दें, हम भी उनको साथ दें, तो वो रुक जाएगा। अवैध खनन क्या है कि उनकी एक की मजदूरी है। या किसी को कोई पुलिस और से टार्चर होता है तो उसकी मजदूरी हो जाएगी, लेकिन पूरे लोग वंचित रहेंगे। और जो आपके एक नंबर(वैध) में खरीद के माल देगा तो सारी पब्लिक मजदूरी करेगी। वहाँ से माल उठेगा, वहाँ से गाड़ी भरेगी, उसका सबको बेनिफिट मिलेगा। अब जैसे मैं एक खरीद कर बड़ा पैसे वाला हूँ, मुरब्बे खरीद के दो नम्बर (अवैध)में उठाने लग गया तो मेरे को फायदा होगा एक, पब्लिक को कोईफायदा नहीं, ये भी

हमने आपको ज्ञापन भी लिख के दिया है। और बाकी जैसे पानी वाला है, टैंकर वाला है, वो भी हमने आपको लिख के दिया है। बोलने में हम अनपढ़ आदमी, कम दिमाग से बोला जाता है सही बात बोली नहीं जाती आपके आगे। इसलिए क्या है कि हम कुछ लिख के आपको दे देते हैं उससे आप समझले बड़ी बात तो वो है, और ज्यादा भाषण इसलिए नहीं देने है कि सारा दिन भाषण करते रहे, जोर मारते रहे, उससे कोई फायदा नहीं। भले ही जोर मार लो, करने वाला होगा तो उसमें हमारे को बेनिफिट मिल जाएगा।

डी.एस.आचार्य (आरएसएमएम प्रतिनिधि) — जो पर्यावरण से संबंधित है उस पर हम निश्चित रूप से कार्यवाही करेंगे। जहाँ तक अनाधिकृत खनन का जो मुद्दा है उस पे जिला प्रशासन है, ग्राम पंचायत है। हमारी खुद की मोबाइल टीम है सी.आई.की, उसको हम और ज्यादा निर्देश देंगे कि वो ज्यादा से ज्यादा क्षेत्र में दौरा करे, और जितना भी हो सके उसको रोकने का प्रयास करें।

जानू खां— और साहब धन्यवाद, आप यहाँ पधार गए, यहाँ आ गए हम बड़े खुश है, ये गर्मी में।

ए. डी. एम. साहब— एक चीज़ है, ये इतने बड़े एरिया में जब अपन खनन का कार्य कर रहे है, आरएसएमएम आप से पिछले कई सालो से जुड़े हुए है तो जो ऐसी छोटी—मोटी आपकी सामुदायिक समस्याएं हैं, जिनके बारे में आप बता रहे है उसके लिए भी हालाँकि आरएसएमएम वाले है, तो इनसे भी मेरा यह आग्रह रहेगा कि इनकी ऐसी रोजमर्रा की जो समस्याएं हैं उनके ऊपर भी आप लोग थोड़ा सा ध्यान कर के ये करे। फिर पोल्यूशन को अपन नियंत्रण करने के लिए खाफी बड़े एरिया में सघन वृक्षारोपण का कार्यक्रम भी इसके साथ में अपने करते है। वो कार्यक्रम भी आप लोग जो है आरएसएमएम वालो ने पहले करवा रखा है या नहीं करवा रखा है? और अब यह अगर ये और इसकी उत्पादन क्षमता बढ़ा रहे तो उसको भी अपन जो है पर्यावरण पॉइंट ऑफ व्यू से काफी एरिया जो है उसको आइडेंटिफाई करके और वहां पे सघन वृक्षारोपण का उसका एक कार्यक्रम आप लोग यहाँ करावे।

पी. पी. माथुर (एजेंट आरएसएमएम)— सर, उसके लिए हमने सैंक्शन कर दी है।

ए. डी. एम. साहब— अच्छा ! उसके लिए सैंक्शन कर दी है? हाँ, वो जो थोड़ा है उसको प्रेक्टिकली उसको आप करें।

पी. पी. माथुर (एजेंट आरएसएमएम)— सर, पौधे डिस्ट्रीब्यूट करने है हमको।

डी. एस. आचार्य (आरएसएमएम प्रतिनिधि) — पौधारोपण का जो बताया है एडीएम साहब ने यहाँ पे जब अपन बाहर निकल के देखेंगे तो यहाँ पे पौधों की ग्रोथ अन्य जो क्षेत्र है उनसे काफी अच्छी है और जो भी हमने काशतकारों को जो पौधे दिए है, जो लगाये है उनकी स्थिति भी काफी अच्छी है, सर! तो पौधारोपण यहाँ पर सक्सेसफुल है और निश्चित रूप से हम इसको आगे बढ़ा रहे है। अभी पांच हजार पौधे इसी बरसात के सीजन में और डिस्ट्रीब्यूट किये जा रहे है, सर!

आर. ओ. साहब— माइनिंग एरिया कितना दूर है?

डी. एस. आचार्य (आरएसएमएम प्रतिनिधि)—सर ये माइनिंग एरिया ही है, माइंस के अंदर ही सेंटर में बैठे हैं।

ग्रामीण—सर ये माइंड आउट एरिया है।

आर. ओ. साहब— जो माइंड आउट एरिया है उस पे वापस खेती शुरू हुई है या नहीं हुई है?

ग्रामीण— हुई है सर।

पी. पी. माथुर (एजेंट आरएसएमएम) — ये सामने वाले में देखो।

ग्रामीण— ये सब दिख रहा है फसल हो रही है ये सब खनन हो चुका है। और फसल हो रही है।

जानू खां — जो यहाँ से खनन हो चुका है, हर मुरब्बे में जो मिट्टी उठ चुकी है। जैसे पिछले साल में जी. जी. एम. साहब यहाँ आया था, हम खनन पर ऊपर खड़े थे तो मेरे को बोला के हाजी साहब आप जो ऊपर वाली मिट्टी है ना ये ज्यादा दूर हटा कर बाद में ऊपर डालना तो आपकी फसल अच्छी होगी। मैंने बोला साहब से सर ये सही बात है आपकी, हमारे यहाँ इलाके के जैसे चूना (जिप्सम) उठा लिया है तो फसल में हमारे लोग आज दस दस साल से काशत कर रहे है। अगर इससे फसल नहीं होती तो आपको एक भी खेत नहीं मिलता। फसल वैसी के वैसी उस से दुगनी ज्यादा हुई।

चूना (जिप्सम) निकला जाता है उसमें हम चाहें दरख्त लगाएं चाहे कुछ लगाएं, पौधा लगाएं, पेड़ लगाएं, फसल लगाएं उसमें लग जाती है। जिप्सम नीचे से निकल जाती है हमारे यहाँ उस खेती में कोई किसी प्रकार की दिक्कत नहीं है।

ए. डी. एम. साहब— कितनी अंदर तक जाती है ?

जानू खां— कहीं तो आता है चार फुट, कहीं दो फुट से लगा के पांच-छः फुट तक जा सकता है। इससे ज्यादा नहीं है पांच फुट से ज्यादा नहीं है।

ए. डी. एम. साहब— ज्यादा से ज्यादा गहराई कितनी है? आठ-दस फुट?

ग्रामीण— आठ दस फुट! यहाँ से जो एरिया है ना इसमें किसी जगह पर सात-आठ फुट से ज्यादा नहीं जा सकता है वो भी थोड़ी जगह पर। लम्बी ज्यादा की नौ दस फीट की इतनी तो फालतू बातें करने से मतलब तो है नहीं। इतनी तो जा नहीं सकती इस एरिया में खींच के सात-आठ तक जा सकती है! और अमूमन तीन फुट चार फुट तीन फुट चार फुट ये चलती है। ये खनन चलता है, इसके अंदर वापस काश्त हो रही है, आज उन मुरब्बों को जा के देख लो आपको पता नहीं चलेगा कि यहाँ से जिप्सम निकाली है या नहीं निकाली? कोई दिक्कत नहीं होती। बिल्कुल माल सही जा रहा है और यहाँ काश्तकारों को ये बीजाई में कोई दिक्कत नहीं है क्योंकि जिप्सम होने से हल टूट जाते हैं बुवाई होती नहीं सही, कही बीज फट जाते हैं वो उगते नहीं। लेकिन ये जो उठ रहा है माल उस खेत के फसल होने में कोई दिक्कत नहीं जी। खाजूवाला से जो बज्जू रोड जा रही है उससे हमारी जो ये रोड है कनेक्ट है, आठ नौ किलोमीटर रोड है, लोकल रोड बनाई है ये गाँववासियों के वास्ते, उसमें अभी खनन चल रहा है। तो हमारी रोड की ऐसी स्थिति। पहले तो बीच में नरुका साहब (तत्कालीन जी.जी.एम.) था इस खनन का मालिक हमने ये जाके इनसे हमारे गाँव से बाईपास बनाने का सब गाँव वालों का था कि हमारे गाँव वालों को उद्योग मिले, फिर वो बोले कि भई ये कब बनेगी, कब नहीं बनेगी, कब क्या होगा, दो-तीन महीने लगेंगे, बजट पी.डब्ल्यू.डी. को भेजेंगे। पी.डब्ल्यू.डी. कब बनाएगी? तो इसलिए उन लोगों ने लेटर भी निकाल दिया था। एस्टीमेट बनाकर के सर्वे हो गए, पटवारी, गिरदावरी, सब से सर्वे करवा के सड़क का रास्ता निकाल दिया था बाईपास। उसका लेटर भी हमारे पास आ गया था हमारे नाम से पास कर दिया था। लेकिन उनके फिर क्या है कि आपके पी.डब्ल्यू.डी. से हमने पूछा तो वहां क्या है कि बजट ही नहीं गया। पी.डब्ल्यू.डी. वाले बोले कि भई हमारा बजट भेजेंगे जिप्सम वाले तो हम सड़क बना देंगे। तो सड़क के लिए हम भाटी साहब (तत्कालीन एमएलए) को अवगत करवाया देवीसिंह को। वो बोले कि हम इस बात का पता करेंगे। फिर भी चलो वो सड़क है न उस सड़क की स्थिति गंभीर हो चुकी है, अभी आप इधर से आये हो देखते ही आये हो, इधर से ही आपकी गाड़ियां आई है। इसके लिए हमारा आपको ज्ञापन भी दिया है लिख के। इसकी मरम्मत हो जाये, ये कुछ सुधार में आ जाये तो थोड़ा इस पर भी खर्चा लगा दें तो हमारे आने जाने में, गाड़े में, ऊँट में, मोटे-मोटे गड्डे हो चुके हैं। तो हमारी थोड़ी सी शंटी कर भर देते। आपको ज्ञापन दिया है। उस पर आप थोड़ा सा क्या है कि गौर करलें तो सड़क का मामला जो है हमारे सुधार में जाये। ये बात नहीं कि सिर्फ इस जिप्सम वाले (आरएसएमएम वाले) आपकी माइंस वाले जिम्मेदार है, इसमें तो बहुत अवैध चल रहे, ज्यादा वो तोड़ रहे हैं। लेकिन हमारा हाथ पहुँचता नहीं है वहां तक। वो कुछ देने के लिए तैयार नहीं हैं, टूट गयी ...  
.... गई! सम्मालो। किसी को दुखते हैं। अवैध वालों को जरूरत नहीं है। और हमारा जो कि आपसे है ज्यादा ही, हमारी यहाँ फरियाद करनी पड़ती है। और हमारी यहाँ बेनिफिट मिलता ही है इसलिए बार बार आप वाले विभाग में जाना पड़ता है। अवैध वाला हमारे हाथ में नहीं है। तोड़ने वाले तो ज्यादा वो है, ये बिल्कुल साफ है और हमारे आगे कोई दूसरा रास्ता ही नहीं है। आपके आगे फरियाद सुनाने का रास्ता है। और वहां कोई सुनाने वाला ही नहीं है तो हम किसको सुनाये।

डी. एस. आचार्य (आरएसएमएम प्रतिनिधि) — बाहर भी जिप्सम काफी लम्बे-चौड़े क्षेत्र में उपलब्ध है और क्योंकि जिप्सम की नेचर ही ऐसी है की पांच सौ मीटर मिलता है फिर दो किलोमीटर नहीं है फिर पांच सौ मीटर मिलता है फिर दो किलोमीटर नहीं है। इसलिए सारे क्षेत्र का खनन पट्टा आरएसएमएम लेने की स्थिति में नहीं है। जो खनन पट्टा क्षेत्र है उसके अंदर अनाधिकृत खनन नहीं होने देंगे और जो अभी इन्होंने हाजी साहब ने बताया कि उसमें रोड बनाने का काम



तो पी.डब्ल्यू.डी. का है। तो उसका निर्णय जिला स्तर पर होगा या राज्य स्तर पर होगा, रूरल रोड है। लेकिन जहाँ तक उसकी मरम्मत का सवाल है हम निश्चित रूप से ग्राम पंचायत को सहयोग करेंगे।

जानू खां – ये जो आपकी लीज़ का चिपता-चिपता एरिया है, कोई एक किलोमीटर पर है या कोई दूर पर है, मुरब्बा जैसे लीज़ में नहीं आया ये जैसे मेरा मीरनवाला गाँव है, हाजी अब्दुल्लाह की ढाणी का पुराना गाँव मीरनवाला है। इस खेत के पीछे ढाणी बनाई किसी भले समय में इनकी बुजुर्गों की दुआ से वो गाँव बन गया, तो अब वो पुराना गाँव है उनमें हमारे कम से कम पंद्रह-बीस मुरब्बे जिप्सम वाले है। तो यहन आपके जिप्सम वाले कर्मचारियों को कहते हैं तो वो कहते हैं कि हमारी लीज़ नहीं है। तो लीज़ बनाने का कोई इसका तरीका हो तो हमारी वो लीज़ में आ जाये तो हमारे को बेनिफिट मिल जायें हमने इसी मुरब्बा का कम से कम गिरदावरियां, पासबुके, खातेदारियां, सब हमने नक्शा बना के द्वारका जी (तत्कालीन माइंस मैनेजर) को हमने भिजवाया था। अगर आपके कोई लीज़ बनने में आ जाती है तो ये कृपा करे थोड़ी लीज़ बढ़ा दें तो हमारा फायदा हो जाये।

डी. एस. आचार्य (आरएसएमएम प्रतिनिधि)– अभी जो खनन का कानून है पूरा चेंज हो गया है और एमएमडीआर एक्ट 2015 आ गया है, उस 2015 के जो रूल्स है मिनरल कन्सेसन रूल्स है वो अभी आने बाकि है, लेकिन जो एक्ट आया है उसमें ये प्रोविजन आया है कि खातेदार की ज़मीन में यदि खनन पट्टा लेना है तो खातेदारों से रजिस्टर्ड सहमति लेने के बाद ही आपको खनन पट्टा मिलेगा। यदि ऐसे पंद्रह-बीस मुरब्बे हैं और सारे खातेदार सहमत हैं, तो वो सारे खातेदार मिल कर एक ही रजिस्टर्ड सहमति हम को दे सकते है, अलग-अलग देने से उनके अलग-अलग खर्चे आयेंगे। वो सारे मिल कर के एक ही सहमति हमें दे दें तो हम निश्चित रूप से कोशिश करेंगे कि एक डेढ़ साल के अंदर लीज़ ले आयेंगे।

ए. डी. एम. साहब– बहुत बढ़िया।

डी. एस. आचार्य (आरएसएमएम प्रतिनिधि)– लेकिन वो सहमति चाहिए, सहमति के बिना हम आगे नहीं बढ़ पायेंगे।

ग्रामीण– बिल्कुल, बिल्कुल।

साथ ही ग्रामीणों द्वारा सात (7) सुझाव/आक्षेप लिखित में प्रस्तुत है जो कि कार्यवाही के साथ संलग्न है।

श्रीमान अतिरिक्त जिला कलेक्टर प्रशासन ने जन-सुनवाई में उपस्थित ग्रामीणों को आश्वासन दिया कि उक्त जन सुनवाई कार्यक्रम में ग्रामीणों द्वारा दिये गये सुझावों को समिति में भेजा जावेगा।

आर.ओ. साहब– सभी महानुभावों से बहुत ही उपयोगी एवं उपयुक्त सुझाव प्राप्त हुए हैं, इन सभी सुझावों पर विचार करके अलग अलग एजेंसीज़ जो भी है उन को अवगत करा दिया जायेगा और जो भी पर्यावरण से संबंधित आपके सुझाव प्राप्त हुए है, उनका समावेश इस पब्लिक हियरिंग की प्रोसिडिंग में कर दिया जायेगा। और इसी के साथ मैं जन सुनवाई के समापन की घोषणा करता हूँ।

( आर सी माथुर )

क्षेत्रीय अधिकारी, राज0 राज्य प्रदूषण नियंत्रण बोर्ड,

(आर सी माथुर)

बीकानेर

क्षेत्रीय अधिकारी  
राजस्थान राज्य प्रदूषण नियंत्रण मंडल  
बीकानेर (राजस्थान)

( हरि प्रसाद पिपरालिया )

अतिरिक्त जिला कलेक्टर (प्रशासन)

अतिरिक्त जिला कलेक्टर  
(प्रशासन) बीकानेर



# RAJASTHAN STATE MINES AND MINERALS LTD.

(A Government of Rajasthan Enterprise)

## Gypsum Unit

State Club Building, Bikaner - 334001

e-mail : rsmmgyp@rsol.com

rsmmgyp@datainfosys.net

website - www.rsmm.com

2. Vimala Nagar Scheme, Jaipur

542133, 542291, 544178,

FAX : (0151) 523519

Gram : RAJMINES

rsmm/vyp/ahmi/2015-16/37

Date: 28/07/2015

Ahmi Abdullahali Gypsum mine

### प्रमाण-पत्र

प्रमाणित किया जाता है कि दानी अब्दुलावाली जिप्सम खान के मुरब्बा नं० 141/18 किला नं० 1 का 25 कुल 25 बीघा जो डि 23 DMD तहसील - कोलमन में स्थित है। जो डि श्री इलीप कुमार एवं राजेन्द्र कुमार शं० देवीलाल के नाम से है। विभाग ने इस जमीन से जिप्सम निकाल लिया है तथा जमीन समतल करके कारखाने को सुपुर्द कर दी है। अतः कारखाने इस जमीन से सम्बंधित कोई कार्यवाही करने जैसे यानी छी बारी बंधवाना आदि करना है, तो दानी अब्दुलावाली जिप्सम खान को कोई आपत्ती नहीं होगी।

खान प्रबंधक  
दानी अब्दुलावाली जिप्सम खान

#### Corporate Office

4, Meera Marg, Udaipur-313001  
☎ : 528681-85, Fax : (0294) 523170

#### Registered Office

C-89, Janpath, Lal kothi Scheme, Jaipur-302015  
☎ 743734, Fax : (0141) 743735

#### Delhi Office

1/19-B, Asaf Ali Road, New Delhi-110002  
☎ : 3231711 Fax : (011) 3230710

श्रीमान विद्या अलवर केवडेप  
वीडियो

विषय क्रमांक 10 141/18 दलीप अलवर  
23 SMD के पानी की बोली बंधवाने  
बाबत

महोदय

आपके विद्यमान विषय के  
अलवर दलीप का डेवील 10 R/0 23 SMD  
के क्रमांक 10 141/18 का खास R-5MM 3021  
के विषय गुण ही न- गुणी तक पानी की  
बोली की बोली के कठिना प्रश्न का सल्लाह  
अब, पानी की बोली बंधवाने का गुण का

अलवर  
उत्तराखण्ड



# कार्यालय ग्राम पंचायत, जग्गासर

पंचायत समिति कोलायत, बीकानेर (राज.)

रामेश्वरी देवी

सरपंच

Mob. 9784479225

Mob. 9571743932

क्रमांक :- ग्रा.प.ज./

दिनांक.....

सेवा में

श्रीमान श्री श्री अधिकारी

राजस्थान प्रदूषण नियंत्रण मंडल

(जिला - बीकानेर - राजस्थान)

महोदय, सादर नम्र निवेदन है कि माइंस टॉपि अर्बुता के बाहर वाले कार्टे से लेकर 22.5.14 कार्टे तक खड़े सही करवाने भारी मात्रा में डीप खनन से खड़े व डीप खनन उड़ता जोसही राती में प्रदूषण भारी मात्रा में फैला है पानी के टैंकर की व्यवस्था करवाने की कृपा करें आपकी अती कृपा होगी

थक : 22.5.14 को आवादी में खासु दापीक भेवन नहीं है आप कृपा करके गाम् वाशीची व किसानों के लीर खासु दापीक भेवन बलवाने की कृपा करें

रामेश्वरी  
सरपंच  
जग्गासर

आपकी अती कृपा होगी

हरदवसिड भवदीप  
पौराणम

जग्गासर  
जग्गासर



# कार्यालय ग्राम पंचायत, जग्गासर

पंचायत समिति कोलायत, बीकानेर (राज.)

रामेश्वरी देवी  
सरपंच

Mob. 9784479225  
Mob. 9571743932

क्रमांक :- प्रा.प.ज./

विनायक जिला कलेक्टर मोहल्य जी दिनांक 16.11.2015.....  
सीमांत श्री श्रीप अचिकारी

राजस्थान प्रदूषण नियंत्रण आयोग

जिला बीकानेर राजस्थान

मोहल्य सीमांत जी सादर अग्र निवेदन है कि चक 225.मा.9 की आबादी में पानी की डिब्बी नही है। जिससे ग्रामवासीयों को पानी व पर्यु घन कैलर पानी बाहर से गरी माता में लाया करता है। इसलिये आप से निवेदन है कि इसी आबादी चक 225.मा.9 में पानी की डिब्बी व चार दिवारी और चक 205.मा.9 आबादी की डिब्बी व चार दिवारी बनवाने की कृपा करें।  
आपकी कृपा होगी

मलेश्वरी

ज 225

पौराणा

कलेक्टर

हरदेव सिंह

मालू रवा

रामेश्वरी  
सरपंच

ग्राम पंचायत, जग्गासर





# कार्यालय ग्राम पंचायत, जग्गासर

पंचायत समिति कोलायत, बीकानेर (राज.)

रामेश्वरी देवी  
सरपंच

Mob. 9784479225  
Mob. 9571743932

क्रमांक :- ग्रा.प.ज./

चक्र २३, २५, २२, २०, १८  
S.m.d

दिनांक १०.०३.२०१५

सौ.वार्म

श्रीमान् श्री क्षेत्रीय उच्च शिक्षण मंडल  
पिला कलेक्टर मंडल  
राजस्थान प्रदूषण नियंत्रण मंडल  
जिला- बीकानेर, राजस्थान

महोदय,  
श्रीमान् जी सादर जन्म निवेदन है कि माइन्स अबुला  
को टापी में अवैध खनन जांचा रहा है हमें इस  
अवैध खनन को परेशानीय भुगत रहा है चक्र  
२३, २५, २२, २०, १८ S.m.d चक्रों में बारी मात्रा  
में अवैध खनन हो रहा है चक्र २३ S.m.d  
स्कूल के पास में सबसे ज्यादा अवैध खनन  
हो रहा है हमें आपसे निवेदन है की आप इस  
अवैध खनन को रोकने की कृपा करें

हमें उम्मीद है की आप अवैध खनन  
रोकवाने की काम वासीयों की मदद करींगे

आपकी अने कृपा ही ही अवधीय-

रामेश्वरी  
सरपंच

ग्राम पंचायत, जग्गासर

हरदवारी ७५२२५  
पीरझार

जा २५  
१०/३/१५

सेवा है,

ADN महोदय

विषय :- 24SMD शिफ्ट-चार्ज करने के संबंध में  
महोदय,

सिद्ध है कि मैं शिफ्ट-चार्ज 5/0

में स्वयंसेवा 24SMD की निवासी हूँ। 24SMD

की जोड़ने का काम शिफ्ट-चार्ज जगह जगह से कर चुका हूँ  
उसे परामर्श करने का कार्य करे

सह-सहाय

भक्तिय

राम-चंद्र

एल-एल

शिवपुर, 24SMD





सत्यमेव जयते

भारत सरकार  
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय  
क्षेत्रीय कार्यालय (मध्य)  
Ministry of Environment, Forest and Climate Change  
Regional Office (Central Region)



केन्द्रीय भवन, पंचम तल, सेक्टर-एच, अलीगंज, लखनऊ-226024

Kendriya Bhawan, 5<sup>th</sup> Floor, Sector-H, Aliganj, Lucknow- 226024, Telefax: 2326696, 2324340, 2324047, 2324025  
Email: (Env.) m\_env@rediffmail.com, (Forest) goimoeffrolko@gmail.com

F.No.IV/ENV/R/Mine-413/635/2008 /341

Date: 16.12.2016

सेवा में,

निदेशक,  
आई.ए. माइनिंग डिविजन,  
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय,  
इन्दिरा पर्यावरण भवन,  
जोर बाग, रोड,  
अलीगंज, नई दिल्ली।

विशय: धानी अब्दुलाहवाली जिप्सम जिप्सम माइनिंग प्रोजेक्ट, मे0 राजस्थान स्टेट माइन्स एण्ड मिनरल्स लि0,  
बिकानेर - सर्टिफाइड रिपोर्ट हेतु ।

Sir,

Please find enclosed herewith duly certified compliance report of the conditions stipulated vide environment clearance letter no J-11015/573/2007-IA.II(M), Dated the 28.05.2008. by Ministry of Environment, Forest & Climate Change, Govt. Of India, New Delhi, for the above mentioned project of M/s Rajsthan State Mines and Minerals Ltd, Bikaner, Rajasthan.

संलग्नक: यथोपरि

भवदीया,

(डा0 सत्या)  
संयुक्त निदेशक

प्रतिलिपि सूचनार्थ,

✓ श्री डी.एस. आचार्या, सि0 मैनेजर, मे0 राजस्थान स्टेट माइन्स एण्ड मिनरल्स लि0, एस.बी.यू. एण्ड पी. सी-जिप्सम, गाँधी नगर स्कीम, बिकानेर, राजस्थान।

सत्या  
(डा0 सत्या)  
संयुक्त निदेशक

## Certified Compliance Report


**Subject: Dhani Abdullahwali Gypsum Mining Project M/s Rajasthan State Mines & Mineral Ltd. Ditt-Bikaner- environmental clearance regarding.**

**Environmental Clearance letter no.: J-11015/573/2007-IA.II(M), Dated the 28.05.2008**

S.No.	Specific Conditions	Compliance status
i.	The environmental clearance is subject to approval of the state land use Department, Government of Rajasthan for diversion of agricultural land for non-agriculture use.	They have stated that the private agricultural land is being temporarily used for gypsum excavation with the consent of farmer on mutual agreement basis for short period with land crop compensation @ Rs 70/tonne. Backfilled and leveled mined out land is being returned back to land owner for restoring its use as agricultural land.
ii.	The project proponent shall obtain consent to establish from the State PCB and effectively implement all the conditions stipulated therein.	They have not submitted copy of consent to establish to this regional office.
iii.	The mining operations shall be restricted to above ground water table and it should not intersect groundwater table. Prior approval of the MOEF and CGWA shall be obtained for mining below water table.	They have submitted that the depth of mining, is 3.5 meter maximum, whereas the depth of ground water table is about 50.0 meter.
iv.	Top soil should be stacked properly with adequate protection measure at earmarked sites and used for reclamation of mined out areas.	It was found that wherever the top soil is available it is being concurrently backfilled and leveled in the mined out area. They have assured that adequate measures will be taken to maintain the quality of the top soil.
v.	The project proponent should concurrently backfill the mined out area, level it completely and restores the land for its future use. Compliance status should be submitted to the ministry of Environment and forest and Regional Office Lucknow on six monthly basis.	It was found that the mined out land is being concurrently backfilled and leveled with overburden sand for restoring its future use as agricultural land.
vi.	There shall be no external dumps.	During visit it was found that no external dump has been developed at mines. Overburden is being backfilled in mined out pit area. After excavation of gypsum, it was directly loaded into trucks for dispatches to users

**Certified Compliance Status**

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**Dr. SATYA**  
Scientist-D\*  
Environment, Forest & Climate Change  
Lucknow (Central Region)  
Lucknow-24

vii.	Plantation shall be raised in an area of 5 Ha. Including a Green belt of 7.5 mt. width shall be developed in the safety zone around the mining lease and in addition plantation shall be raised along the road side by planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 1000 trees per hectare.	As per submitted report approx. 7000 plants has been planted. The mined out areas has been reclaimed and after excavation of gypsum the land is suitable for agriculture activities.
viii.	Check dams and siltation ponds of appropriate size should be constructed to arrest silt and sediments flows from mine working, soil and mineral dumps. The water so collected should be utilized for watering mine area, roads, green belt development etc. The drain should be regularly desilted and maintained properly. Garland drain of appropriate size, gradient and length shall be designed keeping 50% safety margin over and above peak sudden rainfall and max. discharge in the area adjoining the mine site . Sump capacity should also provide adequate retention period to allow proper settling of silt material.	They have stated that the area falls under Arid Zone and have a low average annual rain fall. Therefore, Siltation pond/Garland drains is not required.
ix.	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers at suitable locations by the project proponent in and project area in consultation with Regional Director, CGWB. The frequency of monitoring should be four times a year pre-monsoon,(April/May),monsoon(August), Post monsoon(November) and winter (January). Data thus collected should be sent at regular intervals to MOEF and Regional Office, Lucknow, Central Ground Water Authority and CGWB, Western region, Jaipur.	They have stated that mining of gypsum do not intersect groundwater table in any way, therefore, this condition is not applicable. As per statement provided by PA the depth of mining is upto 3.5 meters only. Ground water is highly saline and at a depth of more than 50 meter, no water bell is available in an around mines area.
x.	Suitable conservation measure to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB.	They have stated that this condition is not applicable. However, for details please see condition no. ix.
xi.	Prior permission of the competent authority for drawal of water from IGNP and also ground water, if any, shall be obtained.	They have stated that no ground water is being used at mines. In the submitted report they have mentioned that "we have approached to the office of IGNP for approval of drawal of water, but they have verbally informed that no such type of approval is being issued from their office for local use of water from canal. Required is being arranged from water tankers on contract basis."

xii.	The proponent shall not carry out drilling and blasting.	Not applicable as no drilling & blasting is needed for excavation of gypsum.
xiii.	Suitable rainwater harvesting on long term basis shall be planned and implemented in consultation with Regional Director Central Ground Water Board.	They have stated that the area is fall under arid zone. Average annual rainfall is very low. Therefore, this condition is not applicable.
xiv.	The project proponent shall regularly monitor free silica content in the RSPM as part of air quality monitoring during operation of the mine.	As per submitted report the range of free silica is found 0.24 to 0.42%.
xv.	Regular water sprinkling should be carried out in critical areas prone to air pollution and having high levels of SPM and RPM such as haul road, loading, and unloading point and transfer points. It should be ensured that the AAQ parameters conform to the norms prescribed by the CGWB in this regard.	Regular water sprinkling is being carried out on haul roads and other dust generating points so as to ensure AAQ parameters conform to the prescribed norms. As per submitted report the level of PM <sub>10</sub> and SPM is found within prescribed limit.
xvi.	Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicle should be covered with tarpaulin and shall not be overloaded.	Required measures are being taken.
xvii.	Consent to operate should be obtained from SPCB before starting enhanced production from the mine.	The validity of CTO is from 01.02.2016 to 31.01.2019.
xviii.	Digital processing of the entire lease area using remote sensing technique should be done regularly once in three years for monitoring land use pattern and report submitted to MOEF and its Regional Office, Lucknow.	Digital processing report is required by this office.
xix.	A final Mine closure Plan along with details of Corpus fund should be submitted to the MOEF 5 years in advance of final mine closure for approval.	They have stated that final mine closure plan will be submitted to the DMG, GOR as per the provisions of RMMCR, 1986 one year before the surrender of mines.
<b>General Conditions</b>		
i.	No change in mining technology and scope of working should be made without approval of the ministry of Environment and Forest.	Assured to comply

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**Dr. SATYA**

Scientist-"D"

Ministry of Environment, Forest & Climate Change


Regional Office (Central Region)

5th Floor Kandriya Bhawan

Sector-"H" Aliganj, Lucknow-24

ii.	No change in calendar plan including excavation, quantum of gypsum and waste should be made.	They have stated that mine is being operated within limit of approved financial year wise gypsum production capacity i.e 5 lac metric ton (as per EC production of 0.5 million tons per annum of gypsum).
iii.	Conservation measured for protection of flora and fauna in the core and buffer zone should be drawn up in consultation with the local forest and wildlife department.	Assured to comply
iv.	Four ambient Air Monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO <sub>2</sub> and NOX monitoring. Location of stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board.  Data on ambient Air quality (RPM, SPM, SO <sub>2</sub> and NOX) should be regularly submitted to the Ministry including the regional office located at Lucknow and SPCB/CPCB once in six month.	As per submitted report all parameters are found within prescribed limit.
v.	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading, and unloading and transfer points should be provided and properly maintained.	Adequate arrangements for water spraying are maintained at all the dust generating points.
vi.	Measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM etc. should be provided with ear plugs/muffs.	Mining is carried out without drilling and blasting. Necessary personal protective equipments are provided to the workers for prevention from dust and noise.
vii.	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422(E) dated 19 <sup>th</sup> May, 1993 and 31 <sup>st</sup> December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	Assured to comply


Certified Compliance Status

  
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 Sector - 14, Aligarh, Lucknow-24


viii.	<p>Personal working in the dusty areas should wear protective respiratory devices and they should also provide with adequate training and information on safety and health aspects.</p> <p>Occupational health surveillance programme of the workers should be undertaken periodically to observe contradiction due to exposure to dust and take corrective measures, if needed.</p>	<p>Mining is carried out without drilling and blasting.</p> <p>Necessary use of protective respiratory devices is being practiced. They have engaged reputed agency like NIMH for periodical health surveillance for workers and staff. They have not provided occupational health report of the workers to this office.</p>
ix.	<p>A separate environmental management cell with suitable qualified personnel should be set up under the control of Sr. Executive, who will report directly to the Head of the organization.</p>	<p>Following information has been submitted by PA:</p> <ul style="list-style-type: none"> <li>• Group General Manager (Gypsum)-Head of the Project.</li> <li>• Sr. Manager (Geology-Planning)-Nodal Officer.</li> <li>• Sr. Manager (Mining Agent)-Member.</li> <li>• Sr. Manager (P&amp;A)-Corporate Social Responsibility.</li> <li>• Mines Manager-Member Execution at Mines Dy. Manager (Geology)-Member.</li> </ul>
x.	<p>The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for the other source. Year wise expenditure should be reported to the Ministry and its regional office located at Lucknow.</p>	<p>They have submitted that Rs. 25 Lakhs provided to gram panchayat, Barasalpur, for construction of three community centers at various places, drinking water at Diggy etc.</p>
xi.	<p>The regional Office of this ministry located at Lucknow shall monitor compliance of the stipulated conditions. The project authorities should provide a set of filled in questionnaire and EIA/EMP report to them and extends full cooperation to the officers of the Regional Office by furnishing the requisite data/information/monitoring reports.</p>	<p>Being complied</p>
xii.	<p>The project authorities should inform to the regional office located at Lucknow as well as to the MOEF regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.</p>	<p>Assured to comply</p>

Certified Compliance Status

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xiii.	The project proponent shall submit six monthly report on the status of implementation of the stipulated safeguards to MOEF, its regional office, Lucknow CPCB and SPCB.	Being complied
xiv.	A copy of the clearance letter will be marked to the concerned Panchayat/local NGO, if any from whom suggestions/representation was received while processing the proposal.	complied
xv.	The SPCB should display a copy of clearance letter at the regional office, District Industry centre and collectors/Tehsildar office for 30 days.	Assured to comply
xvi.	The project authorities should advertise at least in two local newspaper widely circulated around the project, one of which shall be in vernacular language of the locality concerned within 7 days of the issue of the clearance letter informing that the project has been accorded environment clearance and a copy of clearance letter is available with the SPCB and also at the website of MOEF and a copy of the same should be forwarded to Regional office at Lucknow.	complied

  
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 Scientist-"D"  
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 5th Floor Kandriya Bhawan  
 Sector-"H" Aliganj, Lucknow-24



Rajasthan State Pollution Control Board  
4, Institutional Area, Jhalana Doongari, Jaipur-302 004  
Phone: 0141-5159600,5159695 Fax: 0141-5159697



Revised Consent

File No F(Mines)/Bikaner(Kolayat)/1973(1)/2016-2017/7521-7525

Order No 2016-2017/Mines/9042

Date: 03/10/2016

Unit Id : 8,095

M/s Rajasthan State Mines & Minerals Limited (Dhani Abdullahwali)

SBU & PC- Gypsum, Sadul Club Building, Bikaner- 334 001,

District :Bikaner

E-Mail : leelakumar1212@gmail.com

**Sub:** Grant of Consent to Operate under section 21(4) of Air (Prevention & Control of Pollution) Act, 1981 and under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 for your **Minor Mineral Mine** at near Village-Dhani Abdullahwali, Tehsil-Kolayat, District- Bikaner (M.L.No-32/2005 ).

**Ref:** (i) Your applications dated 11/09/2015  
(ii) Received on 30/09/2015

Sir,

In view of the details submitted vide your above referred applications/ documents, the **Consent to Operate** under section 21(4) of Air (Prevention & Control of Pollution) Act,1981 and under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 is hereby granted for carrying mining activities. This consent is subject to the following stipulations:-

- 1 That this consent is being granted in favour of **M/s. Rajasthan State Mines & Minerals Limited (Dhani Abdullahwali)**, a Mine of **Minor Mineral** having **M.L.No.- 32/2005** in an area measuring **1278.0000 Hectares** at/near Village-Dhani Abdullahwali ,Tehsil-Kolayat,District-Bikaner.
- 2 That this consent is valid for a period from **01/02/2016** to **31/01/2019**
- 3 That this consent is valid for following mining activities :-

Mineral	Permitted Mining Capacity
1 GYPSUM	5.0000 LAC TONNES/ANNUM

Signature valid

Digitally signed by  
Nitesh Kumar  
DN: cn=Nitesh Kumar, o=RSMPCL, ou=PC, email=Nitesh.Kumar@rsmpcl.org, c=IN



SM (Geo)  
OSR

DM (Mining - Env)

1354  
4/11/16



Rajasthan State Pollution Control Board  
4, Institutional Area, Jhalana Doongari, Jaipur-302 004  
Phone: 0141-5159600,5159695 Fax: 0141-5159697

Revised Consent

File No F(Mines)/Bikaner(Kolayat)/1973(1)/2016-2017/7521-7525

Order No 2016-2017/Mines/9042

Date: 03/10/2016

Unit Id : 8,095

- 4 That you shall achieve following standards in ambient air in mine area / mining activities.

Pollutant	Standards for Ambient Air	Standards for mining activity
SPM	500 $\mu\text{g}/\text{M}^3$	SPM = 600 $\mu\text{g}/\text{M}^3$ (To be measured between 3 to 10 meters from mining activity)
SO <sub>2</sub>	120 $\mu\text{g}/\text{M}^3$	
NO <sub>x</sub>	120 $\mu\text{g}/\text{M}^3$	
CO	5000 $\mu\text{g}/\text{M}^3$	

- 5 That the Mining unit shall maintain zero discharge status of waste water from the premises. No trade effluent shall be discharged inside/outside mine premises.
- 6 That your mining will not intersect the Ground Water Table during the consent period and the permission from the Central Ground Water Authority shall be obtained for intersection of Ground Water Table/ abstraction of ground water, if any and submit a copy of the same to the Board.
- 7 That this **Consent to Operate** is for mining / processing / beneficiation of product as mentioned above in **M.L.No.-32/2005** and a separate **Consent to Operate** is required to be obtained for any other Mineral mining/ processing/ beneficiation Plant/process if any and for any addition/ modification/ alteration or change in process.
- 8 That the occupier/operator of mine shall ensure that all the conditions imposed in the Environmental Clearance granted by the Ministry of Environment, Forest & Climate Change, Government of India vide letter no. J-11015/573/2007-IA.II (M) dated 28/05/2008 are strictly complied with.
- 9 That photographs with GPS coordinates, of the plantation done in the lease area shall be submitted to the Board within one month.
- 10 That mining operations shall be restricted to above ground water table and should not intersect ground water table. In case of working below the ground water table, prior approval of the Ministry of Environment, Forest & Climate Change and Central Ground Water Authority shall be obtained.
- 11 That plantation shall be developed so as to cover at least 33% of the total land use for mining and allied activities as given in Approved Mining Plan and shall be maintained at all the time to preserve ambient air quality around the mine.
- 12 That haul roads should be regularly graded and compacted. Regular water sprinkling should be carried out on haul roads to minimise dust generations.
- 13 That adequate measures shall be taken for control of fugitive emissions from the areas prone to air pollution.
- 14 That no discharge of effluent shall be made within or outside the premises.

Signature valid  
Digitally signed by  
NIPUN MAHAR  
Date: 2016.10.03  
12:02:26 +05:30



Rajasthan State Pollution Control Board  
4, Institutional Area, Jhalana Doongari, Jaipur-302 004  
Phone: 0141-5159600,5159695 Fax: 0141-5159697

Revised Consent

File No F(Mines)/Bikaner(Kolayat)/1973(1)/2016-2017/7521-7525

Order No 2016-2017/Mines/9042

Date: 03/10/2016

Unit Id : 8,095

- 15 That mine will comply with the standards as prescribed vide Ministry of Environment, Forest and Climate Change notification no. GSR 826 (E) dated 16th November, 2009 with respect to National Ambient Air Quality standards.
- 16 That this revised consent letter shall supercede the earlier consent letter no F(Mines)/Bikaner(Kolayat)/1973(1)/2016-2017/7181-7185 dated 27/09/2016
- 17 That all other general conditions enclosed as **Annexure** shall be strictly complied with.
- 18 That this Consent is subject to the conditions as stated above and general conditions as stated in Annexure. Further, the mining unit will comply with the provisions of the Air (Prevention & Control of Pollution) Act, 1981 & Water (Prevention & Control of Pollution) Act, 1974 and any such conditions as may be specified from time to time by the State Board under the provisions of the aforesaid Acts.
- 19 That the grant of this **Consent to Operate** is issued from the environmental angle only, and does not absolve the project proponent from the other statutory obligations prescribed under any other law or any other instrument in force. The sole and complete responsibility, to comply with the conditions laid down in all other laws for the time-being in force, rests with the industry/ unit/ project proponent.
- 20 That the grant of this **Consent to Operate** shall not, in any way, adversely affect or jeopardize the legal proceedings, if any, instituted in the past or that could be instituted against you by the State Board for violation of the provisions of the Act or the Rules made thereunder.

This bears approval of the competent authority.

Encl: As Above

Yours Sincerely

Group Incharge-Mines

**Copy To:-**

- 1 Director, Department of Mines & Geology, Government of Rajasthan, Shastri Circle, Udaipur..
- 2 Regional Officer, Regional Office, Rajasthan State Pollution Control Board, Bikaner- please ensure compliance of the consent condition
- 3 Mining Engineer, Department of Mines & Geology, Government of Rajasthan, Bikaner
- 4 Master File .

Signature valid

Digitally signed by  
NIRAJ MAHAR  
Date: 2016.10.03  
15:30

Group Incharge-Mines




राजस्थान RAJASTHAN

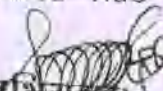
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File No. ME/BKN/ML/32/05

These non-judicial stamp papers worth Rs. 1,11,230/- (25,000/- + 25,000/- + 25,000/- + 25,000/- + 10,000/- + 1000/- + 100/- + 100/- + 20/- + 10/-) are in lieu of Mining Lease Agreement Annexed hereto) duly executed on 19/1/10 by Shri D.S. Acharya, Sr. Manager (Geology) and Power of Attorney holder of Rajasthan State Mines & Minerals Limited, for the mining lease of mineral gypsum near village Dhani Abdullawali, Tehsil Kolayat, District Bikaner for an area of 1278 Hects. sanctioned vide



  
 (D. S. Acharya)  
 Manager (Geology)  
 SBU & PC Gypsum  
 RSMM Ltd., Bikaner

  
 श्री डी. एस. अचार्य  
 काम एवं सू- विज्ञान विभाग  
 बीकानेर [राज०]

  
 अधीक्षण सनि अभियन्ता  
 बीकानेर वृत्त बीकानेर

25000 / 1439 10/12/09

डॉ. रविशंकर ठाकुर  
ए. सी. टी. सी. लिमिटेड

मु. को. र. ग. वि. वि.  
स्टाम्प विभाग  
लखनऊ

दिनांक 2.0. JAN 2010 10.15A

उक्त के माध्यम से पंजीयक कार्यालय

दफ्तर में D. S. ठाकुर

द्वारा S. M. D. ठाकुर

नाम से पंजीयक कार्यालय में

निवासी A. S. M. M. लिमिटेड द्वारा

द्वारा पंजीयन हेतु प्रस्तुत किया गया।



Handwritten signature or initials.

पंजीयक, बजट





राजस्थान RAJASTHAN

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Government of Rajasthan Order No. F.3(14)Khan/Group-1/2007 dated 31.7.2009 and corrigendum dated 9.12.2009 for a period of 70 years from the date of Registration of Lease Agreement as per Mineral concession Rules, 1960 and MM (D&R) Act, 1957 and as amended from time to time.



Signed by (D. S. Acharya)  
Manager (Technology)  
and on behalf of Lessee)  
S3U & P.C. Gypsum  
RS/IMM Ltd., Bikaner

Signed by सतीश कुमार शर्मा  
(For and on behalf of Government  
of Rajasthan)

Witness No. 1

(N.K. Dubey)

Witness No. 2

(T.K. Chakrawarty)

Attested

(Signature)  
सतीश कुमार शर्मा  
जान एवं सू- विज्ञान विभाग  
बीकानेर [राज०]

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प्रा. नाम - 12.64.67.68  
प्रा. क्र. - 10/2/00

शुक्रेश नाहल  
स्टाफ विद्यालय  
अवधारी, बीकानेर

38  
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प्रारंभिक शुल्क	221245
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राजस्थान RAJASTHAN

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18 DEC 2009  
राजस्थान-334003  
(राजस्थान)

File No. ME/BKN/ML/32/05



Enclosed with here

(D. S. Acharya)

Signed by Manager (Geology)  
(For and on behalf of RSMML Ltd., Bikaner)

Signed by अधीक्षक खनि अभियन्ता  
(For and on behalf of राजस्थान सरकार)  
of Rajasthan.

Witness No. 1

(N.K. Dubey)  
(N.K. Dubey)

Attested

Witness No. 2

(T.K. Chakraborty)  
(T.K. Chakraborty)

खनि अभियन्ता  
ज्ञान एवं सू- विज्ञान विभाग  
बीकानेर [राज०]



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आ. सं. 54, 55, 56, 57, 58, 59, 60, 61, 62  
नामांकित  
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1/8 D. S. मिश्रा  
S/ M.P. मिश्रा  
SBU & मिश्रा  
P. S. मिश्रा  
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1. 155/54 - रिजिस्ट्रार  
2. 50 - रिजिस्ट्रार  
3. 53 - रिजिस्ट्रार

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राजस्थान | RAJASTHAN

048235

File No. ME/BKN/ML/32/05

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Signed by (D. S. Acharya)  
 Manager (Geology)  
 (For and on behalf of Lessee)  
 RSMML Ltd., Bikaner

Signed by प्रवीण खनि अभियन्ता  
 (For and on behalf of Governor  
 of Rajasthan.)

Witness No. 1

(N.K. Dubey)

Witness No. 2

(T.K. Chakravarty)

Attested

खनि अभियन्ता  
 जल एवं सू-विज्ञान विभाग,  
 बीकानेर (राजस्थान)

25000/14139 10/2/09  
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 दिनांक 10/2/09  
 पता 21/5/50 50/50/50

मुद्रा विभाग  
 स्टाम्प विभाग  
 कलकत्ता-1

25000/100000/5

वर्षाभित किया जाता है कि इस लेख पर  
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 या एक तोर नुसार .....  
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20/1/09  
 उप संवीयक, कलकत्ता



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राजस्थान RAJASTHAN

जोन यु. ए. सि. 8  
जिला कार्यालय  
- 4 Dec 1977  
बीकानेर-334005  
(राजस्थान)

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(D. S. Acharya)  
Manager (Geology)  
(For and on behalf of PEssee)  
RSMMLtd., Bikaner

Signed by प्रधान लेनि अभियन्ता  
(For and on behalf of Governor  
of Rajasthan.)

Witness No. 1  
(N.K. Dabey)

Witness No. 2  
(T.K. Chakravarty)

Attested  
खलि अभियन्ता  
बान एवं सू- विज्ञान विभाग  
बीकानेर [राज०]

शामिल दस्तावेज रहे  
राज्य पंजीयक बम्बू (बीकानेर)





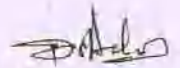
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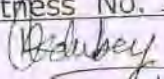
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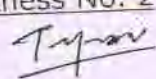
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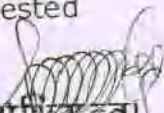


  
(D. S. Acharya)  
Signed by Manager (Geology)  
(For and on behalf of Lessee)  
RSMM Ltd., Bikaner

  
अधीक्षण खनि अभियन्ता  
Signed by बीकानेर वृत्त बीकानेर  
(For and on behalf of Governor  
of Rajasthan.

Witness No. 1  
  
(N.K. Dubey)

Witness No. 2  
  
(T.K. Chakravarty)

Attested  


खनि अभियन्ता  
ज्ञान एवं भू-विज्ञान विभाग  
बीकानेर [राज०]

शामिल दस्तावेज रह  
2011  
उप पंजीयक अज्जू (बीकानेर)

भारतीय गैर न्यायिक

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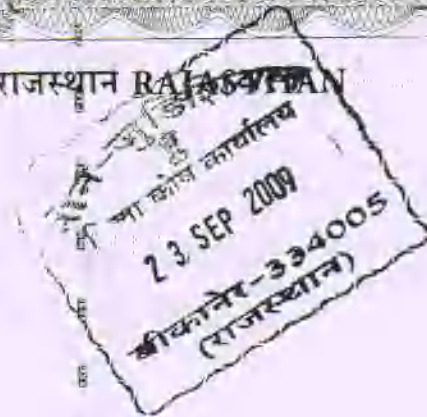
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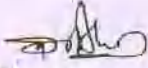
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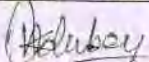


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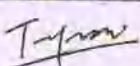
  
(D. S. Acharya)  
Signed by Manager (Geology)  
(For and on behalf of Lessee)  
SBS & PC Gypsum  
RSMM Ltd., Bikaner

  
श्रीधर लाल अग्निवाला  
Signed by गवर्नर राजस्थान  
(For and on behalf of Governor  
of Rajasthan.)


Witness No. 1

  
(N.K. Dubey)

Witness No. 2

  
(T.K. Chakravarty)

Attested

  
खलि अभियन्ता  
बान एवं सु-उद्योग विभाग  
बीकानेर [राज०]

शामिल दस्तावेज रह  
2010  
इप पंजीयक बज्जू (बीकानेर)

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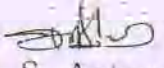
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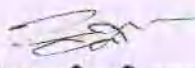
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(राजस्थान)


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(D. S. Acharya)  
Signed by Manager (Geology)  
(For and on behalf of Lessee)  
RSNIM Ltd., Bikaner

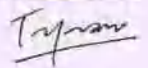
  
Signed by अधोक्षण खनि प्रभियन्ता  
(For and on behalf of Governor  
of Rajasthan.)

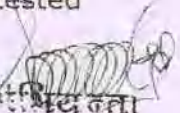
Witness No. 1

  
(N.K. Dusey)

Attested

Witness No. 2

  
(T.K. Chakravarty)

  
खनि प्रभियन्ता  
शासक एवं भू-विकास विभाग  
बीकानेर (राज०) शामिल दस्तावेज रह  
उप पंजीयक बज्जु (बीकानेर)

(T.K. Chakravarty)

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**मूलचन्द माहल**  
 स्टाम्प विक्रेता  
 अण्डाहरी, लोहादेव



दि. 20 JAN 2010  
 पुषा नाम - 1 दि. 51  
 शिवासी - 93 दि. 132  
 राफते हस्त - 1 दि. 89  
 पुषा नाम - 233 दि. 318

2010  
 अण्डाहरी

**FORM K**  
**Model Form of Mining Lease**  
 (See rule 31)

THIS INDENTURE made this 15<sup>th</sup> day of Jan. 2015 between the Governor of Rajasthan /the President of India (hereinafter referred to as the 'State Government' which expression shall where the context so admits be deemed to include the successors and assigns) of the one part and

**When the lessee is an individual** ..... (Name of person with address and occupation) (hereinafter referred to as the lessee which expression shall where the context so admits be deemed to include his heirs, executors, administrators, representatives and permitted assigns).

**When the lessees are more than one individual** ..... (Name of person with address and occupation) and ..... (Name of person with address and occupation) (hereinafter referred to as "the lessee" which expression shall where the context so admits be deemed to include their respective heirs, executors, administrators, representatives and their permitted assigns).

**When the lessee is a registered firm** ..... (Name and address of partner), son of ..... of ..... son of ..... of ..... all carrying on business in partnership, under the firm name and style of ..... (name of the firm) registered under the Indian Partnership Act, 1932 (9 of 1932) and having their registered office at ..... in the town of (hereinafter referred to as "the licensee" which expression where the context so admits be deemed to include all the said partners their respective heirs, executors, legal representatives and permitted assigns).

**When the lessee is a registered company** **Rajasthan State Mines and Minerals Limited** (Name of company) a company registered under **Company Act 1956** (Act under which incorporated) and having its registered office at **C-89 Janpath, Lal Kothi Scheme, Jaipur** (Address) (hereinafter referred to as "the lessee" which expression shall where the context so admits be deemed to include its successors and permitted assigns), of the other part.

WHEREAS THE lessee/lessees has/have applied to the State Government in accordance with the Mineral Concession Rules, 1960 (hereinafter referred to as the said Rules) for a mining lease for **Gypsum** in respect of the lands described in Part I of the Schedule hereunder written and he/she/they have deposited with the State Government the sum of **Rs 10000/-** (Fix deposit no.                     )

(D. S. Acharya)  
 Manager (Geology)  
 SDW & PC Gypsum  
 RSMML Ltd., Bikaner

**शामिल पत्रावली**  
 उप संजीवक मन्त्रालय

**खनि अविभाजित**  
 धान एवं सू- विभाग विभाग  
 बीकानेर [राज.]


\_\_\_\_\_ dated \_\_\_\_\_ drawn on the Bank of Rajasthan Limited.) as security, the sum of Rs1000/- for meeting the preliminary expenses for a mining lease and Rs 860/-vide DMG receipt No \_\_\_\_\_ dated \_\_\_\_\_ as demarcation and plan fees and WHEREAS the Central Government has approved the grant of lease.


WITNESSETH that in consideration of the rents and royalties, covenants and agreements by and in these presents and the Schedule hereunder written reserved and contained and on the part of the lessee/lessees to be paid observed and performed, the State Government with the approval of the Central Government hereby grants and demises unto lessee/lessees.

All those the mines beds/veins seams of **Gypsum** (here state the mineral or minerals) (hereinafter and in the Schedule referred to as the said minerals) situated lying and being in or under the lands which are referred to in Part I of the said Schedule, together with the liberties, powers and privileges to be exercised or enjoyed in connection herewith which are mentioned in Part II of the said Schedule subject to the restrictions and conditions as to the exercise and enjoyment of such liberties, powers and privileges which are mentioned in Part III of the said Schedule EXCEPT and reserving out of this demise unto the State Government the liberties, powers and privileges mentioned in Part IV of the said Schedule TO HOLD the premises hereby granted and demised unto the lessee/lessees from the **date of registration** for the term of 20 years thence next ensuing YIELDING AND PAYING therefore unto the State Government the several rents and royalties mentioned in Part V of the said Schedule at the respective times therein specified subject to the provisions contained in Part VI of the said Schedule and the lessee/lessees hereby covenants/ covenant with the State Government as in Part VII of the said Schedule is expressed and the State Government hereby covenants with the lessee/lessees as in Part VIII of the said Schedule as expressed AND it is hereby mutually agreed between the parties hereto as in Part IX of the said Schedule is expressed.

IN WITNESS WHEREOF these presents have been executed in manner hereunder appearing the day and year first above written.

The Schedule above referred to.

  
(D. S. Acharya)  
Manager (Geology)  
SBU & PC Gypsum  
RSM Ltd., Bikaner

  
खुशी अचर्या  
ज्ञान एवं सू- विज्ञान विभाग  
बीकानेर [राज०]

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PART I

The Area of this Lease

Location and area of the lease:-

All that tract of lands situated at near village Dhani Abdula Wali (Description of area or areas) 1278 hectares in (Pargana) in.....the Registration District of Bikaner Sub-District Kolayat and Thana Bajju bearing Cadestral survey Nos.....containing an area of.....for thereabouts delineated on the plan hereto annexed and thereon coloured and bounded as follows:-

On the North by

On the South by

On the East by

and

On the West by

As per plan and demarcation report attached.

hereinafter referred to as "the said lands".

PART II

Liberties, powers and privileges to be exercised and enjoyed by the lessee/lessees subject to the restrictions and conditions in Part III.

To enter up in land and search for, win, work etc.

1. Liberty and power at all time during the term hereby demised to enter upon the said lands and to search for mine, bore, dig, drill for, win, work, dress, process, convert, carry away and dispose of the said mineral/minerals.

To sink, drive and make pits, shafts and inclines etc.:-

2. Liberty and power for or in connection with any of the purposes mentioned in this part to sink drive make maintain and use in the said lands and pits shafts inclines drifts levels waterways airways and other works (and to use maintain deepen or extent any existing works of the like nature in the said lands).

To bring and use machinery equipment etc.:-

3. Liberty and power for or in connection with any of purposes mentioned in this part to erect, construct, maintain and use on or under the said lands any engines, machinery, plant, dressing floors, funaces, coke ovens, brick-kilns, workshops, store-houses, bungalows,

(D. S. Acharya)  
Manager (Geology)  
SBU & P.O. Gypsum  
RSMM Ltd, Bikaner

शुभिन पत्रावली  
2014  
शुभिन पत्रावली

खलि अविश्वरता  
बान एवं सु-विश्वन विभागे  
बीकानेर [राज.]

sheds, and other buildings and other works and conveniences of the like nature on or under the said lands.

(b) Liberty  
produce

To

*To make roads and ways etc. and use existing roads and ways:-*

4. Liberty and power for or in connection with any of the purposes mentioned in this part to make any tramways, railways, roads, aircraft landing grounds and other ways in or over the said lands and to use maintain and go, and repass with or without horses, cattle, wagons, aircrafts, locomotives, or other vehicles over the same (or any existing tramways roads and other ways in or over the said lands) on such conditions as may be agreed to.

*To get building and road materials, etc.:-*

5. Liberty and power for or in connection with any of the purposes mentioned in this part to quarry and get stone gravel and other building and road materials and clay and to use and employ the same and to manufacture such clay into bricks or tiles and to use such bricks or tiles but to sell any such material bricks or tiles.

*To use waterfront streams etc:-*

6. Liberty and power for or in connection with any of the purpose mentioned in this part but subject to the right of any existing or future lessees and with the written permission of Deputy Commissioner/Collector to appropriate and use water from any streams water-courses springs or other sources in or upon the said lands and to divert step up or dam any such stream or water course and collect or impound any such water and to make construct and maintain any watercourse culverts, drains or reservoirs but not as so to deprive any cultivated lands, villages, buildings or watering places for livestock of a reasonable supply of water as before accustomed nor in any way to foul or pollute any stream or springs. Provided that the lessee/lessees shall not interfere with the navigation in any navigable stream nor shall divert such stream without the previous written permission of the State Government.


*To use land for stacking, heaping, depositing purposes:-*


7. Liberty and power to enter upon and use a sufficient part of the surface of the said lands for the purpose of stacking, heaping, storing or depositing therein any produce of the mines or works carried on and any tools, equipment, earth and materials and substances dug or raised under the liberties and powers mentioned in this part.

*Beneficiation and conveying away of production:-*

B. (a) Liberty and power to enter upon and use a sufficient part of the said lands to beneficiate any ore produced from the said lands and to carry away such beneficiated ore.

*To make coke (to be used in case of coal only):-*

  
(D. S. Acharya)  
Manager (Geology)

  
एल. अ. वि. वि. वि.  
मान एवं भू- विज्ञान विभाग

in or under

(b) Liberty and power upon the said lands to convert into coke any coal or coal dust produced from the said lands and to carry away such coke.

To clear brushwood and to fell and utilise trees, etc.:-

9. Liberty and power for or in connection with any of the purposes mentioned in this part and subject to the existing rights of others and save as provided in clause 3 of Part III of this Schedule to clear undergrowth and brushwood and to fell and utilise any trees or timber standing or found on the said lands provided that the State Government may ask the lessee/lessees to pay for any trees or timber felled and utilised, by him/her at the rates specified by the Deputy Commissioner/Collector or the State Government.

**PART III**

**Restrictions and Conditions as to the exercise of the Liberties, Powers and Privileges in Part-II.**

No building etc. upon certain places:-

1. No building or thing shall be erected, set up or placed and no surface operations shall be carried on in or upon any public pleasure ground, burning or burial ground or place, held sacred by any class of persons or any house or village site, public road or other place which the State Government may determine as public ground nor in such a manner as to injure or prejudicially affect any buildings works property or rights of other persons and no land shall be used for surface operations which is already occupied by persons other than the State Government for works or purposes not included in this lease. The lessee/lessees shall not also interfere with any right of way, well or tank.

Permission for surface operations in a land not already in use:-

2. Before using for surface operations any land which has not already been used for such operations, the lessee/lessees shall give to Deputy Commissioner/Collector of the District two calendar months previous notice in writing specifying the name or other description of the situation and the extent of the land proposed to be so used and the purpose for which the same is required and the said land shall not be so used if objection is issued by the Deputy Commissioner/Collector within two months after the receipt by him of such notice unless the objections so stated shall on reference to the State Government be annulled or waived.

To cut trees in reserved lands:-

3. The lessee/lessees shall not without the express sanction of the Deputy Commissioner/Collector cut down or injure any timber or trees on the said lands but may without such sanction clear away any brushwood or undergrowth which interferes with any operations authorised by these presents. The Deputy Commissioner/Collector or the State Government may require the lessee/lessees to pay for any trees or timber felled and utilised by him/them at the rates specified by the Deputy Commissioner/Collector of the District.

Manager (Geology)  
SBU B.P.C. Gypsum  
RSMML Ltd., Bokaro

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श्री जगतेश्वर प्रसाद  
श्री जगतेश्वर प्रसाद (बोकारो)

खण्ड-अभियंता  
बॉन एंड मू- दिवान विभाग  
बोकारो (पाब.)

To enter upon reserved forests:-

4. Notwithstanding anything in this Schedule contained the lessee/lessees shall not enter upon any reserved forest included in the said lands without previous sanction in writing of the District Forest Officer nor fell, cut and use any timber or trees without obtaining the sanction in writing of that Officer nor otherwise than in accordance with such conditions as the State Government may prescribe.

No mining operations within 50 metres of public works etc:-

5. The lessee/lessees shall not work or carry on or allow to be worked or carried on any mining operations at or to any point within a distance of 50 metres from any railway line except with the previous written permission of the Railway Administration concerned or under or beneath any rope way or any ropeway trestle or station, except under and in accordance with the written permission of the authority owning the ropeway or from any reservoir, canal or other public works as well as public roads and buildings or inhabited site except with the previous written permission of the Deputy Commissioner/Collector or any other officer authorised by the State Government in this behalf and otherwise than in accordance with such instructions, restrictions and conditions either general or special which may be attached to such permission. The said distance of 50 metres shall be measured in the case of railway, reservoir or canal horizontally from the outer toe of the bank or the outer edge of the cutting as the case may be and in case of a building horizontally from the plinth thereof. In the case of village roads no working shall be carried on within a distance of 10 metres of the outer edge of the cutting except with the previous permission of the Deputy Commissioner/Collector or any other officer duly authorised by the State Government in this behalf and otherwise than in accordance with such directions, restrictions and additions, either general or special, which may be attached to such permission.

Explanation:-For the purposes of the clause the expression 'Railway Administration' shall have the same meaning as it is defined to have in the Indian Railways Act, 1890 by clause (6) of section 3 of that Act. 'Public Road' shall mean a road which has been constructed by artificially surfaced as distinct from a track resulting from repeated use. Village road will include any track shown in the Revenue record as village road.

Facilities for adjoining Government licences and leases:-

6. The lessee/lessees shall allow existing and future holders of Government licences or leases, over any land which is comprised in or adjoins or is reached by the land held by the lessee/lessees reasonable facilities of access thereto.

PROVIDED THAT no substantial hindrance or interference shall be caused by such holders of licences or leases to the operations of the lessee/lessees under these presents and fair compensation (as may be mutually agreed upon or in the event of disagreement as may be decided by the State Government) shall be made to the lessee/lessees for loss or damage sustained by the lessee/lessees by reason of the exercise of this liberty.

*[Signature]*  
Manager (Geology)  
SBU & PC Gypsum  
RSMM L. d., Bikaner

*[Signature]*  
खनि मंत्रालय  
भारत एवं मु- विज्ञान विभाग  
बीकानेर [राज.]

Libel

To work other mine

1. Liberty and power that behalf to enter in dress, process, convey substances etc.

is shall not enter upon  
of the District  
writing

**PART IV**

**Liberties, Powers and Privileges reserved to the State Government**

*To work other minerals:-*

1. Liberty and power for the State Government, or to any lessee or persons authorised by it in that behalf to enter into and upon the said lands and to search for, win, work, dig, get, raise, dress, process, convert and carry away minerals other than the said minerals and any other substances and for those purposes to sink, drive, make erect, construct, maintain and use such pits, shafts, inclines, drifts, levels and other lines, waterways, airways, water courses, drains, reservoirs, engines, machinery, plant, buildings, canals, tramways, railways, roadways and other works and conveniences as may be deemed necessary or convenient.

PROVIDED THAT in the exercise of such liberty and power no substantial hindrance or interference shall be caused to or with the liberties, powers and privileges of the lessee/lessees under these presents and that fair compensation (as may be mutually agreed upon or in the event of disagreement as may be decided by the State Government) shall be made to the lessee/lessees for all loss or damage sustained by the lessee/lessees by reason or in consequence of the exercise of such liberty and power.

*To make railways and roads:-*

2. Liberty and power for the State Government or any lessee or person authorised by it in that behalf to enter into and upon the said lands and to make upon over or through the same any railways, tramways, roadways or pipelines for any purpose other than those mentioned in Part II of these presents and to get from the said land, stones, gravel, earth and other materials for making, maintaining and repairing such railways, tramways and roads or any existing railways and roads and to and repass at all times with or without horses, cattle or other animals, carts, wagons, carriages, locomotives or other vehicles over or along any such railways, tramways, road lines and other ways for all purposes and as occasion may require, provided that in the exercise of such liberty and power by such other lessee or person no substantial hindrance or interference shall be caused to or with the liberties, powers and privileges of the lessee/lessees under these presents and that fair compensation as may be mutually agreed upon or in the event of disagreement as may be decided by the State Government shall be made to the lessee/lessees for all loss or damage substantial hindrance or interference shall be caused to or with the exercise by such lessee or person of such liberty and power.

**PART V**

**Rents and royalties reserved by this lease**

*To pay dead rent or royalty whichever is higher: -*

1. The lessee shall pay, for every year except the first year of the lease, dead rent as specified in clause 2 of this Part (D. S. Achary)

Manager (Geology)  
SBU & P.G. Gypsum  
RSMVLE, Alkhaner

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बान एवं मु- विज्ञान विभाग  
बोकारन [राज०]

Provided that, where the holder of such mining lease becomes liable under section 9 of the Act, to pay royalty for any mineral removed or consumed by him or by his agent, manager, employee, contractor or sub-lessee, from the leased area, he shall be liable to pay either such royalty on ad valorem basis or the dead rent in respect of that area, whichever is higher.

*Rate and mode of payment of dead rent -*

2. Subject to the provisions of clause of this Part, during the subsistence of the lease, the lessee/lessees shall pay to the State Government annual dead rent for the lands demised and described in Part I of this Schedule at the rate of the time being specified in the Third Schedule to the Act, in such manner as may be specified in this behalf by the State Government.

*Rate and mode of payment of royalty:- Gypsum (As per Advalorem basis) and as per MM (D&R) Act 1957 and amended from time to time.*

3. Subject to the provision of clause I of this part, the lessee/lessees shall during the subsistence of this lease pay to the State Government at such times and in such manner as the State Government may prescribe royalty in respect of any mineral/minerals removed by him/them from the leased area at the rate for the time being specified in the Second Schedule to the Mines and Minerals (Regulation and Development) Act, 1957.

*Payment of surface rent, and water rate:-*

4. The lessee/lessees shall pay rent and water rate to the State Government in respect of all parts of the surface of the said lands which shall from time to time be occupied or used by the lessee/lessees under the authority of these presents at the rate of Rs..... and Rs..... respectively per annum per hectare of the area so occupied or used and so in proportion for any area less than a hectare during the period from the commencement of such occupation or used until the area shall cease to be so occupied or used and shall as far as possible restore the surface land so used to its original condition. Surface rent and water rate shall be paid as hereinbefore detailed in clause 2: PROVIDED THAT NO such rent/water rate shall be payable in respect of the occupation and use of the area comprised in any roads or ways to which the public have full right of access.

**PART VI**

**Provisions relating to the rents and royalties**

*Rent and royalties to be free from deduction etc. -*

1. The rent, water rate and royalties mentioned in Part V of this Schedule shall be paid free from any deduction to the State Government, at Mining Engineer., Department of Mines & Geology, Bikaner and such manner as the State Government may prescribe PROVIDED ALWAYS and it is hereby agreed that Rs ..... the balance standing to the credit of the lessee/lessees on account of the deposit made by him/them as a licensee/licenseses over an area which included the said lands shall be retained and accepted by the State Government in satisfaction of the rents and royalties mentioned in Part V until they reach that amount.

(D. S. P. S. J. S. J.)  
Manager (Geology)  
SBU & PC Gypsum  
SMM Ltd., Bikaner

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खलि अभियंता  
ज्ञान एवं धु- विज्ञान विभाग  
बीकानेर [राज.]

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*Mode of computation of royalty:-*

2. For the purposes of computing the said royalties the lessee/lessees shall keep a correct account of them mineral/minerals produced and despatched. The accounts as well as the weight of the mineral/minerals in stock or in the process of export may be checked by an officer authorised by the Central or State Government.

Here specify the mode of arriving at sale price/prices at pits mouth of mineral/minerals.

*Course of action if rents and royalties are not paid in time:-*

3. Should any rent, royalty or other sums due to the State Government under the terms and conditions of these presents be not paid by the lessee/lessees within the prescribed time the same, together with simple interest due thereon at the rate of twenty-four per cent per annum may be recovered on a certificate of such officer as may be specified by the State Government by general or special order, in the same manner as an arrear of land revenue.

**PART VII**

**The Covenants of the Lessee/Lessees**

*Lessee to pay rents and royalties, taxes, etc.:-*

1. The lessee/lessees shall pay the rent, water rate and royalties reserved by this lease at such times and in the manner provided in PARTS V and VI of these presents and shall also pay and discharge all taxes, rates, assessments and impositions whatsoever being in the nature of public demands which shall from time to time be charged, assessed or imposed by the authority of the Central and State Governments upon or in respect of the premises and works of the lessee/lessees in common with other premises and works of a like nature except demands for land revenues.

*To maintain and keep boundary marks in good order:-*

2. The lessee/lessees shall at his/their own expense erect and at all times maintain and keep in repair boundary marks and pillars according to the demarcation to be shown in the plan annexed to this lease. Such marks and pillars shall be sufficiently clear of the shrubs and other obstructions as to allow easy identification.

*To commence operations within a year and work in a workman-like manner:-*

3. [Omitted] The lessee/lessees shall commence operation within one year from the date of execution of the lease and shall thereafter at all times during the continuance of his lease search for, win, work and develop, the said minerals without voluntary intermission in a skilful and workman-like manner and as prescribed under clause 12 hereinafter without doing or permitting to be done any unnecessary or avoidable damage to the surface of the said lands or the crops buildi

Manager (Geology)  
SBU & P.C. Gyaum  
RSMML Ltd., Bikaner

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38 पंजीयक बज्ज (बील्लोय)

खलि-अभिलेख  
बाम एवं वृ- विभल विभा  
बो-साम ५ [राब०]

operations shall include the erection of machinery, laying of a tramway or construction of a road in connection with the mine.

*To indemnify Government against all claims:-*

4. The lessee/lessees shall make and pay such reasonable satisfaction and compensation as may be assessed by lawful authority in accordance with the law in force on the subject for all damage, injury or disturbance which may be done by him/them in exercise of the powers granted by this lease and shall indemnify and keep indemnified fully and completely the State Government against all claims which may be made by any person or persons in respect of any such damage, injury or disturbance and all costs and expenses in connection therewith.

*To secure and keep in good condition pits, shafts, etc.:-*

5. The lessee/lessees shall during the subsistence of this lease well and sufficiently secure and keep open with timber or other durable means all pits, shafts and workings that may be made or used in the said lands and make and maintain sufficient fences to the satisfaction of the State Government round every such pit, shaft or working whether the same is abandoned or not and shall during the same period keep all workings in the said lands except such as may be abandoned accessible free from water and foul air as far as possible.

*To strengthen and support the mine to necessary extent:-*

6. The lessee/lessees shall strengthen and support to the satisfaction of the Railway Administration concerned or the State Government, as the case may be any part of the mine which in its opinion requires such strengthening or support for the safety of any railway, reservoir, canal, road and any other public works or structures.

*To allow inspection of workings:-*

7. The lessee/lessees shall allow any officer authorised by the Central Government or the State Government in that behalf to enter upon the premises including any building, excavation or land comprised in the lease for the purpose of inspecting, examining, surveying, prospecting and making plans thereof sampling and collecting any data and the lessee/lessees shall with proper person employed by the lessee/lessees and acquainted with the mines and work effectually assist such officer agents, servants and workmen in conducting every such inspection and shall afford them all facilities, information connected with the working of the mines which they may reasonably require and also shall and will conform to and observe all orders and regulations which the Central and State Governments as the result of such inspection or otherwise may, from time to time, see fit to impose.

*To report accident:-*

8. The lessee/lessees shall without delay send to the Deputy Commissioner/Collector a report of any accident causing death or serious bodily injury or serious injury to property or

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Manager (Geology)  
SBU & P.C. Gypsum  
RSMML Ltd., Bikaner

SBU & P.C. Gypsum  
RSMML Ltd., Bikaner

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खनिज अधिकारकर्ता  
श्रीमान एन. सु. - विज्ञान विभाग  
बीकानेर [राज.]  
श्रीमान एन. सु. - विज्ञान विभाग  
बीकानेर [राज.]

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9. The lessee/lessees shall report discovery of other any mineral not specified in particulars of the nature of is discovered in the lease unless such mineral is reported to the Government.  
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affecting or endangering life or property which may occur in the course of the operations under this lease.

To report the discovery of other minerals:-

9. The lessee/lessees shall report to the State Government the discovery in the leased area of any mineral not specified in the lease within sixty days of such discovery along with full particulars of the nature and position of each such find. If any mineral not specified in the lease is discovered in the leased area, the lessee/lessees shall not win and dispose of such mineral unless such mineral is included in the lease or a separate lease is obtained therefore.

To keep records and accounts regarding production and employees etc.:-

10. The lessee/lessees shall at all time during the said term keep or cause to be kept at an office to be situated upon or near the said lands correct and intelligible books of accounts which shall contain accurate entries showing from time to time:-

- (1) Quantity and quality of the said mineral/minerals realised from the said lands.
- (2) Quantity of the various qualities of ores beneficiated or converted (for example coal converted into coke).
- (3) Quantities of the various qualities of the said mineral/minerals sold and exported separately.
- (4) Quantities of the various qualities of the said mineral/minerals otherwise disposed of and the manner and purpose of such disposal.
- (5) The prices and all other particulars of all sales of said mineral/minerals.
- (6) The number of persons employed in the mines or works or upon the said lands specifying nationality, qualifications and pay of the technical personnel.
- (7) Such other facts particulars and circumstances as the Central or the State Governments may from time to time require and shall also furnish free of charge to such officers, and at such times as the Central and State Governments may appoint true and correct abstract of all or any such books of accounts and such information and returns to all or any of the matters aforesaid as the State Government may prescribe and shall at all reasonable times allow such officers as the Central Government or State Government shall in that behalf appoint to enter into and have free access to the said officers, for the purpose of examining and inspecting the said books of accounts, plans and records and to make copies thereof and make extracts there from.

To maintain plans, etc.:-

11. The lessee/lessees shall at all times during the said term maintain at the mine office correct intelligible up-to-date and complete plans and sections of the mines in the

*D. S. Acharya*  
 (D. S. Acharya)  
 Manager (Production)  
 SBU & PC Gypsum  
 RSMML Ltd. Bikaner

शामिल दस्तावेज सह  
 उप पंजीयक बन्तु (बीबीके)

*[Signature]*  
 खनिज अधिकारी  
 खान एवं भू-विज्ञान विभाग  
 बीकानेर [राज०]

They shall show all the operations, and workings and all the trenches, pits and drillings made by him/them in the course of operations carried on by him/them under the lease, faults and other disturbances encountered and geological data and all such plans and sections shall be amended and filled up by and from actual surveys to be made for that purpose at the end of twelve months of any period specified from time to time and the lessee/lessees shall furnish free of charge to the Central and State Governments true and correct copies of such plans and sections whenever required. Accurate records of all trenches, pits and drillings shall show: -

- (a) The subsoil and strata through which they pass.
- (b) Any mineral encountered.
- (c) Any other matter of interest and all data required by the Central and State Governments, from time to time.

The lessee/lessees shall allow any officer of the Central or the State Government, authorised in this behalf by the Central Government, to inspect the same at all reasonable times. He/they shall also supply when asked for by the State Government/the Coal Controller the Director-General, Geological Survey of India the Controller General, Indian Bureau of Mines a composite plan of the area showing thickness, dip, inclination etc. of all the seams as also the quantity of reserves quality-wise.

11A. The lessee shall pay a wage, not less than the minimum wage prescribed by the Central or State Government from time to time.

11B. The lessee shall comply with provisions of the Mines Act, 1952 and the rules made there under

11C. The lessee shall take measures for the protection of environment like planting of trees, reclamation of land, use of pollution control devices, and such other measures as may be prescribed by the Central or State Government, from time to time at his own expense.

11D. The lessee shall pay compensation to the occupier of the land on the date and in the manner laid down in these rules.

11E. The lessee shall, in the matter of employment, give preference to the tribals, and to the persons who become; displaced-because of the taking up of mining operations.]

Act 67 of 1957:-

12. The lessee/lessees shall be bound by such rules as may be issued from time to time by the Government of India under section 18 of the Mines and Minerals (Regulation and Development) Act, 1957 (Act 67 of 1957) and shall not carry on mining or other operations under the said lease in any way other than as prescribed under these rules.

To provide weighing machine (D. S. Acharya)  
Manager (Geology)  
SBU & P.G. Gypsum  
RUMM Ltd., Bikaner

खनिज अखिलभारत  
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13. Unless specifically exempted by the State Government the lessee/lessees shall provide and at all times keep at or near the pit head or each of the pit heads at which the said minerals shall be brought to bank a properly constructed and efficient weighing machine and shall weigh or cause to be weighed thereon all the said minerals, from time to time, brought to bank, sold, exported and converted and also the converted products and shall at the close of each day cause the total weights, ascertained by such means of the said minerals, ores products raised, sold, exported and converted during the previous twenty-four hours to be entered in the aforesaid books of accounts. The lessee/lessees shall permit the State Government at all times during the said term to employ any person or persons to be present at the weighing of the said minerals as aforesaid and to keep accounts thereof and to check the accounts kept by the lessee/lessees. The lessee/lessees shall give.... days previous notice, in writing to the Deputy Commissioner/Collector S.M.E., D.M.G., Bikaner of every such measuring or weighing in order that he or some officer on his behalf may be present thereat.


*To allow test of weighing machine:-*

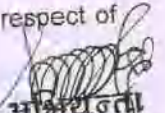
14. The lessee/lessees shall allow any person or persons appointed in that behalf by the State Government at any time or times during the said term to examine and test every weighing machine to be provided and kept as aforesaid and the weights used therewith in order to ascertain whether the same respectively are correct and in good repair and order and if upon any such examination or testing any such weighing machine or weights shall be found incorrect or out of repair or order the State Government may require that the same be adjusted, repaired and put in order by and the expense of the lessee/lessees and if such requisition be not complied with within fourteen days after the same shall have been made, the State Government may cause such weighing machine or weights to be adjusted, repaired, and put in or order and the expense of so doing shall be paid by the lessee/lessees to the State Government on demand and if upon any such examination or testing as aforesaid any error shall be discovered in any weighing machine or weights to the prejudice of the State Government such error shall be regarded as having existed for three calendar months, previous to the discovery thereof or from the last occasion of so examining and testing the same weighing machine and weights in case such occasion, shall be within such period of three months and the said rent and royalty shall be paid and accounted for accordingly.

*To pay compensation for injury of third parties:-*

15. The lessee/lessees shall make and pay reasonable satisfaction and compensation for all damage, injury or disturbance or person or property which may be done by or on the part of lessee/lessees in exercise of the liberties and power granted by these presents and shall at all times save harmless and keep indemnified the State Government from and against all suits, claims and demands which may be brought or made by any person or persons in respect of any such damage, injury or disturbance.

  
(D. S. Acharval  
Manager (Geology)  
SBU & PC (Gyosun)  
RSMM Ltd., Bikaner

शामिल दस्तावेज रह  
  
उप पंजीयक वज्ज (बीकानेर)

  
खति अभियंता  
आत एवं भू- विज्ञान विभाग  
बीकानेर [राज०]

*Not to obstruct working of other minerals:-*

16. The lessee/lessees will exercise the liberties and powers hereby granted in such a manner as to offer no unnecessary or reasonably avoidable obstruction or interruption to the development and working within the said lands of any minerals not included in this lease and shall at all times afford to the Central and State Government and to the holders of prospecting licences or mining leases in respect of any such minerals or any minerals within any land adjacent to the said lands as the case may be reasonable means of access and safe and convenient passage upon and across the said lands to such minerals for the purpose of getting working, developing and carrying away the same provided that the lessee/lessees shall receive reasonable compensation for any damage or injury which he/they may sustain by reason or in consequence of the use of such passage by such lessees or holders of prospecting licences.

*Transfer of lease:-*

17. (1) The lessee/lessees shall not, without the previous consent in writing of the State Government, [Omitted]

(a) assign, sublet, mortgage, or in any other manner, transfer the mining lease, or any right, title or interest therein, or


(b) enter into or make any arrangement, contract or understanding whereby the lessee/lessees will or may be directly or indirectly financed to a substantial extent by, or under which the lessee's operations or undertakings will or may be substantially controlled by, any person or body of persons other than the lessee/lessees.

Provided that the State Government shall not give its written consent unless-

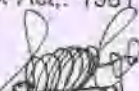
(a) the lessee has furnished an affidavit along with his application for transfer of the mining lease specifying therein the amount that he has already taken or proposes to take as consideration from the transferee;

(b) the transfer of the mining lease is to be made to a person or body directly undertaking mining operations.

(2) Without prejudice to the above provisions the lessee/lessees may, subject to the conditions specified in the proviso to Rule 35 of said Rules, transfer this lease or any right, title or interest therein, to a person who has filed an affidavit stating that he has filed up-to-date income tax returns, paid income tax assessed on him and paid the income tax on the basis of self-assessment as provided in the Income-Tax Act, 1961 (43 of 1961), on payment of five hundred rupees to the State Government:

  
(D. S. Acharya)  
Manager (Geology)  
SBU & PC Gypsum  
BEMM Ltd., Bikaner

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खनि मंत्रालय  
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Provided that the lessee/lessees shall make available to the transferee the original or certified copies of all plans of abandoned workings in the area and in a belt 65 metres wide surrounding it.

Provide further that where the mortgage is an Institution or a Bank or a Corporation specified in Schedule V, it shall not be necessary for any such Institution or Bank or Corporation to meet with the requirement relating to income tax and the said valid clearance certificate.

(3) The State Government, may by order in writing, determine the lease at an time if the lessee/lessees has/have in the opinion of the State Government, committed a breach of any of the above provisions or has/have transferred the lease or any right, title or interest herein otherwise than in accordance with clause (2).


Provided that no such order shall be made without giving the lessee/lessees a reasonable opportunity of stating his/their case.

*Not to be financed or controlled by a Trust, Corporation, Firm or person:-*

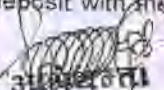
18. The lease shall not be controlled and the lessee/lessees shall not allow themselves to be controlled by any Trust, Syndicate, Corporation, Firm or person except with the written consent of the Central Government. The lessee/lessees shall not enter into or make any arrangement compact or understanding whereby the lessee/lessees will or may be directly or indirectly financed by or under which the lessee's/lessees' operations or undertakings will or may be carried on directly or indirectly by or for the benefit of or subject to the control of any Trust, Syndicate, Corporation, Firm or person unless with the written sanction given prior to such arrangement compact or understanding being entered into or made of the Central Government and any or every such arrangement compact or understanding as aforesaid (entered into or made with such sanction as aforesaid) shall only be entered into or made and shall always be subject to an express condition binding upon the other party or parties thereto that on the occasion of a state of emergency of which the President of India in his discretion shall be the sole judge it shall be terminable if so required in writing by the State Government and shall in the event of any such requisition being made be forthwith thereafter determined by the lessee/lessees accordingly.

*Lessee shall deposit any additional amount necessary:-*

19. Whenever the security deposit of Rs 10000/- or any part thereof or any further sum hereafter deposited with the State Government in replenishment thereof shall be forfeited or applied by the Central or State Government pursuant to the power in hereinafter declared in that behalf the lessee/lessees shall deposit with the State Government such further sum as may be sufficient with the unappropriated part thereof to bring the amount in deposit with the State Government up to the sum of Rs 10000/-

  
(D. S. Acharya)  
Manager (Geology)  
SBU & P.G. Gypsum  
RSMV Ltd., Bikaner

शामिल दस्तावेज सह  
2017  
33 पंजीयक बजट (बीकानेर)

  
खुशी अचर्या  
मान एवं सु-विमान विभाग  
बीकानेर [बिबन]

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*Delivery of workings in good order to State Governments after determination of lease. -*

20. The lessee/lessees shall at the expiration or sooner determination of the said term or any renewal thereof deliver up to the State Government all mines, pits, shafts, inclines, drifts, levels, waterways, airways and other works now existing or hereafter to be sunk or made on or under the said lands except such as have been abandoned with the sanction of the State Government and in any ordinary and fair course of working all engines, machinery, plant, buildings, structures, other works and conveniences which at the commencement of the said term were upon or under the said lands and all such machinery set up by the lessee/lessees below ground which cannot be removed without causing injury to the mines or works under the said lands (except such of the same as may with the sanction of the State Government have become disused) and all buildings and structures of bricks or stone erected by the lessee/lessees above ground level in good repair order and condition and fit in all respects for further working of the said mines and the said minerals.

*Right of pre-emption:-*

21 (a) The State Government shall from time to time and all times during the said term have the right (to be exercised by notice in writing to the lessee/lessees) of pre-emption of the said minerals (and all products thereof) lying in or upon the said lands hereby demised or elsewhere under the control of the lessee/lessees and the lessee/lessees shall with all possible expedition deliver all minerals or products or minerals purchased by the State Government under the power conferred by this provision in the quantities at the times in manner and at the place specified in the notice exercising the said right.

(b) Should the right of pre-emption conferred by this present provision be exercised and a vessel chartered to carry the minerals or products thereof procured on behalf of the State Government or the Central Government be detained on demurrage at the port of loading the lessee/lessees shall pay the amount due for demurrage according to the terms (The charter party of such vessel unless the State Government shall be satisfied that the delay is due to causes beyond the control of the lessee/lessees.

(c) The price to be paid for all minerals or products of minerals taken in pre-emption by the State Government in exercise of the right hereby conferred shall be the fair market price prevailing at the time of pre-emption PROVIDED THAT in order to assist in arriving at the said fair market price the lessee/lessees shall if so required furnish to the State Government for the confidential information of the Government, particulars of the quantities descriptions and prices of the said minerals or products thereof sold to other customers and of charters entered into for freight for carriage of the same and shall produce to such officer or officers as may be directed by the State Government original or authenticated copies of contracts and charter parties entered into for the sale or freightage of such minerals or products.

(D.  
M... (Geology)  
SBU & PC Gypsum  
BSMM Ltd., Bikaner

खजि अमितवता  
मान एवं सू- विकास विभाग  
बीकानेर [राज.]

(d) In the event of the existence of a state of war or emergency (of which existence and President of India shall be the sole judge and a notification to this effect in the Gazette of India shall be conclusive proof), the State Government with the consent of the Central Government shall from time to time and all times during the said term have the right (to be exercised by a notice in writing to the lessee/lessees forthwith take possession and control of the works, plant, machinery and premises of the lessee/lessees on or in connection with the said lands or operations under this lease and during such possession or control the lessee/lessees shall conform to and obey all directions given by or on behalf of the Central Government or State Government regarding the use or employment of such works, plants, premises and minerals; PROVIDED THAT fair compensation which shall be determined in default of agreement by the State Government shall be paid to the lessee/lessees for all loss or damage sustained by him/them by reason or in consequence of the exercise of the powers conferred by this clause and PROVIDED ALSO that the exercise of such powers shall not determine the said term hereby granted or affect the terms and provisions of these presents further than may be necessary to give effect to the provisions of this clause.

*Employment of foreign national:*

22. The lessee/lessees shall not employ, in connection with the mining operations any person who is not an Indian national except with the previous approval of the Central Government.

*Recovery of expenses incurred by the State Government:-*

23. If any of the works or matters which in accordance with the covenants in that behalf hereinbefore contained are to be carried or performed by the lessee/lessees be not so carried out or performed within the time specified in that behalf, the State Government may cause the same to be carried out or performed and the lessee/lessees shall pay the State Government on demand all expenses which shall be incurred in such carrying out or performance of the same and the decision of the State Government as to such expenses shall be final.

*Furnishing of geophysical data -*

24. The lessee/lessees shall furnish:

(a) all geophysical data relating to mining fields, or engineering and ground water survey, such as anomaly maps, sections, plans, structures, contour maps, logging, collected by him/them during the course of mining operations to the Director-General, Geological Survey of India, Calcutta,

(b) all information pertaining to investigations of radioactive minerals collected by him/them during course of mining operations to the Secretary, Department of Atomic Energy, New Delhi.

Data or information referred to above shall be furnished every year reckoned from the date of commencement of the period of the mining lease.

Manager (Geology)  
SBU & P.C.G./DSUM  
RSMMLtd., Bikaner

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उप पंजीयक कन्व (बीकानेर)

रु. नि. अधि. कता  
आन एवं भू- विज्ञान विभाग  
बीकानेर [राज.]

PART VII

The Covenants of the State Government

Lessee/lessees may hold and enjoy rights quietly:-

1. The lessee/lessees paying the rents, water rate and royalties hereby reserved and observing and performing all the covenants and agreements herein contained and on the part of the lessee/lessees to be observed and performed shall and may quietly hold and enjoy the rights and premises hereby demised for and during the term hereby granted without any unlawful interruption from or by the State Government, or any person rightfully claiming under it.

Acquisition of land of third parties and compensation thereof:-

2. If in accordance with the provision of clause 4 of Part VII of this Schedule the lessee/lessees shall offer to pay to an occupier of the surface of any part of the said lands compensation for any damage or injury which may arise from the proposed operations of the lessee/lessees and the said occupier shall refuse his consent to the exercise of the right and powers reserved to the State Government and demised to the lessee/lessees by these presents and the lessee/lessees shall report the matter to the State Government and shall deposit with it the amount offered as compensation and if the Central/State Government is satisfied that the amount of compensation offered is fair and reasonable or if it is not so satisfied and the lessee/lessees shall have deposited with it such further amount as the State and Central Government shall consider fair and reasonable the State Government shall order the occupier to allow the lessee/lessees to enter the land and to carry out such operations as may be necessary for the purpose of this lease. In assessing the amount of such compensation the State Government shall be guided by the principles of the Land Acquisition Act.

To renew:-

3. The mining lease is renewable in terms of the provisions of the Act and the rules made thereunder.

Provided that the State Government may for reasons to be recorded in writing reduce the area applied for.

If the lease is in respect of minerals specified in the First Schedule to the Act, renewal will be subject to the prior approval of the Central Government.

If the lessee/lessees be desirous of taking a renewed lease of the premises hereby demised or of any parts of them for a further term from the expiration of the term hereby granted and is otherwise eligible, he/they shall prior to expiration of the last mentioned term give to the State Government twelve calendar months previous notice in writing and shall pay the rents and royalties hereby reserved and shall observe and perform the several covenants and

agreements to be performed up to the application for renewal of the lease. The State Government shall be bound to grant the lease to the lessee/lessees.

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M. S. B. & P. C. G. S. Ltd., Bikaner

बान एवं भू-विज्ञान विभाग  
बीकानेर [राज.]

agreements herein contained and on the part of the lessee/lessees to be observed and performed up to the expiration of the term hereby granted. The State Government on receipt of application for renewal, shall consider it in accordance with the provisions of the Act and the rules made thereunder and shall pass orders as it deems fit. If renewal is granted, the State Government will at the expense of the lessee/lessees and upon his executing and delivering to the State Government if required a counterpart thereof execute and deliver to the lessee/lessees a renewed lease of the said premises or part thereof for the further term of 20 years at such rents, rates and royalties and on such terms and subject to such rents, rates and royalties and on such terms and subject to such covenants and agreements, including this present covenant to renew as shall be in accordance with the Mineral Concession Rules, 1960, applicable to Gypsum (name of minerals) on the day next following the expiration of the term hereby granted.

*Liberty to determine the lease:-*

4. The lessee/lessees may at any time determine this lease by giving not less than 12 calendar months notice in writing to the State Government or to such officer, or authority as the State Government may specify in this behalf and upon the expiration of such notice provided that the lessee/lessees shall upon such expiration render and pay all rents, water rates, royalties, compensation for damages and other moneys which may then be due and payable under these presents to the lessor or any other person or persons and shall deliver these presents to the State Government then this lease and the said term and the liberties, powers and privileges hereby granted shall absolutely cease and determine but without prejudice to any right or remedy of the lessor in respect of any breach of any of the covenants or agreements contained in these presents.

4A. The State Government may on an application made by the lessee permit him to surrender one or more minerals from his lease which is for a group of minerals on the ground that deposits of that mineral have since exhausted or depleted to such an extent that it is no longer possible to work the mineral economically, subject to the condition that the lessee-

(a) Makes an application for such surrender of mineral at least six months before the intended date of surrender; and

(b) Gives an undertaking that he will not cause any hindrance in the working of the mineral so surrendered by any other person who is subsequently granted a mining lease for that mineral.

*Refund of security deposits:-*

as the State Government may elect within 12 calendar months after the expiration of this lease or of any renewal thereof, the amount of the security deposit paid in and then remaining in deposit with the State Government and not required for the purposes mentioned in this lease shall be refunded to the lessee/lessees.

(Signature)  
Gypsum  
Karnataka

खनिज अखिल  
राज्य मंत्रालय  
विज्ञान एवं सूक्ष्म विकास  
दस्तावेज  
बोकारन [शिव]

PART IX

General Provisions

Obstructions to inspection :-

1. In case the lessee/lessees or his/their transferee/assignee does/do not allow entry or inspection by the officers authorised by the Central or State Government under clauses (i), (j) or (l) of sub-rule (1) of rule 27 of said Rules, the State Government shall give notice in writing to the lessee/lessees requiring him/them to show cause within such time as may be specified in the notice why the lease should not be determined and his/their security deposit forfeited; and if the lessee/lessees fails/fail to show cause within the aforesaid time to the satisfaction of the State Government, the State Government may determine the lease and forfeit the whole or part of the security deposit.

Penalty in case of default in payment of royalty and breach of covenants:-

2. If the lessee/lessees or his their transferee or assignee makes/make any default in payment of rent or water rate or royalty as required by section 9 of the Act or commits a breach of any of the conditions and covenants other than those referred to in covenant 1 above, the State Government shall give notice to the lessee/lessees requiring him/them to pay the rent, water rate, royalty or remedy the breach, as the case may be, within sixty days from the date of receipt of the notice and if the rent, water rate and royalty are not paid or the breach is not remedied within such period, the State Government without prejudice to any proceedings that may be taken against him/them, determine the lease and forfeit the whole or part of the security deposit.

Penalty for repeated breaches of covenants:-

3. In case of repeated breaches of covenants and agreements by the lessee/lessees for which notice has been given by the State Government in accordance with clauses (1) and (2) aforementioned on earlier occasion, the State Government without giving any further notice, may impose such penalty not exceeding twice the amount of annual dead rent specified in clause 2, Part V.

Failure to fulfill the terms of leases due to "Force Majeure":-

4. Failure on the part of the lessee/lessees to fulfill any of the terms and conditions of this lease shall not give the Central or State Government any claim against the lessee/lessees or be deemed a breach of this lease, in so far as such failure is considered by the said Government to arise from force majeure, and if through force majeure the fulfillment by the lessee/lessees of any of the terms and conditions of this lease be delayed, the period of such delay shall be added to the period fixed by this lease. In this clause the expression "Force Majeure" means act of God, war, insurrection, riot, civil commotion, strike, earth quake, tide,

(L. -  
Mangal (B. Shrivastava)  
SBU & PUGypsum  
ESMM Ltd., Bikaner

खनि अतिथिना  
भारत एवं भू-विज्ञान विभाग  
बीकानेर [राज.]

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storm, tidal wave, flood, lightning, explosion, fire, earthquake and any other happening which the lessee/lessees could not reasonably prevent or control.

*Lessee/lessees to remove his/their properties on the expiry of lease:-*

5. The lessee/lessees having first paid discharged rents, rates and royalties payable by virtue of these presents may at the expiration or sooner determination of the said term or within six calendar months thereafter (unless the lease shall be determined under clauses 1 and 2 of this Part and in that case at any time not less than three calendar months nor more than six calendar months after such determination) take down and remove for his/their own benefit all or any [ore mineral excavated during the currency of lease] engines, machinery, plant, buildings structures, tramways, railways and other works, erections and conveniences which may have been erected, set up or placed by the lessee/lessees in or upon the said lands and which the lessee/lessees is/are not bound to deliver to the State Government under clause 20 of Part VII of this Schedule and which the State Government shall not desire to purchase.

*Forfeiture of property left more than six months after determination of lease:-*

6. If at the end of six calendar months after the expiration or sooner determination of the said term under the provision contained in clause 4 of Part VIII of this Schedule become effective there shall remain in or upon the said land any [ore or mineral] engines, machinery, plant, buildings structures, tramways, railways and other work, erections and conveniences or other property which are not required by the lessee/lessees in connection with operations in any other lands held by him/them under prospecting licence or mining lease the same shall if not removed by the lessee/lessees within one calendar month after notice in writing requiring their removal has been given to lessee/lessees by the State Government be deemed to become the property of the State Government and may be sold or disposed of in such manner as the State Government shall deem fit without liability to pay any compensation or to account to the lessee/lessees in respect thereof

*Notices. -*

7. Every notice by these presents required to be given to the lessee/lessees shall be given in writing to such person resident in the said lands as the lessee/lessees may appoint for the purpose of receiving such notice, and if there shall have been no such appointment then every such notice shall be sent to the lessee/lessees by registered post addressed to the lessee/lessees at the address recorded in this lease or at such other address in India as the lessee/lessees may from time to time in writing to the State Government designate for the receipt of notices and every such service shall be deemed to be proper and valid service upon the lessee/lessees and shall not be questioned or challenged by him/them.

*Immunity of State Government from liability to pay compensation:-*

8. If in any event the orders of the State Government are revised, reviewed or canceled by the Central Government in pursuance of proceedings under Chapter VII of the Mineral Conservation

Manager (Geology)  
SBU & Gypsum  
BSMM Ltd., Bikaner

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शुभिल दस्तवेज रब  
श्री ५  
श्री ५  
श्री ५

खान एवं नू- विज्ञान विभाग  
बिकानेर [राज.]

Rules, 1960, the lessee/lessees shall not be entitled to compensation for any loss sustained by the lessee/lessees in exercise of the powers and privileges conferred upon him/them by these presents.

8A. The lease is executed at Bikaner the capital town of the State of Rajasthan (name of the State) and subject to the provision of Article 226 of the Constitution of India, it is hereby agreed upon b, the lessee and the lessor that in the event of any dispute in relation to the area and lease, condition of lease, the dues realisable under the lease and in respect of all matters touching the relationship of the lessee and the lessor, the suits (or appeals) shall be filed in the civil courts at (Bikaner) and it is hereby expressly agreed that neither party shall be competent to file a suit or bring any action or file any petition at any place other than the courts named above.)

8. For the purpose of stamp duty the anticipated royalty from the demised land is Rs 2,22,25,440/- per year including security, arrears & other expenses.

IN WITNESS WHEREOF these presents have been executed in the manner hereunder appearing the day and year first above written.

Signed by

for and on behalf of the Governor/President of India in the presence of

Signed by (D. S. Arora)  
(On behalf of lessee)  
RSM Ltd., Bikaner

Signed by (D. S. Arora)  
(On behalf of Governor of Rajasthan)

Witness No.1

(N.K. Dubey)

Attested

(D. S. Arora)  
खनि अभियन्ता  
बान एवं सू- विभाग विभाग  
बिकानेर [राज०]

Witness No.2

(T.K. Chakravarty)

राजस्थान सरकार  
खान (ग्रुप-1) विभाग  
कमांक : प.3(14)खान/ग्रुप-1/2007

जयपुर, दिनांक : 31 JUL 2009

आदेश

चूंकि राजस्थान राज्य खान एवं खनिज निगम ने प्रधान खनिज रियायत नियमावली, 1960 के नियम 22(1) के अन्तर्गत खनिज जि. निकट ग्राम द्वाणी अब्दुल्ला वाली तहसील कोलायत जिला बीकानेर में खनन पट्टा अनुदान हेतु आवेदन पत्र दिनांक 04.07.2005 को प्रस्तुत किया और राज्य सरकार संतुष्ट है कि आवेदक राज्य में प्रवर्तमान सम्बद्ध नियमों के अन्तर्गत उचित रियायत के अनुदान के लिए उपयुक्त पक्ष/पार्टी है।

कारण चूंकि यह क्षेत्र जिसके लिए आवेदक द्वारा रियायत चाही गई है, अनुदान के लिए मुक्त है।

अतः राज्य सरकार प्रधान खनिज रियायत नियमावली, 1960, जो समय-समय पर संशोधित हुए हैं, में उल्लेखित निबंधनों और प्रतिबंधों के अतिरिक्त निम्न निबंधनों और प्रतिबंधों पर द्वितीय नवीनीकरण खनन पट्टा स्वीकृत करती है :-

1. खनिज जिप्सम
2. क्षेत्र 1278 हेक्टेयर निकट ग्राम द्वाणी अब्दुल्ला वाली तहसील कोलायत जिला बीकानेर में मौके पर वास्तविक सीमांकन अनुसार।
3. अवधि संधिदा पंजीयन की तिथि से 20 वर्ष
4. स्थिरभाटक खान एवं खनिज (विकास एवं विनियमन) एक्ट, 1957 की तृतीय अनुसूची के अनुसार एवं समय-समय पर संशोधित हो, के अनुसार
5. प्रतिभूति राशि 10,000/- (अक्षरे दस हजार रुपये मात्र)
6. अधिशुल्क खान एवं खनिज (विकास एवं विनियमन) एक्ट, 1957 की द्वितीय अनुसूची के अनुसार एवं समय-समय पर संशोधन हो, उसके अनुसार
7. भूतल भाटक जैसा कि राजस्व अधिकारी निर्धारित करें
8. अन्य धारा खान एवं खनिज (विकास एवं विनियमन) एक्ट, 1957 के अनुसार
9. अन्य शर्त खान एवं खनिज (विकास एवं विनियमन) एक्ट, 1957 एवं समय-समय पर संशोधन हो, के अनुसार।

नोट - यदि पट्टाधारी इस आदेश की तिथि से 6 माह की अवधि के भीतर समुचित इकरारनामा निष्पादित नहीं कर दें तो यह आदेश बिना सूचना के ही प्रतिसंहृत (रिवोक) कर दिया जायेगा।

आज्ञा से,

उप शासन सचिव

प्रतिलिपि निम्न को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित है :-

1. निदेशक, खान एवं भू-विज्ञान विभाग, राजस्थान, उदयपुर को उनके पत्रांक 1167 दिनांक 24.05.2008 के संदर्भ में इस निर्देश के साथ कि संधिदा निष्पादन की दिनांक की सूचना यथाशीघ्र इस विभाग को भिजवावे, जिसमें आदेश की दिनांक के 6 माह से अधिक का समय नहीं लगना चाहिए।
2. महालेखाकार, राजस्थान, जयपुर
3. जिला कलेक्टर, बीकानेर
4. अधीक्षण खनि अभियंता, बीकानेर
5. खनि अभियंता, बीकानेर
6. महानिर्देशक, भारतीय खात ब्यूरो, इन्दिरा भवन, सिविल, काइन्सा, नागपुर
7. प्रबंध निदेशक, राजस्थान राज्य खान एवं खनिज निगम, 4, मीरा मार्ग, उदयपुर
8. समूह महाप्रबंधक, एस.बी.ए. एण्ड पी.सी. जिप्सम, राजस्थान राज्य खान एवं खनिज निगम, सामान्य कान्ठ बिल्डिंग, बीकानेर।
9. रक्षित पत्रांक।

(D. S. Acharya)  
Manager (Geology)  
SBU & PC Gypsum  
REMM Ltd., Bikaner

सहायक शासन सचिव

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राजस्थान सरकार  
खान (ग्रुप-2) विभाग

क्रमांक : प3(14)खान/ग्रुप-2/07

जयपुर, दिनांक :

- 9 DEC 2009

संशोधित आदेश

इस विभाग के समसंख्यक आदेश दिनांक 31.07.2009 के पैरा तीन में अंकित "द्वितीय नवीनीकरण" को एतद्वारा विलोपित किया जाता है।

आज्ञा से,

उप शासन सचिव

प्रतिलिपि निम्न को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित है :-

1. निदेशक, खान एवं भू-विज्ञान विभाग, राजस्थान, उदयपुर को उनके पत्रांक 1492 दिनांक 10.11.2009 के क्रम में।
2. महालेखाकार, राजस्थान, जयपुर
3. जिला कलेक्टर, हनुमानगढ़
4. अधीक्षण खनि अभियंता, बीकानेर
5. खनि अभियंता, बीकानेर
6. महानियंत्रक, भारतीय खान ब्यूरो, इन्दिरा भवन, सिविल लाइन्स, नागपुर
7. प्रबंध निदेशक, राजस्थान राज्य खान एवं खनिज निगम, 4, मीरा मार्ग, उदयपुर
8. समूह महाप्रबंधक, एस.बी.यू. एण्ड पी.सी.-जिप्सम, राजस्थान राज्य खान एवं खनिज निगम, सादुल क्लब बिल्डिंग, बीकानेर
9. रक्षित पत्रावली।

सहायक शासन सचिव

(D. S. Acharya)  
Manager (Geology)  
SBU & PC Gypsum  
RSMMLtd., Bikaner

खनि अभियंता  
खान एवं भू- विज्ञान विभाग  
बीकानेर [राज०]

शासित पत्रावली  
राज्य पंजीयक बज्जु

शासित पत्रावली

(D. S. Acharya)

खनि अभियंता



**CEG TEST HOUSE**  
AND RESEARCH CENTRE PVT. LTD.

CEG Tower, B - 11 (G), Malviya Industrial Area  
Jaipur - 302017, Rajasthan, INDIA  
Tel. : 91-141-4046599, Fax : 91-141-2751806  
info@cegtesthouse.com | www.cegtesthouse.com  
CIN : U73100RJ2005PTC020304

Format No.: QR/26  
Revision No.: 03

**TEST REPORT**  
(Ambient Air)

Report No.: CEGTH&RC/Env/AA/2017-18-EM007/033

Date: 22/12/2017

Name of Customer	M/s Rajasthan State Mines and Minerals Limited SBU & PC, Gypsum, Sadul Club Building, Bikaner, (Rajasthan) 334001 Work Order Number-RSMM/CO/GGM(Cont)/(Cont-10/2015-16/263)
Date of Sampling	27/11/2017
Location of Sampling	Dhani Abdulla Wali Gypsum Mines (Kolayat ) Bikaner Core Zone-I
Weather condition	Clear Weather
Sampling started on date	27/11/2017
Sampling finished on date	28/11/2017
Average flow rate for PM <sub>10</sub> (m <sup>3</sup> /min)	1.16
Average flow rate for gases (lpm)	0.2
Date of testing	30/11/2017 to 04/12/2017

**RESULTS**

S. No.	Parameter	Method of Test	Result	Unit	NAAQS
1.	PM <sub>10</sub> (PM ≤10µm)	IS: 5182 (P-23)	87	µg/m <sup>3</sup>	100*
2.	SPM	IS: 5182 (P-4)	168	µg/m <sup>3</sup>	500*
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P-6)	26.6	µg/m <sup>3</sup>	80*
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2)	16.1	µg/m <sup>3</sup>	80*
5.	Carbon Monoxide (CO)	IS: 5182 (P-10)	BDL (<0.5)	mg/m <sup>3</sup>	4*
6.	Free Silica	FTIR Method	0.38	%	-

\*-24 hourly arithmetic mean, \*\*-Annual arithmetic mean, BDL-Below Detection Limit

For CEG Test House And Research Centre Pvt. Ltd.



**Note:**

- Total liability of this laboratory is limited to the invoiced amount.
- The results listed refer only to the tested sample and applicable parameters. Endorsement of Product is neither inferred nor implied.
- This Test Report shall not be reproduced wholly or in part and cannot be used as an evidence in the court of law without written approval of M/S CEG TH & RC
- The sample will be stored up to one month (in case of nonperishable items only) from the date of issue of test report unless otherwise specified.



**CEG TEST HOUSE**  
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CIN : U73100RJ2005PTC020304

Format No.: QR/26  
Revision No.: 03

**TEST REPORT**  
(Ambient Air)

Report No.: CEGTH&RC/Env/AA/2017-18-EM007/034

Date: 22/12/2017

Name of Customer	M/s Rajasthan State Mines and Minerals Limited SBU&PC, Gypsum, Sadul Club Building, Bikaner, (Rajasthan)334001 Work Order Number-RSMM/CO/GGM(Cont)/(Cont-10/2015- 16/263)
Date of sampling	27/11/2017
Location of sampling	Dhani Abdulla Wali Gypsum Mines (Kolayat ) Bikaner Core Zone-II
Weather condition	Clear Weather
Sampling started on date	27/11/2017
Sampling finished on date	28/11/2017
Average flow rate for PM <sub>10</sub> (m <sup>3</sup> /min)	1.21
Average flow rate for gases (lpm)	0.2
Date of testing	30/11/2017 to 04/12/2017

**RESULTS**

S. No.	Parameter	Method of Test	Result	Unit	NAAQS
1.	PM <sub>10</sub> (PM ≤10µm)	IS: 5182 (P-23)	84	µg/m <sup>3</sup>	100*
2.	SPM	IS: 5182 (P-4)	160	µg/m <sup>3</sup>	500*
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P-6)	26.7	µg/m <sup>3</sup>	80*
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2)	17.1	µg/m <sup>3</sup>	80*
5.	Carbon Monoxide (CO)	IS: 5182 (P-10)	BDL (<0.5)	mg/m <sup>3</sup>	4*
6.	Free Silica	FTIR Method	0.42	%	-

\*-24 hourly arithmetic mean, \*\*-Annual arithmetic mean, BDL-Below Detection Limit

For CEG Test House And Research Centre Pvt. Ltd.

Authorized Signatory

**Note:**

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- The results listed refer only to the tested sample and applicable parameters. Endorsement of Product is neither inferred nor implied.
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- The sample will be stored up to one month (in case of nonperishable items only) from the date of issue of test report unless otherwise specified.



**CEG TEST HOUSE**  
AND RESEARCH CENTRE PVT. LTD.

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**TEST REPORT**  
(Ambient Air)

Report No.: CEGTH&RC/Env/AA/2017-18-EM007/035

Date: 22/12/2017

Name of Customer	M/s Rajasthan State Mines and Minerals Limited SBU&PC, Gypsum, Sadul Club Building, Bikaner, (Rajasthan)334001 Work Order Number-RSMM/CO/GGM(Cont)/(Cont-10/2015- 16/263)
Date of sampling	27/11/2017
Location of sampling	Dhani Abdulla Wali Gypsum Mines (Kolayat) Bikaner Core Zone-III
Weather condition	Clear Weather
Sampling started on date	27/11/2017
Sampling finished on date	28/11/2017
Average flow rate for PM <sub>10</sub> (m <sup>3</sup> /min)	1.19
Average flow rate for gases (lpm)	0.2
Date of testing	30/11/2017 to 04/12/2017

**RESULTS**

S. No.	Parameter	Method of Test	Result	Unit	NAAQS
1.	PM <sub>10</sub> (PM ≤10µm)	IS: 5182 (P-23)	82	µg/m <sup>3</sup>	100*
2.	SPM	IS: 5182 (P-4)	167	µg/m <sup>3</sup>	500*
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P-6)	27.8	µg/m <sup>3</sup>	80*
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2)	16.0	µg/m <sup>3</sup>	80*
5.	Carbon Monoxide (CO)	IS: 5182 (P-10)	BDL (<0.5)	mg/m <sup>3</sup>	4*
6.	Free Silica	FTIR Method	0.38	%	-

\*-24 hourly arithmetic mean, \*\*-Annual arithmetic mean, BDL-Below Detection Limit

For CEG Test House And Research Centre Pvt. Ltd.

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CIN : U73100RJ2005PTC020304

Format No.: QR/26  
Revision No.: 03

**TEST REPORT**  
(Ambient Air)

Report No.: CEGTH&RC/Env/AA/2017-18-EM007/036

Date: 22/12/2017

Name of Customer	M/s Rajasthan State Mines and Minerals Limited SBU&PC, Gypsum, Sadul Club Building, Bikaner, (Rajasthan)334001 Work Order Number-RSMM/CO/GGM(Cont)/(Cont-10/2015-16/263
Date of sampling	27/11/2017
Location of sampling	Dhani Abdulla Wali Gypsum Mines (Kolayat) Bikaner Core Zone-IV
Weather condition	Clear Weather
Sampling started on date	27/11/2017
Sampling finished on date	28/11/2017
Average flow rate for PM <sub>10</sub> (m <sup>3</sup> /min)	1.20
Average flow rate for gases (lpm)	0.2
Date of testing	30/11/2017 to 04/12/2017

**RESULTS**

S. No.	Parameter	Method of Test	Result	Unit	NAAQS
1.	PM <sub>10</sub> (PM ≤10µm)	IS: 5182 (P-23)	91	µg/m <sup>3</sup>	100*
2.	SPM	IS: 5182 (P-4)	168	µg/m <sup>3</sup>	500*
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P-6)	26.7	µg/m <sup>3</sup>	80*
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2)	18.5	µg/m <sup>3</sup>	80*
5.	Carbon Monoxide (CO)	IS: 5182 (P-10)	BDL (<0.5)	mg/m <sup>3</sup>	4*
6.	Free Silica	FTIR Method	0.42	%	-

\*-24 hourly arithmetic mean, \*\*-Annual arithmetic mean, BDL-Below Detection Limit

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**TEST REPORT**  
(Ambient Air)

Report No.: CEGTH&RC/Env/AA/2017-18-EM007/037

Date: 22/12/2017

Name of Customer	M/s Rajasthan State Mines and Minerals Limited SBU&PC, Gypsum, Sadul Club Building, Bikaner, (Rajasthan)334001 Work Order Number-RSMM/CO/GGM(Cont)/(Cont-10/2015-16/263
Date of sampling	28/11/2017
Location of sampling	Dhani Abdulla Wali Gypsum Mines (Kolayat) Bikaner Buffer Zone-I
Weather condition	Clear Weather
Sampling started on date	28/11/2017
Sampling finished on date	29/11/2017
Average flow rate for PM <sub>10</sub> (m <sup>3</sup> /min)	1.17
Average flow rate for gases (lpm)	0.2
Date of testing	01/12/2017 to 05/12/2017

**RESULTS**

S. No.	Parameter	Method of Test	Result	Unit	NAAQS
1.	PM <sub>10</sub> (PM ≤10µm)	IS: 5182 (Pt-23)	73	µg/m <sup>3</sup>	100*
2.	SPM	IS: 5182 (Pt-4)	126	µg/m <sup>3</sup>	500*
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (Pt-6)	14.3	µg/m <sup>3</sup>	80*
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (Pt-2)	12.4	µg/m <sup>3</sup>	80*
5.	Carbon Monoxide (CO)	IS: 5182 (Pt-10)	BDL (<0.5)	mg/m <sup>3</sup>	4*
6.	Free Silica	FTIR Method	0.34	%	-

\*-24 hourly arithmetic mean, \*\*-Annual arithmetic mean, BDL-Below Detection Limit

For CEG Test House And Research Centre Pvt. Ltd.

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**TEST REPORT**  
(Ambient Air)

Report No.: CEGTH&RC/Env/AA/2017-18-EM007/038

Date: 22/12/2017

Name of Customer	M/s Rajasthan State Mines and Minerals Limited SBU&PC, Gypsum, Sadul Club Building, Bikaner, (Rajasthan)334001 Work Order Number-RSMM/CO/GGM(Cont)/(Cont-10/2015- 16/263
Date of sampling	28/11/2017
Location of sampling	Dhani Abdulla Wali Gypsum Mines (Kolayat) Bikaner Buffer Zone-II
Weather condition	Clear Weather
Sampling started on date	28/11/2017
Sampling finished on date	29/11/2017
Average flow rate for PM <sub>10</sub> (m <sup>3</sup> /min)	1.19
Average flow rate for gases (lpm)	0.2
Date of testing	01/12/2017 to 05/12/2017

**RESULTS**

S. No.	Parameter	Method of Test	Result	Unit	NAAQS
1.	PM <sub>10</sub> (PM ≤10µm)	IS: 5182 (P-23)	77	µg/m <sup>3</sup>	100*
2.	SPM	IS: 5182 (P-4)	136	µg/m <sup>3</sup>	500*
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P-6)	18.0	µg/m <sup>3</sup>	80*
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2)	11.7	µg/m <sup>3</sup>	80*
5.	Carbon Monoxide (CO)	IS: 5182 (P-10)	BDL (<0.5)	mg/m <sup>3</sup>	4*
6.	Free Silica	FTIR Method	0.35	%	-

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For CEG Test House And Research Centre Pvt. Ltd.

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**TEST REPORT**  
(Ambient Air)

Report No.: CEGTH&RC/Env/AA/2017-18-EM007/039

Date: 22/12/2017

Name of Customer	M/s Rajasthan State Mines and Minerals Limited SBU&PC, Gypsum, Sadul Club Building, Bikaner, (Rajasthan)334001 Work Order Number-RSMM/CO/GGM(Cont)/(Cont-10/2015-16/263
Date of sampling	28/11/2017
Location of sampling	Dhani Abdulla Wali Gypsum Mines (Kolayat ) Bikaner Buffer Zone-III
Weather condition	Clear Weather
Sampling started on date	28/11/2017
Sampling finished on date	29/11/2017
Average flow rate for PM <sub>10</sub> (m <sup>3</sup> /min)	1.16
Average flow rate for gases (lpm)	0.2
Date of testing	01/12/2017 to 05/12/2017

**RESULTS**

S.No.	Parameter	Method of Test	Result	Unit	NAAQS
1.	PM <sub>10</sub> (PM ≤10µm)	IS: 5182 (P-23)	73	µg/m <sup>3</sup>	100*
2.	SPM	IS: 5182 (P-4)	141	µg/m <sup>3</sup>	500*
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P-6)	16.8	µg/m <sup>3</sup>	80*
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2)	10.0	µg/m <sup>3</sup>	80*
5.	Carbon Monoxide (CO)	IS: 5182 (P-10)	BDL (<0.5)	mg/m <sup>3</sup>	4*
6.	Free Silica	FTIR Method	0.34	%	-

\*-24 hourly arithmetic mean, \*\*-Annual arithmetic mean, BDL-Below Detection Limit

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Format No.: QR/26  
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**TEST REPORT**  
(Ambient Air)

Report No.: CEGTH&RC/Env/AA/2017-18-EM007/040

Date: 22/12/2017

Name of Customer	M/s Rajasthan State Mines and Minerals Limited SBU&PC, Gypsum, Sadul Club Building, Bikaner, (Rajasthan)334001 Work Order Number-RSMM/CO/GGM(Cont)/(Cont-10/2015-16/263
Date of sampling	28/11/2017
Location of sampling	Dhani Abdulla Wali Gypsum Mines (Kolayat ) Bikaner Buffer Zone-IV
Weather condition	Clear Weather
Sampling started on date	28/11/2017
Sampling finished on date	29/11/2017
Average flow rate for PM <sub>10</sub> (m <sup>3</sup> /min)	1.17
Average flow rate for gases (lpm)	0.2
Date of testing	01/12/2017 to 05/12/2017

**RESULTS**

S. No.	Parameter	Method of Test	Result	Unit	NAAQS
1.	PM <sub>10</sub> (PM ≤10µm)	IS: 5182 (P-23)	72	µg/m <sup>3</sup>	100*
2.	SPM	IS: 5182 (P-4)	145	µg/m <sup>3</sup>	500*
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P-6)	17.9	µg/m <sup>3</sup>	80*
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2)	10.9	µg/m <sup>3</sup>	80*
5.	Carbon Monoxide (CO)	IS: 5182 (P-10)	BDL (<0.5)	mg/m <sup>3</sup>	4*
6.	Free Silica	FTIR Method	0.25	%	-

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## TEST REPORT (Noise Quality)

Report No.: CEGTH&RC/Env./Noise Quality/2017-18-EM007/033

Date: 22/12/2017

1.	Name & Address of Customer	M/s Rajasthan State Mines and Minerals Limited, SBU&PC, Gypsum, Sadul Club Building, Bikaner, (Rajasthan), 334001
2.	Reference No.	RSMM/CO/GGM(Cont)/(Cont-10/2015-16/263)
3.	Material Identification with Details	Noise Data
4.	Source / Location	Dhani Abdulla Wali Gypsum Mines (Kolayat ) Bikaner Core Zone-I
5.	Date of Sampling	27/11/2017
6.	Date of Sample Receipt	30/11/2017
7.	Sampled by / Condition of Sample	CEGTH & RC/O.K.

## RESULTS

All values in dB(A)

Parameter	Method of Test	Results	CPCB Noise Standard			
			Category of Zone			
			Industrial Area	Commercial Area	Residential Area	Silence Zone
L <sub>Day</sub>	IS-9989-1981	59.5	75	65	55	50
L <sub>Night</sub>	IS-9989-1981	50.2	70	55	45	40

For CEG Test House And Research Centre Pvt. Ltd.



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## TEST REPORT (Noise Quality)

Report No.: CEGTH&RC/Env./Noise Quality/2017-18-EM007/034

Date: 22/12/2017

1.	Name & Address of Customer	M/s Rajasthan State Mines and Minerals Limited, SBU&PC, Gypsum, Sadul Club Building, Bikaner, (Rajasthan), 334001
2.	Reference No.	RSMM/CO/GGM(Cont)/(Cont-10/2015-16/263)
3.	Material Identification with Details	Noise Data
4.	Source / Location	Dhani Abdulla Wali Gypsum Mines (Kolayat ) Bikaner Core Zone-II
5.	Date of Sampling	27/11/2017
6.	Date of Sample Receipt	30/11/2017
7.	Sampled by / Condition of Sample	CEGTH & RC/O.K.

## RESULTS

All values in dB(A)

Parameter	Method of Test	Results	CPCB Noise Standard			
			Category of Zone			
			Industrial Area	Commercial Area	Residential Area	Silence Zone
L <sub>Day</sub>	IS-9989-1981	57.8	75	65	55	50
L <sub>Night</sub>	IS-9989-1981	46.3	70	55	45	40

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**TEST REPORT**  
(Noise Quality)

Report No.: CEGTH&RC/Env./Noise Quality/2017-18-EM007/035

Date: 22/12/2017

1.	Name & Address of Customer	M/s Rajasthan State Mines and Minerals Limited, SBU&PC, Gypsum, Sadul Club Building, Bikaner, (Rajasthan), 334001
2.	Reference No.	RSM/CO/GGM(Cont)/(Cont-10/2015-16/263)
3.	Material Identification with Details	Noise Data
4.	Source / Location	Dhani Abdulla Wali Gypsum Mines (Kolayat ) Bikaner Core Zone-III
5.	Date of Sampling	27/11/2017
6.	Date of Sample Receipt	30/11/2017
7.	Sampled by / Condition of Sample	CEGTH & RC/O.K.

**RESULTS**

All values in dB(A)

Parameter	Method of Test	Results	CPCB Noise Standard			
			Category of Zone			
			Industrial Area	Commercial Area	Residential Area	Silence Zone
L <sub>Day</sub>	IS-9989-1981	57.3	75	65	55	50
L <sub>Night</sub>	IS-9989-1981	43.4	70	55	45	40

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## TEST REPORT (Noise Quality)

Report No.: CEGTH&RC/Env./Noise Quality/2017-18-EM007/036

Date: 22/12/2017

1.	Name & Address of Customer	M/s Rajasthan State Mines and Minerals Limited, SBU&PC, Gypsum, Sadul Club Building, Bikaner, (Rajasthan), 334001
2.	Reference No.	RSMM/CO/GGM(Cont)/(Cont-10/2015-16/263)
3.	Material Identification with Details	Noise Data
4.	Source / Location	Dhani Abdulla Wali Gypsum Mines (Kolayat ) Bikaner Core Zone-IV
5.	Date of Sampling	27/11/2017
6.	Date of Sample Receipt	30/11/2017
7.	Sampled by / Condition of Sample	CEGTH & RC/O.K.

## RESULTS

All values in dB(A)

Parameter	Method of Test	Results	CPCB Noise Standard			
			Category of Zone			
			Industrial Area	Commercial Area	Residential Area	Silence Zone
L <sub>Day</sub>	IS-9989-1981	55.5	75	65	55	50
L <sub>Night</sub>	IS-9989-1981	47.6	70	55	45	40

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## TEST REPORT (Noise Quality)

Report No.: CEGTH&RC/Env./Noise Quality/2017-18-EM007/037

Date: 22/12/2017

1.	Name & Address of Customer	M/s Rajasthan State Mines and Minerals Limited, SBU&PC, Gypsum, Sadul Club Building, Bikaner, (Rajasthan), 334001
2.	Reference No.	RSMM/CO/GGM(Cont)/(Cont-10/2015-16/263)
3.	Material Identification with Details	Noise Data
4.	Source / Location	Dhani Abdulla Wali Gypsum Mines (Kolayat ) Bikaner Buffer Zone-I
5.	Date of Sampling	28/11/2017
6.	Date of Sample Receipt	30/11/2017
7.	Sampled by / Condition of Sample	CEGTH & RC/O.K.

## RESULTS

All values in dB(A)

Parameter	Method of Test	Results	CPCB Noise Standard			
			Category of Zone			
			Industrial Area	Commercial Area	Residential Area	Silence Zone
L <sub>Day</sub>	IS-9989-1981	55.2	75	65	55	50
L <sub>Night</sub>	IS-9989-1981	49.8	70	55	45	40

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## TEST REPORT (Noise Quality)

Report No.: CEGTH&RC/Env./Noise Quality/2017-18-EM007/038

Date: 22/12/2017

1.	Name & Address of Customer	M/s Rajasthan State Mines and Minerals Limited, SBU&PC, Gypsum, Sadul Club Building, Bikaner, (Rajasthan), 334001
2.	Reference No.	RSM/CO/GGM(Cont)/(Cont-10/2015-16/263)
3.	Material Identification with Details	Noise Data
4.	Source / Location	Dhani Abdulla Wali Gypsum Mines (Kolayat ) Bikaner Buffer Zone-II
5.	Date of Sampling	28/11/2017
6.	Date of Sample Receipt	30/11/2017
7.	Sampled by / Condition of Sample	CEGTH & RC/O.K.

## RESULTS

All values in dB(A)

Parameter	Method of Test	Results	CPCB Noise Standard			
			Category of Zone			
			Industrial Area	Commercial Area	Residential Area	Silence Zone
L <sub>Day</sub>	IS-9989-1981	56.2	75	65	55	50
L <sub>Night</sub>	IS-9989-1981	44.4	70	55	45	40

For CEG Test House And Research Centre Pvt. Ltd.

Authorized Signatory



Page 1 of 1

### Note:

- Total liability of this laboratory is limited to the invoiced amount.
- The results listed refer only to the tested sample and applicable parameters. Endorsement of Product is neither inferred nor implied.
- This Test Report shall not be reproduced wholly or in part and cannot be used as an evidence in the court of law without written approval of M/S CEG TH & RC
- The sample will be stored up to one month (in case of nonperishable items only) from the date of issue of test report unless otherwise specified.



# CEG TEST HOUSE

AND RESEARCH CENTRE PVT. LTD.

Format No.: QR/26

Revision No.: 03

CEG Tower, B - 11 (G), Malviya Industrial Area  
Jaipur - 302017, Rajasthan, INDIA  
Tel. : 91-141-4046599, Fax : 91-141-2751806  
info@cegtesthouse.com | www.cegttesthouse.com  
CIN : U73100RJ2005PTC020304

## TEST REPORT (Noise Quality)

Report No.: CEGTH&RC/Env./Noise Quality/2017-18-EM007/039

Date: 22/12/2017

1.	Name & Address of Customer	M/s Rajasthan State Mines and Minerals Limited, SBU&PC, Gypsum, Sadul Club Building, Bikaner, (Rajasthan), 334001
2.	Reference No.	RSMM/CO/GGM(Cont)/(Cont-10/2015-16/263)
3.	Material Identification with Details	Noise Data
4.	Source / Location	Dhani Abdulla Wali Gypsum Mines (Kolayat) Bikaner Buffer Zone-III
5.	Date of Sampling	28/11/2017
6.	Date of Sample Receipt	30/11/2017
7.	Sampled by / Condition of Sample	CEGTH & RC/O.K.

## RESULTS

All values in dB(A)

Parameter	Method of Test	Results	CPCB Noise Standard			
			Category of Zone			
			Industrial Area	Commercial Area	Residential Area	Silence Zone
L <sub>Day</sub>	IS-9989-1981	54.2	75	65	55	50
L <sub>Night</sub>	IS-9989-1981	46.9	70	55	45	40

For CEG Test House And Research Centre Pvt. Ltd.

Authorized Signatory



Page 1 of 1

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# CEG TEST HOUSE

AND RESEARCH CENTRE PVT. LTD.

Format No.: QR/26

Revision No.: 03

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Jaipur - 302017, Rajasthan, INDIA  
Tel. : 91-141-4046599, Fax : 91-141-2751806  
info@cegtesthouse.com | www.cegtesthouse.com  
CIN : U73100RJ2005PTC020304

## TEST REPORT (Noise Quality)

Report No.: CEGTH&RC/Env./Noise Quality/2017-18-EM007/040

Date: 22/12/2017

1.	Name & Address of Customer	M/s Rajasthan State Mines and Minerals Limited, SBU&PC, Gypsum, Sadul Club Building, Bikaner, (Rajasthan), 334001
2.	Reference No.	RSM/CO/GGM(Cont)/(Cont-10/2015-16/263)
3.	Material Identification with Details	Noise Data
4.	Source / Location	Dhani Abdulla Wali Gypsum Mines (Kolayat ) Bikaner Buffer Zone-IV
5.	Date of Sampling	28/11/2017
6.	Date of Sample Receipt	30/11/2017
7.	Sampled by / Condition of Sample	CEGTH & RC/O.K.

## RESULTS

All values in dB(A)

Parameter	Method of Test	Results	CPCB Noise Standard			
			Category of Zone			
			Industrial Area	Commercial Area	Residential Area	Silence Zone
L <sub>Day</sub>	IS-9989-1981	55.2	75	65	55	50
L <sub>Night</sub>	IS-9989-1981	47.5	70	55	45	40

For CEG Test House And Research Centre Pvt. Ltd.

Authorized Signatory



Page 1 of 1

### Note:

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- The sample will be stored up to one month (in case of nonperishable items only) from the date of issue of test report unless otherwise specified.



**CEG TEST HOUSE**  
AND RESEARCH CENTRE PVT. LTD.

CEG Tower, B - 11 (G), Malviya Industrial Area  
Jaipur - 302017, Rajasthan, INDIA  
Tel. : 91-141-4046599, Fax : 91-141-2751806  
info@cegtesthouse.com | www.cegtesthouse.com  
CIN : U73100RJ2005PTC020304

Format No.: QR/26  
Revision No.: 03

**TEST REPORT**  
(Ground Water)

Report No.: CEGTH&RC/Env/GW/2017-18-EM007/005

Date: 22/12/2017

Name & Address of Customer	M/s Rajasthan State Mines and Minerals Limited SBU&PC, Gypsum, Sadul Club Building, Bikaner, (Rajasthan) 334001
Project/Contract	RSMM/CO/GGM(Cont)/(Cont-10/2015-16/263)
Material Identification with Details	Ground Water (2 Liters)
Source / Location	Dhani Abdulla Water tank (Near weigh bridge)
Date of Sampling	28/11/2017
Date of Sample Tested	30/11/2017 to 04/12/2017
Sampled Collected by	CEGTH&RC representative
Sample Condition	Acceptable

**Results**

S. No.	Parameter	Test Results	Limits as per IS:10500 2012		Protocol Followed
			Acceptable Limit	Permissible Limit	
1.	pH (at 25 °C)	7.6	6.5 – 8.5	No relaxation	IS:3025 (P-11)
2.	Colour, Hazen	<1	5	15	IS:3025 (P-4)
3.	Odour	Agreeable	Agreeable		IS:3025 (P-5)
4.	Taste	Agreeable	Agreeable		IS:3025 (P-7&8)
5.	Turbidity, NTU	<1	1	5	IS:3025 (P-10)
6.	Total Dissolved Solids, mg/l	215	500	2000	IS:3025 (P-16)
7.	Total Alkalinity, mg/l	150	200	600	IS:3025 (P-23)
8.	Total Hardness (as CaCO <sub>3</sub> ), mg/l	178	200	600	IS:3025 (P-21)
9.	Calcium (as Ca), mg/l	52.4	75	200	IS:3025 (P-40)
10.	Magnesium (as Mg), mg/l	11.5	30	100	IS:3025 (P-46)
11.	Chlorides (as Cl <sup>-</sup> ), mg/l	22.5	250	1000	IS:3025 (P-32)
12.	Sulphate (as SO <sub>4</sub> ), mg/l	9.8	200	400	IS:3025 (P-24)
13.	Fluorides (as F), mg/l	0.4	1.0	1.5	IS:3025 (P-60)
14.	Iron (as Fe), mg/l	0.08	0.3	No relaxation	APHA3111: 2012
15.	Nitrate (as NO <sub>3</sub> ), mg/l	6.47	45	No relaxation	IS:3025 (P-34)
16.	Lead (as Pb), mg/l	BDL (DL.0.005)	0.01	No relaxation	APHA3125: 2012

BDL-Below Detection Limit, DL- Detection limit

For CEG Test House And Research Centre Pvt. Ltd.

Authorized Signatory



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- The sample will be stored up to one month (in case of nonperishable items only) from the date of issue of test report unless otherwise specified.

राजस्थान सरकार  
वन विभाग  
कार्यालय उप वन संरक्षक, इन्दिरा गांधी नहर परियोजना, स्टेज-II,  
बीकानेर

क्रमांक:- एफ8( )सर्वे / उवस-स्टेज-1 / 05-06 / 4751

दिनांक 24 / 10 / 17

निमित्त,

सिनियर मेनेजर जियोलोजी  
आर. एस. एम. एम. लि. एस. बी. यू.  
एण्ड पी.सी. जिप्सम 2,  
गांधी नगर स्कीम बीकानेर

विषय:- Forest area/Wilde Life/Sanctuary/ Authenticated list of  
Schedule-1 species.

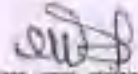
सन्दर्भ:-आपका पत्रांक 68 दिनांक 14-9-17

महोदय,

उपरोक्त विषयान्तर्गत सन्दिर्भित पत्र के क्रम में निवेदन है कि चाहे गए पत्र की  
शुद्ध टाईप शुद्धा प्रति की सत्य प्रति आवश्यक कार्यवाही हेतु प्रेषित है।

संलग्न:- उक्तानुसार

भवदीय,



उप वन संरक्षक

इगानप.स्टेज-II,  
बीकानेर

राजस्थान सरकार  
वन विभाग  
कार्यालय उप वन संरक्षक, इन्दिरा गांधी नहर परियोजना, स्टेज-II,  
बीकानेर

क्रमांक:- एफ8( )सर्वे / सवस-स्टेज-1/05-06/6209

दिनांक:- 05.10.2005

निमित्त,

खनिज अभियन्ता

खान एवं भू-विज्ञान विभाग

चोपड़ा कटला-बीकानेर।

विषय:-जिप्सम खनन हेतु अनापनि प्रमाण-पत्र जारी करने के सम्बन्ध में।

सन्दर्भ:-उप-प्रबन्धक आर.एस.एम.एम के पत्रांक 339 दिनांक 09.08.2005

महोदय,

उपरोक्त विषयान्तर्गत सन्दिर्भित पत्र के क्रम में निवेदन है कि ग्राम-ठानि अब्बदुलावाली तहसील-कोलायत जिला-बीकानेर में जिप्सम खनन हेतु पत्र के संलग्न आवेदित क्षेत्र वन क्षेत्र से बाहर है। रिपोर्ट आवश्यक कार्यवाही हेतु प्रेषित है।

भवदीय,

S. N.

उप वन संरक्षक

इगानप, स्टेज-II,  
बीकानेर

क्रमांक / समसंख्यांक / 6210

प्रतिलिपि - उप, प्रबन्धक आर. एस. एम. एस. तादुल कब्ब बिलडिंग बीकानेर को उनके पत्रांक 339 दिनांक 9.8.05 के क्रम में प्रेषित है।

दिनांक:- 5-10-05

S. N.

उप वन संरक्षक  
इगानप, स्टेज-II,  
बीकानेर

उप वन संरक्षक  
इगानप, स्टेज-II,  
बीकानेर



284

**GOVERNMENT OF RAJASTHAN**  
**OFFICE OF SUPERINTENDING MINING ENGINEER**  
**DEPARTMENT OF MINES & GEOLOGY**  
**BIKANER CIRCLE, BIKANER**

No. SME/BKN/CC/Major/F/2007-08/16759

Date: - 4.6.07

To,

**M/s Rajasthan State Mines & Minerals Ltd;**  
**Sadul Club Building, Bikaner**

Subject: - Approval of Mine Plan along with Progressive Mine Closure Plan for Mineral Gypsum near village **Dhanu Abdullahwali** Tehsil **Kolayat** District **Bikaner** for an area of **1298.00 hectares**, submitted under MCR, 1960 and 23 'B' of MCDR (Amended), 2003 (ML-32/2005)

Dear Sir,

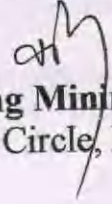
In exercise of power conferred under rule 22(4A) of Mineral Concession Rules, 1960 and sub rule (4) of rule 11 and rule 23B of Mineral Conservation & Development Rules (Amended), 2003 read with State Government notification dated 20.04.2005; I hereby **APPROVE** the above said Mine Plan along with Progressive Mine Closure Plan. This approval is subject to the following conditions: -

1. (i) This Mine Plan along with Progressive Mine Closure Plan is approved without prejudice to any other law applicable to the mine / area from time to time whether made by Central Government, State Government or any other authority.
  - (ii) It is clarified that the approval of your aforesaid Mine Plan along with Progressive Mine Closure Plan does not in any way imply the approval of the Government in terms of any other provision of the Mines and Minerals (Regulation and Development) Act, 1957 or rules framed there under or any other laws.
  - (iii) It is further clarified that approval of this Mine Plan along with Progressive Mine Closure Plan is subject to the provision of Forest (Conservation) Act 1980, Forest (Conservation) Rules 1981 and other relevant statutes, orders and guidelines as may be applicable to the lease from time to time.
  - (iv) This Mine Plan along with Progressive Mine Closure Plan is approved without prejudice to any order or direction from any Court of Competent Jurisdiction.
  - (v) Exploration will be carried out to prove the presence of any other Gypsum bed beneath the excavated area of working pit within one year from the date of approval of the Mine Plan along with Progressive Mine Closure Plan.
2. You are requested to provide to this office the details of the lease whenever order of the affect is received from the State Government.
  3. Two copies of the approved Mine Plan along with Progressive Mine Closure Plan are being sent to your RQP as advised in the consent letter.

4. In case lessee fails to implement the approved Progressive Mine Closure Plan, action against him may be taken as per rules and financial assurance submitted by the lessee shall be forfeited.
5. In those cases, where Financial Assurance are forfeited, the Mining Engineer / Assistant Mining Engineer concerned would be responsible for making reclamation and rehabilitation of the area of the lease used by lessee.
6. The lessee will deposit financial assurance of rupees 4,95,900/- in form of FDR of nationalized bank of any other form required under rule 23F of MCDR (Amended) 2003, before the execution of mining lease deed. The FDR should be pledged with Mining Engineer, DMG, Bikaner.

Wherever area of Mining and allied activity is increased, it should be ensured by concerned ME / AME that required enhanced Financial Assurance is submitted by the lessee as directed by Rajasthan State Government order no. F-14(7) Mines/ Gr-II/86 Jaipur Dated 12.11.2003.

Yours Faithfully

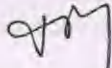
  
Superintending Mining Engineer  
Bikaner Circle, Bikaner

No. Even/

Date: -

**Copy forwarded for Kind information to: -**

1. The Regional Controller of Mines, Ajmer Region, IBM, Makhupura Industrial Estate, Ajmer 305 008.
2. The Director of Mines Safety, Directorate General of Mines Safety, Ajmer.
3. The Director, Directorate of Mines & Geology, Shastri Circle, Udaipur.
4. The Additional Director (Mines), DMG, Jodhpur.
5. The Mining Engineer, Bikaner to please ensure compliance of the approved Mine Plan along with Progressive Mine Closure Plan along with a copy.
6. Shri Pukh Raj Nenival, Dy. Manager (Mining), RSMML, Bikaner, RQP with two copies of the approved Mine Plan along with Progressive Mine Closure Plan.
7. Guard file.

  
Superintending Mining Engineer  
Bikaner Circle, Bikaner

**Government of Rajasthan**  
**Office of the Superintending Mining Engineer**  
**Bikaner Circle, Bikaner(Raj.)**

No. SME/BKN/Nagaur/Major/ML-32/05/ 1798

Date: 15-01-2013

**M/s Rajasthan State Mines & Minerals Ltd**  
**Sadul club Building,**  
**Bikaner**

**Sub.:- Approval of Mining Scheme including Progressive Mine Closure Plan** in for Mineral Gypsum Near Village **Dhani Abdulla wali** Tehsil Kolayat Distt. Bikaner for an area of **1278.00 Hect**, (ML No- **32/2005** ) Submitted under rule 22 of MCR 1960 & 23(B) (1) of MCDR1988 (Amendment) 2003

**Dear Sir,**

In exercise of the power conferred under rule 22 (4A) of Mineral Concession rules 1960 and sub rule (4) of rule 11 and rule 23(B) of Mineral Concession and development (amendment) rule 2003 read with State Govt. notification dated 20-04-2005, I Here by **APPROVE** the above said Mining Scheme including Progressive Mine Closure Plan. This approval is subject to the following conditions:-

- 1 (i) This **Mining Scheme including Progressive Mine Closure Plan** is approved with out prejudice to any other laws applicable to the Mine/area from time to time whether made by the Central Government State Government or any other authority.
- (ii) It is clarified that the approval of your aforesaid **Mining Scheme Including progressive Mine closure plan** does not in any way imply the approval of the Government in terms of any other provision of the mines and Minerals (Regulation and Development) Act, 1957 or the Rules framed there under and any other laws.
- (iii) It is further clarified that approval of the **Mining Scheme Including Progressive Mine Closure Plan** is subject to the provision of Forest (Conservation) Act, 1980, Forest (conservation) Rule, 1981 and other relevant statutes, orders and guidelines as may be applicable to the lease from time to time.
- 2 The **Mining Scheme Including Progressive Mine Closure Plan** is approval without prejudice to any order or direction from any Court of Competent jurisdiction.

- 3 Exploration will be carried out to prove the presence of any other Gypsum bed beneath the excavated area of working pit with in one year from the date of approval of this Mining Scheme Including progressive Mine Closure Plan.
- 4 In case lessee fails to implement approved Mining **Scheme** including Progressive Mine Closure Plan Action against him be taken as per rules and financial assurance submitted by the lessee shall be forfeited.
- 5 In those cases where financial assurance are forfeited the M.E /A.M.E concerned would be responsible for making reclamation and rehabilitation of lease are used by lessee.

Wherever area of mining and allied activity is increased it should be ensured by concerned ME/AME that the required enhanced financial assurance is submitted by lessee as directed by Rajasthan State Government order No. F-14(7)Mines/Gr.11/86 Jaipur, Dt. 12-11-03

Yours Faithfully,

Superintending Mining Engineer  
Bikaner Circle, Bikaner

Date:

No. Even/

Copy forwarded for kind information to :

- 1 The Regional Controller of Mines, Ajmer Region. IBM Makhapura Ind- Area Ajmer-305008 with One Copy of approved Mining Scheme Including Progressive Mine Closure Plan .
- 2 The Director, of Mines Safety, Directorate General of Mines Safety, Ajmer
- 3 The Director, Mines and Geology , Shastri Circle , Udaipur with One Copy of approved Mining Scheme Including Progressive Mine Closure Plan .
- 4 Addition Director (Mines) Jodhpur.
- 5 M.E Bikaner Please ensure Compliance of Approved Mining **Scheme** Including Progressive Closure Plan with a Copy of approved Mining Scheme Including Progressive Mine Closure Plan .
- 6 Shri D.S. Acharya RQP, M/s R.S.M.M. Ltd., Bikaner
- 7 Guard File.

Superintending Mining Engineer  
Bikaner Circle, Bikaner

राजस्थान सरकार  
**Government of Rajasthan**  
कार्यालय अधीक्षण खनि अभियन्ता, खान एवं भू विज्ञान विभाग बीकानेर वृत्त बीकानेर  
**Superintending Mining Engineer Mines & Geology Dept. Bikaner**  
सी-64 सादुलगंज, बीकानेर  
दुरभाष Phone No. 0151-2226611 Fax - 0151- 2206108  
**Email Id - smebikaner@dmg-rai.org**

No. SME/BKN/CC-III/M.S/ M.L-32/05 | 3155

Dated : 1.9.2017

To :  
M/s R.S.M.M.Ltd,  
Gandhi Nagar,  
Bikaner.

**Subject:-** Approval of Mining Scheme with Progressive Mine Closure Plan in respect of your Mining Lease ( M.L32/05) for Mineral Gypsum Near village Dhani Abdullawali Tehsil Kolayat Distt. Bikaner over an area of 1278 Hects. Submitted under Rule 29 of The Rajasthan Minor Mineral Concession Rules, 2017

Sir,

In exercises of the power conferred by Rule 29 of The Rajasthan Minor Mineral Concession Rules, 2017, I here by approve the above said Mining Scheme with Progressive Mine Closure plan This approval is subject to the following conditions :-

1. This **Mining Scheme with Progressive Mine Closure plan** is approved without prejudice to any other laws applicable to the mine/area from time to time whether made by the Central Government, State Government or any other authority.
2. It is clarified that the approval of your aforesaid **Mining Scheme with Progressive Mine Closure plan** does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Regulations and Development) Act, 1957 or The Rajasthan Minor Mineral Concession Rules, 2017 or any other laws including Forest (Conservation) Act, 1980, Environment Protection Act, 1986 and the rules made there under.
3. It is further clarified that approval of the **Mining Scheme with Progressive Mine Closure plan** is subject to the provisions of Forest (Conservation) Act, 1980, Forest (conservation) Rules, 1981 and other relevant statues, orders and guidelines as may be applicable to the lease from time to time.
4. The **Mining Scheme with Progressive Mine Closure plan** is approved without prejudice to any other order or direction from any court of competent jurisdiction.
5. This approval of proposed mining operations and associated activities is restricted to the mining lease area only.

राजस्थान सरकार

**Government of Rajasthan**

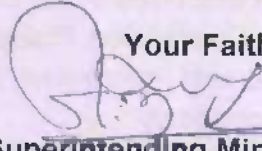
कार्यालय अधीक्षण खनि अभियन्ता, खान एवं मू विज्ञान विभाग बीकानेर वृत्त बीकानेर  
**Superintending Mining Engineer Mines & Geology Dept. Bikaner**  
सी-64 सादुलगंज, बीकानेर

दूरभाष Phone No. 0151-2226611 Fax - 0151- 2206108

**Email Id - smebikaner@dmg-raj.org**

6. The execution of **Mining Scheme with Progressive Mine Closure plan** shall be subjected to vacation prohibitory orders / notices, if any.
7. If anything found to be concealed as required by the Mines Act/Rules in the contents of Mining Scheme with Progressive Mine Closure plan and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
8. At any stage, if it is observed that the information furnished in the document are incorrect or misrepresent facts, the approval of the document shall be revoked with immediate effect.
9. The lessee/applicant should deposit Financial Assurance to the concerned Mining Engineer/ Assistant Mining Engineer, as required under Rule 29 of The Rajasthan Minor Mineral Concession Rules, 2017  
Encl : One Copy of Approved Mining Scheme with Progressive Mine Closure plan Documents

Your Faithfully,

  
**Superintending Mining Engineer,  
Bikaner Circle, Bikaner.**

Dated:

No.

Copy( not on original) forwarded for kind information to :

1. Director, Mines & Geology Department, Udaipur with one copy of approved Mining Scheme including progressive Mine Closure Plan.
2. Mining Engineer, Bikaner with one copy of approved Mining Scheme including progressive Mine Closure Plan.
3. Sh.D.S Acharya RQP, Senior Manager((Geology), M/s R.S.M.M.Ltd.Bikaner.
4. Guard File.

**Superintending Mining Engineer,  
Bikaner Circle, Bikaner.**

This Mining Plan has been approved  
vide letter..... S.M.E./Bikaner Dt. 31.5.17  
Under M.C.D.R. 1988 M.C.R. 1960/11817  
GCDR 1999/M.C. & D.R. 2002

**COPIES  
APPROVED**



# RAJASTHAN STATE MINES & MINERALS LTD.


(A Government of Rajasthan Enterprise)  
SBU & PC - GYPSUM, BIKANER  
RAJASTHAN



## SCHEME OF MINING WITH PROGRESSIVE MINE CLOSURE PLAN (From Financial Year 2016-17 to 2020-21)

FOR

**DHANI ABDULLAWALI GYPSUM MINES**  
Tehsil: KOLAYAT, District: Bikaner  
Lease Area: 1278 Hectare  
(ML No.32/2005)  
[Submitted under Rule 37G (2) of RMMCR-1986  
(Amended up to May 2016)  
& Rule 29(5) of RMMCR-2017]

  
Superintending Mining Engineer  
परीक्षण एवं अभियन्ता  
Mines & Geology Deptt  
ज्ञान एवं भू-विज्ञान विभाग  
Bikaner/बीकानेर

**PREPARED BY:**

**D.S.Acharya**

Senior Manager (Geology) & Qualified Person

RQP No.: RQP/AJM/241/2003/A

Valid up to: 09.04.2023



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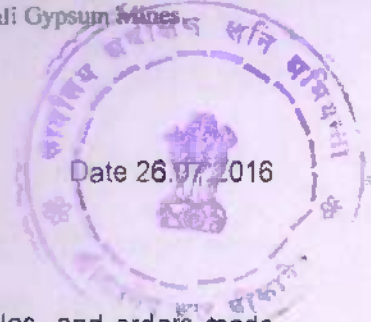
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APPROVED



Certificate

1. This is to certify that provisions of Mines Act, Rules, and orders made there under have been observed in the Scheme of Mining with Progressive Mine Closure Plan for Dhani Abdullawali Gypsum Mines and wherever specific permissions is required, the applicant will approach Director General of Mines Safety.
2. This is to certify that provisions of Rajasthan Minor Mineral Concession Rules (Amended), 2013 have been observed in the Scheme of Mining with Progressive Mine Closure Plan for Dhani Abdullawali Gypsum Mines of M/s Rajasthan State Mines and Minerals Limited having an area of 1278 hectares near village Dhani Abdullawali, Tehsil Kolayat, District Bikaner (Rajasthan) wherever specific permission is required, the applicant will approach the concerned authorities.
3. This is to certify that the information furnished in the Scheme of Mining with Progressive Mine Closure Plan for Dhani Abdullawali Gypsum Mines near Village Dhani Abdullawali, Tehsil Kolayat, District Bikaner are as per Mines Records and feedback from Mines Manager to Survey team at the time of survey.

D. S. Acharya

Senior Manager (Geology)

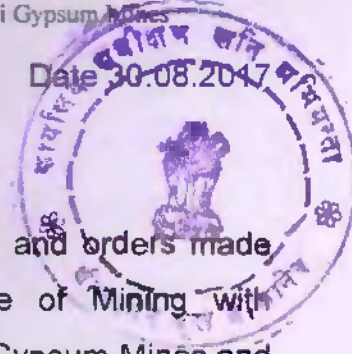
RQP No.: RQP/AJM/241/2003/A

Valid up to: 09.04.2023



Certificate

Date 30.08.2017



1. This is to certify that provisions of Mines Act, Rules, and orders made there under have been observed in the Scheme of Mining with Progressive Mine Closure Plan for Dhani Abdullawali Gypsum Mines and wherever specific permissions is required, the applicant will approach Director General of Mines Safety.
2. This is to certify that provisions of Rajasthan Minor Mineral Concession Rules, 1986 (Amended up to May-2016) & Rajasthan Minor Mineral Concession Rules 2017 have been observed in the Scheme of Mining with Progressive Mine Closure Plan for Dhani Abdullawali Gypsum Mines of M/s Rajasthan State Mines and Minerals Limited having an area of 1278 hectares near village Dhani Abdullawali, Tehsil Kolayat, District Bikaner (Rajasthan) wherever specific permission is required, the applicant will approach the concerned authorities.
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D. S. Acharya

Senior Manager (Geology)

& Qualified Person



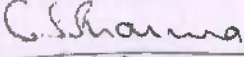
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CERTIFICATE

I, C.S. Sharma, Group General Manager (Gypsum), SBU & PC-Gypsum, Rajasthan State Mines & Minerals Limited hereby authorize Sri D. S. Acharya, Senior Manager (Geology) Registration No. RQP/ AJM/ 241/ 2003 /A to prepare the Scheme of Mining with Progressive Mine Closure Plan for Dhani Abdullawali Gypsum Mines (1278 Hectares) Near Village- Dhani Abdullawali in Tehsil Kolayat, District Bikaner, Rajasthan, as he is Recognized Qualified Person from IBM for the purpose.

For RAJASTHAN STATE MINES & MINERALS LTD.

  
(C.S. Sharma)

Group General Manager (Gypsum)  
SBU & PC-Gypsum



APPROVED

Date: 26.07.20



UNDERTAKING

The Scheme of Mining with Progressive Mine Closure Plan for Dhani Abdullawali Gypsum Mines (1278 Hectares) Near Village- Dhani Abdullawali in Tehsil Kolayat, District Bikaner has been prepared in full consultation with me and I understand its contents and agree to implement the same in accordance with the law.

For RAJASTHAN STATE MINES & MINERALS LTD.

*C.S. Sharma*  
(C.S. Sharma)

Group General Manager (Gypsum)  
SBU & PC-Gypsum



खनन योजना तैयार करने हेतु  
योग्य व्यक्ति के रूप में  
मान्यता का प्रमाणपत्र



09/05/13

जल सिंह (उत्तर)  
Controller of Mines (North)  
भारतीय खान ब्यूरो  
Indian Bureau of Mines

(खनिज विकास विध्यावली 1960 के नियम 22(सी) के अंतर्गत)

श्री देवी शंकर आचार्य

जबलपुर महिषा प्रसाद खानाबदो

निवासी चौतीना कुआ के पास, जमशेदपुर

द्वारा अपने योग्यताओं और अनुभव का लोचप्रद प्रमाण प्रस्तुत करने के परसस्वरूप  
खनिज विकास विध्यावली, 1960 के नियम 22(सी) के अंतर्गत उन्हें एतद्द्वारा खनन  
योजना तैयार करने हेतु योग्य व्यक्ति के रूप में मान्यता प्रदान की जाती है।

उपरोक्त पंजीयन क्रमांक: RSMAJN/241/2013/A है।

यह मान्यता दिनांक: 09 अप्रैल 2013 को समाप्त

होने वाली एक वर्ष की अवधि के लिए वैध है।  
आर. एम. सी. के दस्तावेज: का/13

स्थान: अजमेर

दिनांक: 09/05/13

9/5/13 तक के लिए नवीनीकृत  
Renewed up to 9/5/13



17/05/13  
क्षेत्रीय खान नियंत्रक  
भारतीय खान ब्यूरो  
Regional Controller of Mines  
भारतीय खान ब्यूरो, उत्तर  
Indian Bureau of Mines

दिनांक 09.05.2013 को वर्तमान पता:

श्री देवी शंकर आचार्य  
जाकिर शिव मदन  
चौतीना कुआ के पास  
पोस्ट बज्जि किल्ला-33440(जयपुर)  
09/05/13  
Controller of Mines (North)  
भारतीय खान ब्यूरो

09/5/13  
जल सिंह (उत्तर)  
Controller of Mines (North)  
भारतीय खान ब्यूरो  
Indian Bureau of Mines



प्रमाणिका १७०८

# राजस्थान विश्वविद्यालय जयपुर

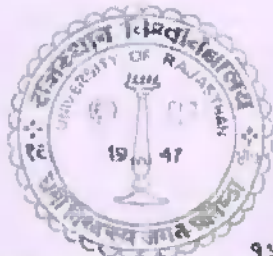
हम, राजस्थान विश्वविद्यालय के कुलाधिपति, कुलपति तथा सेनेट के सदस्य, प्रमाणित करते हैं कि विश्वविद्यालय भू-विज्ञान विभाग, उदयपुर के देवी अंकण प्राचार्य को सन् १९८७ की परीक्षा प्रथम श्रेणी में उत्तीर्ण घोषित होने पर

## प्राप्त और साहस्य

की उपाधि प्रदान की गई।

परीक्षा का विषय भू-विज्ञान था।

प्रमाण-पत्र इस विश्वविद्यालय की मुद्रा और कुलपति के हस्ताक्षर से अंकित किया जाता है।



सन् १९८८

कुलपति

१५ अप्रैल, १९८८



**Mohanlal Sukhadia University, Udaipur**

Copy of marks obtained at the M. Sc. Tech ( APPLIED GEOLOGY ) Examination, 1988

Roll No 10754  
Enrolment No 88129016  
Name Devi Shanker Acharya  
Category : Regular Ex Student

Max Marks Min Pass Marks	Paper-I		Total in Paper	Paper-II Mining Geology and Geostatistics	Paper-III Mineral Technology and Mineral Economics	Paper-IV Engineering Geology and Ground Water		Total Marks in Theory papers taken together paper I to IV	Practical	Grand total of marks scored by candidate at main examination ( i.e. Theory & Practical taken together)	Passed in Division (if for 1st)	REMARKS
	Part-I Structural Geology	Part-II Microplateontology				100 25	100 25					
	50	50	100 25	100 25	100 25	100 25	100 25	400 144	300 120	700 264		
Marks obtained	25	36	61	69	51	52	233	224	457		I	

NOTE :- Classification & Instruction are on the overleaf

UDAIPUR

Writers 1

2

Checkers 1

2

ON

21 SEP 1988

Dated



Y. S. [Signature]  
CONTROLLER OF EXAMINATIONS



**RAJASTHAN STATE MINES & MINERALS LIMITED**

(A Government of Rajasthan Enterprise)

SBU&PC- Gypsum, 2, Gandhi Nagar Scheme, Bikaner-334001 (Rajasthan)

CIN No. U14109RJ19495GC000505

Phone 0151-2523295/2544254, Fax 0151-2523519

Web Site: rsmm.com email: info.rsmml@rajasthan.gov.in



File No. RSMM/GGM/GYP/2017/142.

Dated: 02-08-2017

**EXPERIENCE CERTIFICATE**

This is to certify that Shri D.S. Acharya S/O Shri Mahadev Prasad Acharya is working in Rajasthan State Mines & Minerals Ltd. since 13-03-1989. He possessed M. Sc. ToCh. (Applied Geology) Degree and presently holding the post of Senior Manager (Geology) in our Gypsum & Selenite Unit, Bikaner. He is having professional experience of more than twenty eight (28) years of working in a supervisory capacity in the field of mining after obtaining degree.

*C.S. Sharma*  
2/8/17

Group General Manager (Gypsum)

Registered Office:  
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Jaipur- 302015  
Phone 0141-2743734  
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1/19-B Asaf Ali Road,  
New Delhi-110 002  
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Part-I

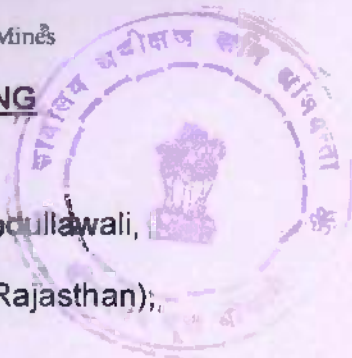
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# REVIEW

OF

# PREVIOUS SCHEME OF MINING



## 1.0 REVIEW OF FIRST SCHEME OF MINING

- 1.1 Name of the Mine** Dhani Abdullawali Gypsum Mines.  
(ML No-32/2005), Village: Dhani Abdullawali,  
Tehsil: Kolayat, District: Bikaner (Rajasthan);  
Mines Area: - 1278 Hectare

### **1.2 Particulars of Scheme of Mining.**

The mining lease of Dhani Abdulla Wali Gypsum Mines for an area of 1278 hectare was granted in favour of Rajasthan State Mines & Minerals Limited vide GOR order No.P.3(14)Khan/Group-1/2007, dated 31.07.2009(Annexure-A) for a period of 20 years from the date of registration of mining lease agreement i.e. w.e.f. 20.01.2010 to 19.01.2030.

The mining lease category has been converted in minor mineral vide Department of Mines & Geology letter No. ME/Bika/ML/32/05/216 dated 13.05.2015 (Annexure-B).

The Mining Plan for Dhani Abdullawali Gypsum Mines (lease area: 1278 ha.) was approved by the Superintending Mining Engineer, Department of Mines & Geology, Bikaner vide letter No. SME/BKN/CC/Major/F/2007-08/1639, dated 04.06.2007 (Annexure-C).

The first scheme of mining with progressive mine closure plan for Dhani Abdullawali Gypsum Mines was approved by the Superintending Mining Engineer, Department of Mines & Geology, Bikaner vide letter No. SME/BKN/Nagaur/Major/ML-32/05/1798, dated 15.01.2013 (Annexure-D).

### **1.3 Date of Commencement of Mining Operations**

03.02.2010



#### 1.4 Review of approved scheme of mining.

##### (A) Deficiencies:

The production capacity of mines as per Environment Clearance by the Ministry of Environment & Forest, Government of India, New Delhi was 5.00 lakh Metric Ton per annum. The Term of Reference no. J-11015/61/2014-IA.II(M), dated 07.05.2014 was obtained from the Ministry of Environment, Forest and Climate Changes, Government of India, New Delhi for increase in production capacity of Gypsum from 5 Lakh TPA to 6 Lakh TPA. The copy of TOR is annexed as Annexure-E. The proposal is pending at the Ministry of Environment & Forest, Government of India, New Delhi for environment clearance for increased production capacity. As per previous approved Scheme of Mining, the increase in production of gypsum was proposed from the financial year 2013-14 but it was not executed now it is proposed from the financial year 2016-17 subject to receipt of environment clearance for 6 lakh TPA. The Mines will be operated on increased production capacity after receipt of fresh Environmental Clearance. It has also observed that the demand of gypsum from Dhani Abdullawali Gypsum Mines on lower side as compared to anticipations as considered in the previous Scheme of Mining. It is anticipated that RSMML may requires increasing production from the mines with the depletion of gypsum reserve from the nearby gypsum mines. The financial year wise production from the mines as compared to previous Scheme of Mining is as under.

##### Production of Gypsum at Dhani Abdullawali Gypsum Mines.

S.No.	Financial Year	Proposed Production as per approved scheme of mining in MT	Actual Production in metric ton.
1	2011-2012	219714	219714.50
2	2012-2013	493808	295120.00
3	2013-2014	596109	255013.10
4	2014-2015	596139	342719.60
5	2015-2016	596916	64149.10
	Total	2502686	1927709.2

Estimated Geological Reserve of Gypsum as on 18.11.2015 (category 111):  
5861057.73 Metric Ton

Estimated Mineable Reserve as on 18.11.2015 (category 111):  
4395793.30 Metric Ton

(Estimated 75% of Geological Reserve)



(B) Review of compliance position of Salient features of first scheme of mining:

(i) Exploration & Prospecting:

No further exploration and prospecting of gypsum is carried out at mines as sufficient exploration data on the basis of running working face and old prospecting pits are available at mines. As per recent geological review & survey of mines by a team of geologist, surveyors and Mines Manager of Dhani Abdullawali Gypsum Mines on 18.11.2015, the gypsum reserve position has been estimated as under.

GEOLOGICAL RESERVES AT DHANI ABDULLAWALI GYPSUM MINE AS ON 18.11.2015								
Block	Balance Gypsum bearing Area in Meter Sq.	Thick ness of OB in meter	Thick ness of gypsu m in meter	Volume of OB in meter cube	Volume of gypsum in meter cube	Grade CaSO <sub>4</sub> . 2H <sub>2</sub> O%	Geological Reserve in metric tone	Mineable Reserve @ 75% in metric tone
A1	41496.65	0.15	1.60	6224.50	66394.65	71.36	116190.63	87142.97
A2	28029.82	0.25	1.38	7007.45	38774.58	73.44	67855.51	50891.63
A3	80868.98	0.50	1.41	40434.49	113755.70	71.14	199072.47	149304.36
A4	99439.39	0.20	0.83	19887.88	82037.50	77.03	143565.62	107674.22
A5	33347.01	0.20	0.83	6669.40	27511.29	77.03	48144.75	36108.56
A6	119151.02	0.50	1.13	59575.51	134044.90	66.38	234578.57	175933.93
A7	64175.07	0.50	1.13	32087.53	72196.95	66.38	126344.66	94758.50
A8	114919.05	0.40	0.70	45967.62	80443.33	40.43	140775.63	105581.87
A9	57550.13	0.40	0.70	23020.05	40285.09	40.43	70498.91	52874.18
A10	24423.73	0.40	0.70	9769.49	17096.61	40.43	29919.07	22439.30
B1	54230.13	0.12	1.24	6507.62	67380.93	77.47	117916.63	88437.47
B2	47957.13	0.37	1.13	17744.14	54191.56	64.33	94835.22	71126.42
B3	117743.09	0.15	1.00	17661.46	117743.09	77.20	208050.40	154537.80
B4	42955.77	0.30	1.16	12886.73	49721.30	77.61	87012.28	65259.21
B5	95657.88	0.20	1.15	19131.58	110006.56	76.05	192511.48	144383.61
B6	108183.88	0.18	1.29	18932.18	139286.74	77.85	243751.80	182813.85
B7	54331.41	0.25	1.45	13582.85	78780.54	79.51	137865.95	103399.46
B8	124960.00	0.35	1.45	43736.00	181192.00	84.01	317086.01	237814.51
B9	69303.80	0.30	1.50	20791.14	103955.69	81.28	181922.47	136441.85
B10	56353.56	0.20	1.00	11270.71	56353.56	83.78	98618.73	73964.05
C1	80916.57	1.26	1.07	101954.88	86311.01	66.12	151044.27	113283.20
C2	93214.48	0.29	1.15	27342.91	107196.65	59.73	187594.14	140695.60
C3	134330.23	0.19	1.10	25970.51	147763.25	58.95	258585.68	193939.26
C4	61604.66	0.30	1.05	18481.40	64684.90	70.91	113198.57	84898.93



C5	11809.47	0.30	1.05	3542.84	12399.94	70.91	21690.90	16274.92
C6	24408.99	0.10	1.10	2440.90	26849.89	78.73	46967.80	21270.48
C7	4935.36	0.20	1.65	987.07	5923.36	78.29	14250.86	10689.14
C8	51131.13	0.20	1.65	10226.23	84366.37	78.29	147641.14	10738.86
C9	51288.10	0.20	1.65	10257.62	84625.37	78.29	148094.40	111070.80
C10	8126.86	0.20	1.40	1625.37	11377.60	77.99	19910.81	14933.11
D1	85731.70	0.43	1.06	36578.86	90875.60	61.92	159032.30	119274.23
D2	100898.37	0.20	1.00	20179.67	100898.37	49.71	176572.15	132429.11
D3	89551.73	0.20	1.00	17910.35	89551.73	41.84	156715.53	117536.65
D7	856.61	0.20	1.65	171.32	1413.40	78.29	2473.45	1855.09
D8	40955.84	0.20	1.65	8191.17	67577.13	78.29	118259.98	88694.98
D9	636.64	0.20	1.65	127.33	1050.46	78.29	1838.30	1378.72
E1	26600.37	0.13	0.89	3546.72	23763.00	65.06	41585.25	31188.94
E2	114004.23	0.20	0.70	22800.85	79802.96	71.58	139655.18	104741.39
E3	18941.88	0.15	0.75	2841.28	14206.41	67.93	24861.21	18645.91
E4	7685.72	0.15	0.75	1152.86	5764.29	67.93	10087.51	7565.63
E10	21535.00	0.25	0.85	5383.75	18304.75	53.78	32033.31	24024.98
E11	10950.00	0.20	1.00	2190.00	10950.00	30.78	19162.50	14371.88
F2	14007.52	0.20	0.70	2801.50	9805.27	71.58	17159.21	12869.41
F3	106336.63	0.15	0.75	15950.49	79752.47	67.63	139566.83	104675.12
F4	24506.47	0.15	0.75	3675.97	18379.85	67.63	32164.74	24123.55
F8	29600.59	0.35	0.70	10360.21	20720.41	76.95	36260.73	27195.54
F9	49728.00	0.30	0.70	14918.40	34809.60	76.77	60916.80	45687.60
F10	121018.60	0.25	0.85	30254.65	102865.81	53.78	180015.17	135011.38
F11	28111.00	0.20	1.00	5622.20	28111.00	30.78	49194.25	36895.69
G3	79494.02	0.15	0.75	11924.10	59620.51	67.93	104335.90	78251.92
G4	30535.29	0.15	0.75	4580.29	22901.47	67.93	40077.56	30058.17
G8	65639.41	0.40	0.70	26255.76	45947.59	77.13	80408.27	60306.21
G9	72662.55	0.35	0.70	25431.89	50863.78	76.95	89011.62	66758.71
G10	103004.69	0.25	0.85	25751.17	87553.99	53.78	153219.48	114914.61
G11	22135.41	0.25	0.85	5533.85	18815.10	53.78	32926.42	24694.82
<b>TOTAL</b>	<b>3221971.60</b>	<b>0.29</b>	<b>1.04</b>	<b>939852.72</b>	<b>3349175.84</b>	<b>68.27</b>	<b>5861057.73</b>	<b>4395793.30</b>
<b>Total Gypsum Bearing Area(a)</b>							<b>4951906.08</b>	<b>m<sup>2</sup></b>
<b>Total Excavated Area (b)</b>							<b>1729934.49</b>	<b>m<sup>2</sup></b>
<b>Balance Gypsum Bearing Area (c= a-b)</b>							<b>3221971.60</b>	<b>m<sup>2</sup></b>
<b>Weighted Average Thickness of Overburden</b>							<b>0.29</b>	<b>m.</b>
<b>Weighted Average Thickness of Gypsum</b>							<b>1.04</b>	<b>m.</b>
<b>Volume of Overburden</b>							<b>939852.72</b>	<b>m<sup>3</sup></b>
<b>Volume of Gypsum</b>							<b>3349175.84</b>	<b>m<sup>3</sup></b>
<b>Weighted Average Grade of Gypsum in terms of CaSO<sub>4</sub>.2H<sub>2</sub>O %</b>							<b>68.27</b>	<b>%</b>
<b>Geological Reserves (Category 111)</b>							<b>5861057.73</b>	<b>MT</b>
<b>Mineable Reserves (Category 111)</b>							<b>4395793.30</b>	<b>MT</b>

**(ii) Mine development:**

The overburden is being scrapped and filled back directly into the voids created by the mining operations as per the previous scheme of mining.

The necessary development works was completed as per previous scheme of mining. The private mined out land has been returned back to tenant of the land (Khatedar or farmer), who are using the said land for agriculture purpose subject to proper rains during the rainy season or availability of water from Indira Gandhi Canal.

**(iii) Production schedule:**

The annual production schedule varies mainly with variation in demand of gypsum from Dhani Abdullawali Gypsum Mines and availability of agreement with the tenant of the land for mining operation in their land. It is also observed that due to dependency of land agreement with the tenants of land before entering into their land for mining of gypsum, the area of mining operations is not matching as compared to the area as marked year wise in previous scheme of mining. Such difficulties in gypsum mining operations could not be avoided; as the surface rights possessed by the khatedar under Land Revenue Act and lessee cannot operate mines without due consent from tenant of land.

**(iv) Afforestation and plantation program:**

Plantation activity was carried out as per of previous approved scheme of mining but the survival rate is about 50% due to desert climate. The most of the mined out land are belongs to farmers and is being used for agriculture purpose subject to proper rainfall during the rainy season or availability of water from Indira Gandhi Canal.

**(v) Reclamation & rehabilitation:**

No such adverse effect on the environment including the local population was envisaged due to mining of gypsum yet the overburden comprising of desert sand has been simultaneously backfilled and leveled in the



excavated area maintaining its original land use. In most of the areas owner of the land is using the mined out land for agriculture during the rainy season or availability of water from Indira Gandhi Canal.

**(vi) Pollution control measures:**

**(a) Ground vibrations and hazards due to drilling and blasting:**

Gypsum mine doesn't require drilling and blasting and hence there is no question of ground vibration and hazards in and around mining areas.

**(b) Dust control:**

The mine is worked by opencast single bench method of mining. As gypsum contains inherent moisture and no significant dust is generated during its excavation. The haul road from mine face to tar road is sprinkled with water at regular intervals to avoid dust generation on road. However the dust pollution due to windstorm in desert during summer season cannot be prevented.

**(c) Noise pollution:**

The absence of drilling, blasting for excavation does not warrant any hazard from noise pollution. However due to operation of excavator, tractor and trucks, noise level increases but it is well within the permissible limits.

**(d) Water pollution:**

Looking to the adverse climatic conditions in this area, there is no question of water pollution & any control measures is required. As far as mining of gypsum is concerned, it has no adverse impact at all on the natural water regime of the area. The ground water table is at about 70 meters from the surface.

**(e) Environment Monitoring:**

The environment clearance for the mines has been granted by the Ministry of Environment and Forest Government of India, New Delhi vide order No. J-11015/573/2007-IA.II(M), dated 28.05.2008(Annexure-F).



Existing consent to operate by Rajasthan State Pollution Control Board, Jaipur is valid up to 31.01.2019 (Annexure-H).

The environment survey and monitoring to ascertain quality of air, water and noise was carried out and it found within the permissible limit. The copy of AAQ Monitoring Report is Enclosed as Annexure -I.

The Mined out area has been reclaimed and is being used for agriculture at some of the places.

**(C) Specific conditions and stipulations imposed by Indian Bureau of Mines/Department of Mines & Geology while approving the mining plan:**

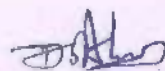
Complied with.

**(D) Compliance of inspections under MCDR 1988:**

Complied with.

**(E) Any other information:**


Nil.

  
D.S. Acharya

Senior Manager (Geology) & Qualified Person

RQP No.: RQP/AJM/241/2003/A

Valid up to : 09.04.2023

  
Superintending Mining Engineer  
प्रधान मंत्री प्रतिष्ठान  
Mines & Geology Deptt.  
ज्ञान एवं सू-विज्ञान विभाग  
Gyaner/वीकअवेड



1977  
1977



Part-II

# PROPOSED SCHEME OF MINING

**2.0 PROPOSALS UNDER THE SCHEME OF MINING:****2.1 Name & Address of the applicant:****REGISTERED OFFICE:**

Rajasthan State Mines &amp; Minerals Ltd.,

(A Government of Rajasthan Enterprise)

C-88-89, Janpath, Lalkothi Scheme,

JAIPUR – 302 015 (Rajasthan)

Telegraphic Address: RAJMINES

Telephone Nos. : 0141-2743734

Fax No. : 0141-2743735

**GYPSUM UNIT:**

Sh. C.S.Sharma

Group General Manager (Gypsum)

Rajasthan State Mines &amp; Minerals Ltd,

02 Gandhi Nagar Scheme,

BIKANER – 334 001(Rajasthan)

Telephone Nos.: 0151-2523295(O)

Mobile 94141-63047(M)

Fax No.: 0151-2523519.

**2.2 Name, address of the RQP & Qualified Person(s):**

D.S. Acharya, Senior Manager (Geology) &amp; Qualified Person,

Rajasthan State Mines &amp; Minerals Ltd.,

RQP No.: RQP/AJM/241/2003/A, Valid up to: 09.04.2023

02 Gandhi Nagar Scheme, BIKANER – 334 001 (Rajasthan),

Phone No. 0151-2522270 (O), 2547182 (R), 94141-63345 (M)

Fax No.: 0151-2523519.

Assisted by:

a) Rajendra Bhati, Mines Manager &amp; Mining Engineer,

Dhani Abdullawali Gypsum Mines,

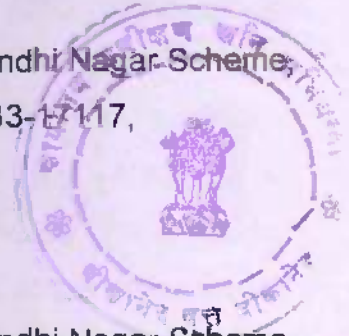
Rajasthan State Mines &amp; Minerals Ltd, Tehsil Kolayat,

District Bikaner, Mobile 94133-00471



b) P. Leela Kumar, Manager (Survey),

Rajasthan State Mines & Minerals Ltd, 02 Gandhi Nagar Scheme,  
BIKANER – 334 001(Rajasthan), Mobile 94133-17117,  
Fax No.: 0151-2523519.



b) Imran Ali, Deputy Manager (Geology),

Rajasthan State Mines & Minerals Ltd, 02 Gandhi Nagar Scheme,  
BIKANER – 334 001(Rajasthan), Mobile 94140-64216,  
Fax No.: 0151-2523519.

**2.3 Mineral(s) to be mined:**

Gypsum

**2.4 Area and date of expiry of lease:**

The mining lease of Dhani Abdulla Wali Gypsum Mines for an area of 1278 hectare was granted in favour of Rajasthan State Mines & Minerals Limited vide GOR order No.P.3(14)Khan/Group-1/2007,dated 31.07.2009(Annexure-A) for a period of 20 years from the date of registration of mining lease agreement i.e. w.e.f. 20.01.2010 to 19.01.2030. Sanctioned mining lease area is 1278 Hectare.

Dhani Abdullawali Gypsum Mines is located about 133 Km. from Bikaner. The location of Mines on Geographical Survey of India Top Sheets is as under:

Topo Sheet No. 44D/7

Latitude: N28<sup>0</sup>20' 3.25" to N28<sup>0</sup>21' 39.2"

Longitude: E72<sup>0</sup>22' 52.97" to E72<sup>0</sup>25' 34.97"

**2.5 Date of expiry of for which previous scheme of mining was approved:**

31.03.2016



### 3.0 GEOLOGY, GEOLOGICAL RESOURCES AND MINEABLE RESERVE OF GYPSUM:

#### 3.1 GEOLOGY.

The area falls under Survey of India topo sheets no. 44D/7 and is bounded by Latitude  $N28^{\circ}20' 3.25''$  to  $N28^{\circ}21' 39.2''$  & Longitude  $E72^{\circ}22' 52.97''$  to  $E72^{\circ}25' 34.97''$ . The location of the deposit has been marked on Drawing NO. DAW/A.

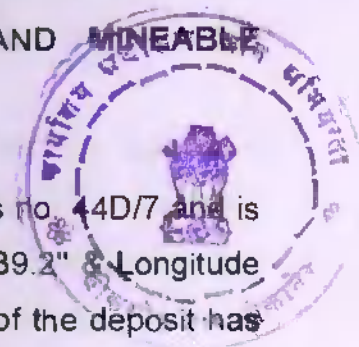
#### 3.2 Physiography :

The area consists mainly of an extensive former flood plain with remnants of numerous, silted-up watercourses. This plain is buried under Aeolian sand, at some places forming small and large dunes. The area is more or less flat with a fine sand overburden. The soil of interdunal depression of the area is underlain by gypsious materials as consolidated strata/layer at varying depths. Gypsum content varies from plentiful crystalline gypsum to amorphous gypsum of mining quality with intercalation of sandy layer. The soil above gypsious materials is of fine texture and it appears occasionally in depressions where there is a probably mixing with colluviums material.

The surface plan of the area on scale of 1:5000 with contour interval of 5 Mtr. is given at drawing No. DAW/C. The relief of the area restrict between 120 Mtr above MSL to 140 Mtr above MSL.

Sand dunes of varying heights running almost parallel to the gypsum deposit. No forest land is falling in the lease area.

The climate is arid to semi-arid with a cool dry winter from November to March. During this period North-Easterly winds prevail and there is often a little rain. From April to July the weather is very hot and dry (max. temperature up to  $49^{\circ}\text{C}$ ) with strong South-Westerly winds causing frequent sand and dust storms. From July to September, there are scattered rains.





followed by a second spell of hot, dry weather from September to November.

The annual rainfall is about 250 mm. However the rainfall is extremely variable with severe drought, a common occurrence. Most of the land is covered under the command area and allotted to private cultivators for agriculture. Wheat, Gwar, Mustard and Groundnut are the major crops being taken depending on the availability of water for irrigation in the canal. The rainfall is very scanty and the area is a part of Thar Desert hence no natural drainage pattern exists in the area.

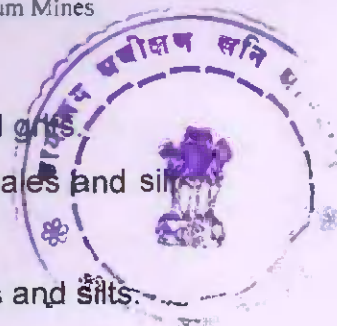
### 3.3 Regional Geology

Western Rajasthan is covered mostly by wind-blown sand dunes. There are two main arms of sand hills extending North of Rann of Kutch. One runs from Umarcoat, passing around Jaisalmer and northwestwards to Bikaner, while the other runs northeastward from Barmer to Jodhpur and coalesces with the first around Bikaner. The enclosed track of Jaisalmer, Bikaner and Pokharan is rocky and contains a few scattered sand hills. The stratigraphy of the area is as follows:

Recent	✶	Wind-blown sand, alluvium and evaporites, gypsum
Sub-recent	✶	Conglomerate
UNCONFORMITY		
Tertiary (mostly Eocene)	:	Limestone, marl limestone, nummulitic limestone, shale, bentonite, fuller's earth, gypsum etc.
Mesozoic-Cretaceous	:	Habur limestone and sand stones, Barmer sandstone



Jurassic	:	Parihar sandstone. Bedasar sandstone and grits. Baisakhi sandstone, shales and siltstone. Lathi sandstone, shales and silts.
UNCONFORMITY		
Paleozoic Permo Carboniferous	:	Bap boulder bed; Badhaura formation as sandstone and shales.
Early Paleozoic	:	Birmania formation limestone and shale.
UNCONFORMITY		
Cambrian	:	Vindhyan sandstone and shale.
Precambrian	:	Malani suite of igneous rocks.



The sub-surface gypsum deposits of commercial importance have discovered in Vindhyan formation near Nagaur and as surface deposit in the evaporites of recent age in areas surrounded by sand dunes in District Hanumangarh, Sriganganagar, Bikaner, Jaisalmer, Barmer, Jalore & Pali.

In most of the area extensive sand dunes and sand cover obscures the geology. The exposure of compact rock mass are therefore scanty and in patches. However, the geological column build up with the help of such surface data obtained from the dug wells, reveals that the oldest rock in the area belong to the upper Vindhyan which are entirely made up of bright to pale red fine and medium grained compact sand stone (Exposure seen in mine quarry near Dulmera about 60 Kms due North-East of Bikaner). The tertiary rock exposures are best developed around Kolayat, about 54 Kms WSW of Bikaner. The windblown sand of recent to sub-recent period is mainly made up of silica with minor biotite and magnetite. The gypsum rich beds are found in shallow elongated through shaped depression surrounded by sand dunes.



### 3.4 Local Geology

The gypsum is a sedimentary deposit. It is believed that most gypsum deposits were formed by precipitation from saline waters and the theory of deposition of gypsum from seawater by evaporation is generally accepted. The surface gypsum deposits are of recent to sub-recent age.

Gypsum deposit mostly outcrops on the surface with little overburden, which comprises of loose sand of variable thickness from 0.10 to 1.26 meter with average of 0.29 meter. The thickness of gypsum bed varies from 0.70 meter to 1.65 meter with an average thickness of about 1.04 meter. The gypsum bed is underlain by desert sand in most of the cases. The average grade of mineral gypsum is 68.27%  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ .

In the mineralized zone, the gypsum deposit occurs as bed or bands intercalated with sand and silty material.

The desert sand overlying gypsum bed form the upper layer of the entire area and the grain size varies from 60-200 Mesh. The general litho logical succession observed in the pits is as follows:

- Desert sand/alluvium
- Amorphous/crystalline gypsum with intercalation of argillaceous material.
- Sand

The gypsum bed is more or less flat and occurs at lower levels compared to the surrounding areas indicating its deposition in shallow depression.

### 3.5 Category-wise reserves as on 18.11.2015

UNFC Category	Geological Resources in Lakh Metric Ton	Minable reserve in Lakh Metric Ton	Average grade in terms of $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ %
category 111	58.61	43.96 (Estimated Recovery 75% of Geological Resources)	68.27%
Total	58.61	43.96	68.27%

**3.6 Depletion of Reserves:**

19.28 Lac metric ton gypsum has been excavated during the period from the date of commencement of mining operation at mines up to 31.03.2016.

**3.7 Additional Reserves established:**

No further exploration and prospecting of gypsum is carried out at mines.

The gypsum reserve estimated as on 18.11.2015 is on the basis of Old mining operations, available prospecting data as per previous scheme of mining and field feedback from Mines Manager and their staff. The prospecting data are available at an interval of less than 400m, mineral excavation is economically viable. Therefore the estimated minable reserves as on 18.11.2015 are considered as category 111 of the UNFC classification.

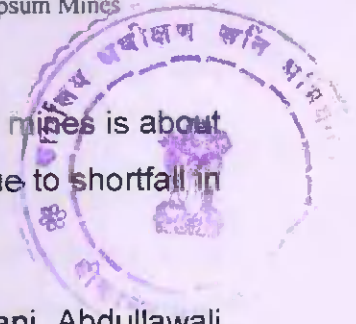
**3.8 Category wise updated reserves as on 18.11.2015:**

GEOLOGICAL RESERVES AT DHANI ABDULLAWALI GYPSUM MINE AS ON 18.11.2015								
Block	Balance Gypsum bearing Area in Meter Sq.	Thick ness of OB in meter	Thick ness of gypsu m in meter	Volume of OB in meter cube	Volume of gypsum in meter cube	Grade CaSO <sub>4</sub> . 2H <sub>2</sub> O%	Geological Reserve in metric tone	Mineable Reserve @ 75% in metric tone
A1	41496.65	0.15	1.60	6224.50	66394.65	71.36	116190.63	87142.97
A2	28029.82	0.25	1.38	7007.45	38774.58	73.44	67855.51	50891.63
A3	80868.98	0.50	1.41	40434.49	113755.70	71.14	199072.47	149304.36
A4	99439.39	0.20	0.83	19887.88	82037.50	77.03	143565.62	107674.22
A5	33347.01	0.20	0.83	6669.40	27511.29	77.03	48144.75	36108.56
A6	119151.02	0.50	1.13	59575.51	134044.90	66.38	234578.57	175933.93
A7	84175.07	0.50	1.13	32087.53	72196.95	66.38	126344.66	94758.50
A8	114919.05	0.40	0.70	45967.62	80443.33	40.43	140775.83	105581.87
A9	57550.13	0.40	0.70	23020.05	40285.09	40.43	70498.91	52874.18
A10	24423.73	0.40	0.70	9769.49	17096.61	40.43	29919.07	22439.30
B1	54230.13	0.12	1.24	6507.62	67380.93	77.47	117916.63	88437.47
B2	47957.13	0.37	1.13	17744.14	54191.56	64.33	94835.22	71126.42
B3	117743.09	0.15	1.00	17661.46	117743.09	77.20	206050.40	154537.80
B4	42955.77	0.30	1.16	12886.73	49721.30	77.61	87012.28	65259.21
B5	95657.88	0.20	1.15	19131.58	110006.56	76.05	192511.48	144383.61
B6	108183.88	0.18	1.29	18932.18	139286.74	77.85	243751.80	182813.85
B7	54331.41	0.25	1.45	13582.85	78780.54	79.51	137865.95	103399.46
B8	124960.00	0.35	1.45	43736.00	181192.00	84.01	317086.01	237814.51
B9	69303.80	0.30	1.50	20791.14	103955.69	81.28	181922.47	136441.85
B10	56353.56	0.20	1.00	11270.71	56353.56	83.78	98618.73	73964.05
C1	80916.57	1.26	1.07	101954.88	86311.01	66.12	151044.27	113283.20
C2	93214.48	0.29	1.15	27342.91	107196.65	59.73	187594.14	140695.60
C3	134330.23	0.19	1.10	25970.51	147763.25	58.95	258585.68	193939.26
C4	61604.66	0.30	1.05	18481.40	64684.90	70.91	113198.57	84898.93
C5	11809.47	0.30	1.05	3542.84	12399.94	70.91	21699.90	16274.92
C6	24408.99	0.10	1.10	2440.90	26849.89	78.73	46987.30	35240.48
C7	4935.36	0.20	1.65	987.07	8143.35	78.29	14250.86	10688.14



C8	51131.13	0.20	1.65	10226.23	84366.37	78.29	147641.14	110730.86
C9	51288.10	0.20	1.65	10257.62	84625.37	78.29	148097.40	111070.80
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F11	28111.00	0.20	1.00	5622.20	28111.00	30.78	49194.25	36895.69
G3	79494.02	0.15	0.75	11924.10	58620.51	67.93	104335.90	78251.92
G4	30535.29	0.15	0.75	4580.29	22901.47	67.93	40077.56	30058.17
G8	65639.41	0.40	0.70	26255.76	45947.59	77.13	80408.27	60306.21
G9	72662.55	0.35	0.70	25431.89	50863.78	76.95	89011.62	66758.71
G10	103004.69	0.25	0.85	25751.17	87553.99	53.78	153219.48	114914.81
G11	22135.41	0.25	0.85	5533.85	18815.10	53.78	32926.42	24694.82
<b>TOTAL</b>	<b>3221971.60</b>	<b>0.29</b>	<b>1.04</b>	<b>939852.72</b>	<b>3349175.84</b>	<b>68.27</b>	<b>5861067.73</b>	<b>4395793.30</b>
Total Gypsum Bearing Area(a)							<b>4951906.08</b>	<b>m<sup>2</sup></b>
Total Excavated Area (b)							<b>1729934.49</b>	<b>m<sup>2</sup></b>
Balance Gypsum Bearing Area (c= a-b)							<b>3221971.60</b>	<b>m<sup>2</sup></b>
Weighted Average Thickness of Overburden							<b>0.29</b>	<b>m.</b>
Weighted Average Thickness of Gypsum							<b>1.04</b>	<b>m.</b>
Volume of Overburden							<b>939852.72</b>	<b>m<sup>3</sup></b>
Volume of Gypsum							<b>3349175.84</b>	<b>m<sup>3</sup></b>
Weighted Average Grade of Gypsum in terms of CaSO <sub>4</sub> .2H <sub>2</sub> O %							<b>68.27</b>	<b>%</b>
Geological Reserves (Category 111)							<b>5861057.73</b>	<b>MT</b>
Mineable Reserves (Category 111)							<b>4395793.30</b>	<b>MT</b>

For the purpose of calculating gypsum reserve the average bulk density is considered as 1.75 ton per cubic meter as considered at the time of previous scheme of mining. This volume weight conversion factor was derived at the time of preparation for original mining plan by field exercise.



#### 4.0 CONCEPTUAL MINING PLAN:

As per available data, the remaining tentative life of mines is about (10) years but life of mines may further increase due to shortfall in production by any reason.

It is proposed to carry mining operation at Dhani Abdullawali Gypsum Mine by opencast workings. The overburden comprising desert sand and mineralized bed being soft and friable, no drilling and blasting is required for excavation. The thickness of overburden varies from 0.10 meter to 1.26 meter. The thickness of gypsum bed varies from 0.70 to 1.65 meter.

The mined out area will be backfilled with the overburden for ensuring reclamation of the area and restoring original topography for the ground. Environmental management aspects are dealt in the concerned contents of scheme of mining.

#### 5.0 MINING

##### 5.1 Salient Description of Present Mining Method:

##### i) Overburden removal

Overburden can be scraped by the use of tractor having an iron scraper blade attachment. The length of blade is about 2.3 meters with a height of about 0.60 to 0.75 meters. It can easily be lowered and raised as per the requirement. During the process of removal of overburden, the blade of tractor is moved in forward direction. The forward motion permits to cut or scrap a thin slice of soil having a thickness up to about 0.50 meters. The tractive forces of the blade are sufficient enough to overcome the resistance offered by the overlaying sandy soil. This overburden so scrapped is disposed off into the worked out area. The time taken for removal of overburden depends upon the thickness of overburden and degree of consolidation, the extent of the area,



H.P. of tractor used, skill of the operator, location of the worked out area for refilling.

There are many barren patches in the form of earth pockets in the deposit. The earth/clay/silt pockets in the gypsum bearing area are isolated during the mining operations have loosened & almost leveled with the help of tractor/scrapper/plough attachment for making the land suitable for cultivation.

The reclamation activity starts when the working face advances to a distance of 50 meters & hence reclamation is being carried out simultaneously. In addition to removal of overburden, tractor is used for preparation of mine's roads, ramps and their maintenance.

#### ii) Gypsum Mining by Open Cast Mining Method

After removal of overburden, the gypsum is being extracted and loaded into trucks by hydraulic excavator of 0.9m<sup>3</sup> bucket capacity with engine of 135 H.P. and may load directly into buyers trucks for dispatches or unload at separate place as stock yard for blending of low grade gypsum with high grade gypsum before the dispatches to buyer. The machine is having adequate crowding and breakout force to enable it to excavate medium hard rock without requiring any drilling & blasting. In the area chosen for mining, overburden is removed 10.00 meters in advance for exposing the gypsum bed by combination of tractor-scrapper.

#### 5.2 Year wise development plan:

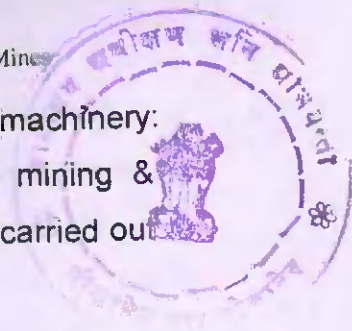
The tentative yearly production is marked on the plate - RSMM/  
GYP/ SOM/ 2016/DAW/E



## 5.3 Year-Wise Production Plan:

PROPOSED FIVE YEARS PRODUCTION PLAN (F.Y. 2016-17 TO 2020-21)

Year	Block	Balance Gypsum bearing area in meter Sq.	Thickness of OB in meter	Thickness of Gypsum in meter	Volume of OB in meter cube	Volume of gypsum in meter cube	Grade	Geological Reserve in metric ton	Proposed Annual Production (in metric ton)
I YEAR 2016-17	A1	41496.65	0.15	1.60	6224.50	66394.65	71.36	116190.63	87142.97
	A2	28029.82	0.25	1.38	7007.45	38774.58	73.44	67855.51	50891.83
	A3	80868.98	0.50	1.41	40434.49	113755.70	71.14	199072.47	149304.36
	A4	99439.39	0.20	0.83	19887.88	82037.50	77.03	143565.62	107674.22
	B1	54230.13	0.12	1.24	6507.62	67380.93	77.47	117916.63	88437.47
	B2	47957.13	0.37	1.13	17744.14	54191.56	64.33	94835.22	71126.42
<b>Total/Average</b>		<b>352022.10</b>	<b>0.28</b>	<b>1.20</b>	<b>97806.07</b>	<b>422534.91</b>	<b>72.66</b>	<b>739436.10</b>	<b>554577.07</b>
II YEAR 2017-18	B3	117743.09	0.15	1.00	17661.46	117743.09	77.20	206050.40	154537.80
	B4	42955.77	0.30	1.16	12886.73	49721.30	77.61	87012.28	65259.21
	B5	95657.88	0.20	1.15	19131.58	110006.56	76.05	192511.48	144383.61
	B6	108183.88	0.18	1.29	18932.18	139286.74	77.85	243751.80	182813.85
	C5	11809.47	0.30	1.05	3542.84	12399.94	70.91	21699.90	16274.92
	C6	24408.99	0.10	1.10	2440.90	26849.89	78.73	46987.30	35240.48
<b>Total/Average</b>		<b>400759.07</b>	<b>0.19</b>	<b>1.14</b>	<b>74595.69</b>	<b>456007.52</b>	<b>77.09</b>	<b>798013.16</b>	<b>598509.87</b>
III YEAR 2018-19	C1	43916.57	1.26	1.07	55334.88	46844.34	66.12	81977.60	61483.20
	C2	93214.48	0.29	1.15	27342.91	107196.85	59.73	187594.14	140695.60
	C3	134330.23	0.19	1.10	25970.51	147763.25	58.95	258585.68	193939.26
	C4	61604.66	0.30	1.05	18481.40	64684.90	70.91	113198.57	84898.93
	D3	89551.73	0.20	1.00	17910.35	89551.73	41.84	156715.53	117536.65
<b>Total/Average</b>		<b>422617.67</b>	<b>0.34</b>	<b>1.08</b>	<b>145040.05</b>	<b>456040.87</b>	<b>58.21</b>	<b>798071.53</b>	<b>598553.64</b>
IV YEAR 2019-20	C1	37000.00	1.26	1.07	46620.00	39466.67	66.12	69066.67	51800.00
	D1	85731.70	0.43	1.06	36578.86	90875.60	61.92	159032.30	119274.23
	D2	100898.37	0.20	1.00	20179.67	100898.37	49.71	176572.15	132429.11
	E1	26600.37	0.13	0.89	3546.72	23783.00	65.06	41585.25	31188.94
	E2	114004.23	0.20	0.70	22800.85	79802.96	71.58	139655.18	104741.39
	E3	18941.88	0.15	0.75	2841.28	14206.41	67.93	24861.21	18645.91
	F2	14007.52	0.20	0.70	2801.50	9805.27	71.58	17159.21	12889.41
	F3	106336.63	0.15	0.75	15950.49	79752.47	67.63	139566.83	104675.12
F4	24506.47	0.15	0.75	3675.97	18379.85	67.63	32164.74	24123.55	
<b>Total/Average</b>		<b>528027.17</b>	<b>0.29</b>	<b>0.87</b>	<b>154995.35</b>	<b>456950.60</b>	<b>63.06</b>	<b>799663.55</b>	<b>599747.66</b>
V YEAR 2020-21	A9	27550.13	0.40	0.70	11020.05	19285.09	40.43	33748.91	25311.68
	A10	24423.73	0.40	0.70	9769.49	17096.61	40.43	29919.07	22439.30
	B9	69303.80	0.30	1.50	20791.14	103955.69	81.28	181922.47	136441.85
	B10	56353.56	0.20	1.00	11270.71	58353.56	83.78	98618.73	73964.05
	C7	4935.36	0.20	1.65	987.07	8143.35	78.29	14250.86	10688.14
	C8	51131.13	0.20	1.65	10226.23	84366.37	78.29	147641.14	110730.86
	C9	51288.10	0.20	1.65	10257.62	84625.37	78.29	148094.40	111070.80
	C10	8126.86	0.20	1.40	1625.37	11377.60	77.99	19910.81	14933.11
	D7	856.61	0.20	1.65	171.32	1413.40	78.29	2473.45	1855.09
	D8	40955.84	0.20	1.65	8191.17	67577.13	78.29	118259.98	88694.98
D9	836.64	0.20	1.65	127.33	1050.46	78.29	1838.30	1378.72	
<b>Total/Average</b>		<b>335561.76</b>	<b>0.25</b>	<b>1.36</b>	<b>84437.50</b>	<b>455244.63</b>	<b>76.62</b>	<b>796678.11</b>	<b>597508.58</b>



5.4 Any change in the method of mining and deployment of machinery:  
No changes have been proposed for the method of mining & deployment of machinery. The mining operation will be carried out as detailed at point no.5.1(i) & (ii).

#### 6.0 HANDLING OF WASTE/SUBGRADE MATERIAL

##### 6.1 Overburden handling:

Prior to mining of Gypsum, the over burden is scraped/ excavated to expose the Gypsum face. The volumes of OB to be handled for achieving yearly production of Gypsum ROM are tabulated as under.

Table No.5

Year wise Generation & Backfilling of Wastes in Mined Out Pit

Financial Year	Area to be Broken in m <sup>2</sup>	Volume of overburden in m <sup>3</sup> and to be backfilled in mined out pit.
I Year 2016-17	352022.10	97806.07
II Year 2017-18	400759.07	74595.69
III Year 2018-19	422617.67	145040.05
IV Year 2019-20	528027.17	154995.35
V Year 2020-21	335561.76	84437.50
Total	2038987.77	556874.66

##### 6.2 Sub grade material handling:

The sub-grade gypsum layer as available at the mines is also being mined out and dispatched to customers by blending at the time of excavation of gypsum and its direct loading into trucks.

#### 7.0 USE OF MINERAL

##### 7.1 Changes Proposed in the Use of Minerals (if any) with reasons:

No changes are proposed in the use of mineral. Looking to the present market scenario, the Gypsum produced from Dhani Abdullawali Gypsum Mine is being consumed by various cement plants.



7.2 Changes in specifications Imposed by present Users / New User Industries (if any):

Now the users industries particularly cement sector is purchasing gypsum up to 50% purity in terms of  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$  against BIS specifications of 70%  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ .

7.3 Efforts made for utilization of the sub-grade mineral s:

The sub-grade gypsum layer as available at the mines now is also being mined out and dispatched to customers by blending at the time of excavation of gypsum and its direct loading into trucks.

8.0 MINERAL BENEFICATION:

As the sub grade mineral gypsum is saleable after blending with high grade mineral in its ROM form, no beneficiation is required.

9.0 ENVIRONMENTAL MANAGEMENT PLAN:

Environmental parameters	Proposals as per approved Scheme of Mining	Position at the end of proposed scheme of mining.	Proposals for the scheme of mining.
Topsoil storage, preservation and utilization	Topsoil proposed to be concurrently backfilled in the mined out area.	Topsoil has been backfilled in the mined out area	Topsoil is proposed to be concurrently backfilled in the mined out area.
Land reclamation and rehabilitation	After backfilling topsoil in the mined out area proposed to level the area by using tractor-scraper attachment.	Topsoil has been backfilled in the mined out area and leveled in the mined out area.	After backfilling the topsoil into the mined out area proposed to level the area
Waste dump management	Waste, as inter-burden soil/ earth pockets, proposed to be backfilled in the mined out area.	All the earth pockets and interburden soil encountered has been backfilled in the mined out area.	Waste, as inter-burden soil / earth pockets, proposed to be backfilled in the mined out area.
Afforestation program	It was proposed to take up plantation in the mined out area.	Plantation done as proposed however survival rate remained very poor due to arid climate and severe draughts.	Plants saplings will be distributed to nearby villagers for plantation.
Quality of air	No impact envisaged.	No impact noticed.	Periodical monitoring will be done.
Quality and management of water including surface & ground water	No impact envisaged.	No impact noticed	Periodical monitoring will be done.
Noise level	Slight increase in the noise level envisaged due to shovel operation & plying of trucks.	Noise level increased, but within permissible limits.	Periodical monitoring has been proposed.
Vibrations	No impact envisaged.	No impact envisaged	No impact envisaged.
Treatment of mine water and effluent/toxic substances	Not applicable	Not applicable	Not applicable
Re-circulation of treated water	Not applicable	Not applicable	Not applicable

**10.00 PLANTATION PROGRAMME:**

The land falls under the proposed mining scheme is mainly private and RSMML will use the land for mining purpose by mutual agreement with tenant of the land for a period of few months depend on the quantity of gypsum in their land. The land leveled and backfilled by over burden (top soil) is returned to tenant of the land immediate after the excavation of gypsum for use of cultivation. In such system it is difficult to propose plantation in mined out area by RSMML. However RSMML is distributing plants to the khatedars for plantation free of cost for plantation in their land, along the revenue track/roads, nearby village area, public places etc. 7000 plants has been distributed at Dhani Abdullawali Gypsum Mines.

The present rate of land and crop compensation being paid to the tenant of the land is Rs.70/- per ton. The amount received by the tenant of the land in normal case is more than their land price and land after mining operation become suitable for agriculture purpose.

The species selected for proposed plantation (through tenant of the land) are suitable to the desert climate and. The year wise plants propose to be provided to land owner during the tentative period of mining scheme is as tabulated as under.

**Year wise plantation programme**

Species	Year	No. of Plants
Neem, Ber, Parkin Sonia, Khejri, Babool	First	1000
	Second	1000
	Third	1000
	Fourth	1000
	Fifth	1000
Total		5000

11.0 ANY OTHER INFORMATION: No

Prepared by Recognized Qualified Person

D.S. Acharya

SENIOR MANAGER (Geology) & Qualified Person

RQP No.: RQP/AJM/241/2003/A

Valid up to : 09.04.2023



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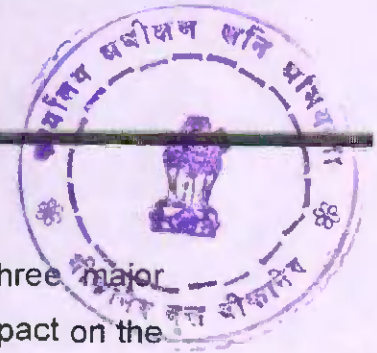
PART-III

# PROGRESSIVE MINE

# CLOSURE PLAN



## PROGRESSIVE MINE CLOSURE PLAN



### 1.0 INTRODUCTION

In general mining, results a large scale impact on the three major components of the environment i.e. air, land & water. The impact on the physical, chemical & biological quality, in and around the proposed mining site, is generally adverse as compared to the pre-mining quality. This impact can be either minimized to a negligible level or can be turned into favourable changes to the local habitats resulting in a self-sustained ecosystem. Proper planning and strategies can be adopted right from the initiation of any mining project considering not only the short term macro impacts but also anticipating the long term micro impacts.

Gypsum deposits in the Western Rajasthan have been exploited since long back but it is an eco-friendly work rather than the adverse effect on environment of desert. In fact mining of Gypsum has resulted in the socio-economic development of the local people, living in remote areas without any permanent source of income for their livelihood where even basic infrastructure e.g. roads, schools, health centers does not exist. The farmers are taking crops from the mined out lands which were earlier known as waste / barren land due to hardpan of gypsum on surface and almost nil soil cover.

The Progressive Mine Closure Plan of Dhani Abdullawali Gypsum Mines has been prepared to undertake the systematic mining & environment management measures as summarized with year-wise proposals of activities in the mined out area including reclamation, plantation, environment monitoring and socio-economic development activities.

**2.0 MINE DESCRIPTION**

Mine description has already given in Part - **Proposed Scheme of Mining**.

**3.0 REVIEW OF IMPLEMENTATION OF SCHEME OF MINING INCLUDING FIVE YEARS PROGRESSIVE CLOSURE PLAN UP TO THE CLOSURE OF MINE:**

Review of implementation of previous approved scheme of mining has been discussed in first part i.e. proposed scheme of mining.

**4.0 CLOSURE PLAN:****4.1 Mined out land:**

Proposed year wise production of Gypsum, overburden was to be handled and respective broken area is shown in the table below:

Year	Gypsum production (MT)	Total O/B handled (M <sup>3</sup> )	Broken Area (M <sup>2</sup> )
I Year 2016-17	554577.07	97806.07	352022.10
II Year 2017-18	598509.87	74595.69	400759.07
III Year 2018-19	598553.64	145040.05	422617.67
IV Year 2019-20	599747.66	154995.35	528027.17
V Year 2020-21	597508.58	84437.50	335561.76
Total	2948896.82	556874.66	2038987.77

The year wise reclamation plan for the mined out land is as under:

Year	Broken Area (M <sup>2</sup> )	Area reclaimed (M <sup>2</sup> )	Post mining land use
I Year 2016-17	352022.10	352022.10	*-mentioned below
II Year 2017-18	400759.07	400759.07	
III Year 2018-19	422617.67	422617.67	
IV Year 2019-20	528027.17	528027.17	
V Year 2020-21	335561.76	335561.76	
Total	2038987.77	2038987.77	

\*- Private land will be returned back to the tenant of the land with adequate compensation and with perfect leveling so that the owner can start agriculture activities soon after the mining & reclamation. The mined out land, falling under government land can be used for agriculture if allotted to the farmers.



#### 4.2 Water quality management:

In view of the Absence of any natural drainage in the area,

- Scanty rain fall,
- Surface excavation up to a depth of about 2.10 meters.
- The water table at a depth of more than 70 meters.

Mining operation no way degrades the water regime of the area resulting in no change in the ambient water quality.



#### 4.3 Air quality management:

Present mining does not result in any adverse impact on the ambient air quality of the area.

#### 4.4 Waste management:

No waste is generated while mining of gypsum. Overburden is simultaneously backfilled & leveled in the mined out area.

#### 4.5 Topsoil management:

Topsoil is scrapped and concurrently spread in the mine out area.

#### 4.6 Tailing dam management:

Not applicable

#### 4.7 Disposal of mining machinery:

Only one hydraulic shovel, one loader and one tractor with scrapper and plough attachment are required for excavation of gypsum & overburden, which has been hired from outside agencies. The water tanker for water sprinkling is also being hired from outside agency.

#### 4.8 Safety & security:

No unsafe void or pit is resulted by the excavation of gypsum. The maximum depth of the worked out pit is about 2.10 meters and the edge of the worked out area has been given gentle slope to eliminate sharp difference in the level of the adjacent ground.



**4.9 Disaster management & risk assessment:**

Vocational training centre is working under control of Agent to the mines in SBU-  
PC Gypsum to look after the safe operation in the gypsum mines.

**4.10 Care & maintenance during temporary discontinuance:**

Not applicable.

**5.0 ECONOMIC REPERCUSSION OF CLOSURE OF MINE AND  
MANPOWER RETRENCHMENTS:**

Not applicable as most of the machineries will be hired on contract basis and the operational staffs are deployed on deputation. Only statutory manpower is employed which are the permanent employees of the organization.

**6.0 TIME SCHEDULING FOR ABANDONMENT:**

Not applicable

**7.0 ABANDONMENT COST:**

Not applicable


**8.0 FINANCIAL ASSURANCE: -**

The proposed broken area during the five years scheme of mining comes to 203.90 Hectare. The calculated financial assurance at the rate of Rs. 15000/- per hectare is Rs.3058500/-.

The existing financial assurance as submitted to the Mining Engineer Department of Mines & Geology is Rs.495900/- (FDR No. 419523 dated 27.08.2009 issued by The Bank of Rajasthan Ltd. now known as ICICI Bank, Kotegate Branch Bikaner). An additional financial assurance amounting to Rs.2562600/- is required to deposit at the office of the Mining Engineer Department of Mines and Geology and will be deposited after approval of Scheme of Mining.

**9.0 ANY OTHER INFORMATION: Nil**

Prepared by Recognized Qualified Person

  
Superintending Mining Engineer  
Mines & Geology Deptl.  
Bikaner

  
D.S. Acharya

Sr. Manager (Geology) & Qualified Person

RQP No.: RQP/AJM/241/2003/A,

Valid up to: 09.04.2023

# KEY PLAN DHANI ABDULLAH WALI GYPSUM MINE



*[Signature]*  
 Authorizing Mining Engineer  
 Mines & Geology Dept  
 Govt of Jammu & Kashmir  
 Srinagar

### POPULATION OF VILLAGES

DHANI	50
ABDULLAH WALI	25
ABDULLAH WALI	15
ABDULLAH WALI	25

### INDEX

LEASE BOUNDARY <input type="checkbox"/> ADJACENT AREA TO THE LEASED AREA <input type="checkbox"/> ADJACENT HILL AREA <input type="checkbox"/> CONTOUR INTERIOR BOUNDARY <input type="checkbox"/> ROAD TRACE	AGRICULTURE LAND <input type="checkbox"/> WASTE LAND <input type="checkbox"/> VILLAGE / DHANI <input type="checkbox"/> TRIPPLE / MORTAR <input type="checkbox"/> KUNALI CHALI
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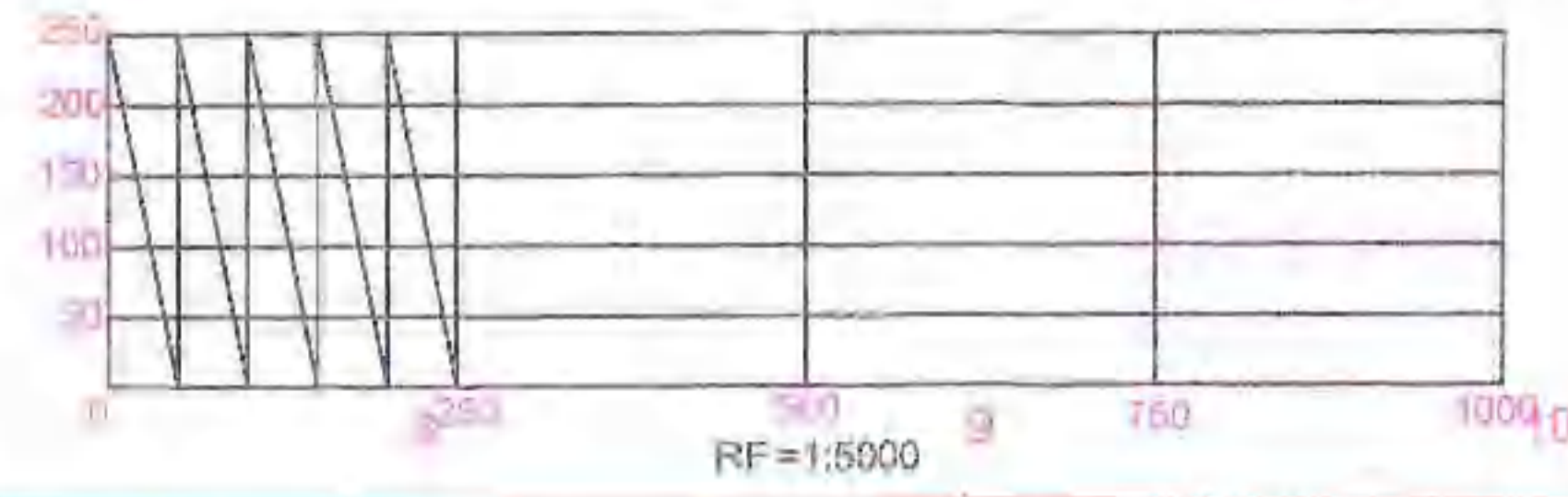
PLATE-01

<b>JAMMU &amp; KASHMIR STATE MINES &amp; MINERALS LIMITED</b> A GOVERNMENT OF JAMMU & KASHMIR ENTERPRISE GROUP 'C' - CIVILIAN SECTOR				
<b>DHANI ABDULLAH WALI GYPSUM MINE</b>				
<b>TITLE: KEY PLAN</b>				
DRAWN BY	REVISED	SCALE	DATE	NO. OF SHEETS IN SET
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
DATE OF SURVEY		SCALE BY		
20 - NOV 2015		1:50,000		
DRAWING NO - 4000/27/2015-22/2015-2				



# RAJASTHAN STATE MINES & MINERALS LIMITED

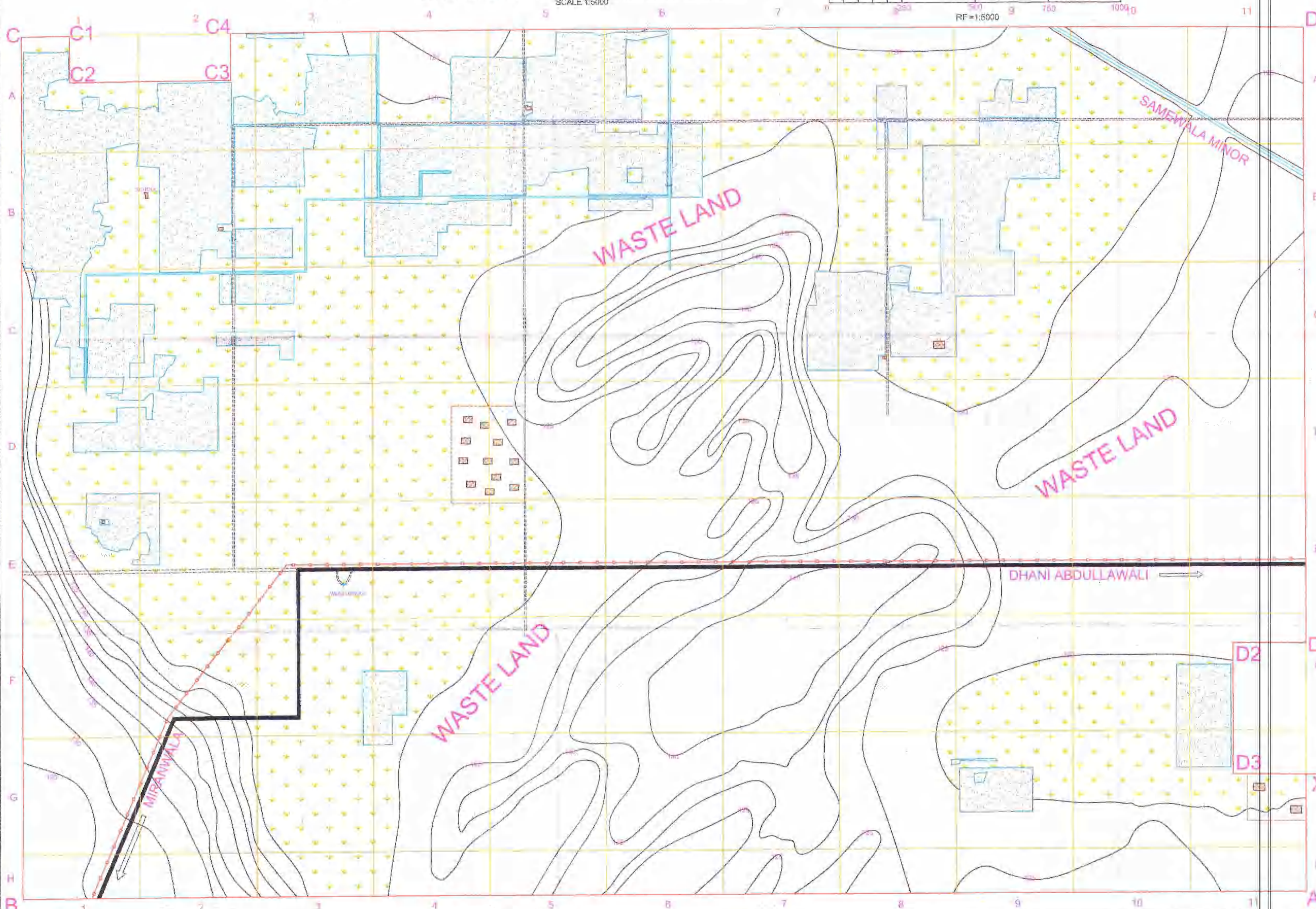
(A GOVERNMENT OF RAJASTHAN ENTERPRISE)  
SURFACE PLAN OF DHANI ABDULLAWALI GYPSUM MINE  
SCALE 1:5000



RF = 1:5000

APPROVED

Superintending Mining Engineer  
Mines Department  
Bikaner/Jaipur



INDEX	
PARTICULARS	SYMBOL
LEASE BOUNDARY	[Red dashed line]
ROAD	[Black solid line]
TRACK	[Grey dashed line]
CONTOUR	[Black wavy line]
QUARRY	[Blue hatched area]
HUT/BUILDING	[Small square]
AGRICULTURE LAND	[Yellow dotted area]
SAND DUNES	[Wavy line pattern]
VILLAGE BOUNDARY	[Red dashed line]
ELECTRIC LINE	[Red line with cross-ticks]
CANAL/KHALA	[Blue line]

RAJASTHAN STATE MINES & MINERALS LIMITED  
(A GOVERNMENT OF RAJASTHAN ENTERPRISE)  
1980 B.P.C. - 1/17/1980 (S. 23) (1980) (S. 23) (1980)

MINE: DHANI ABDULLAWALI GYPSUM MINE  
Lease Area: 1278.00 Ha. (3186.10 Acres)

TITLE: SURFACE PLAN

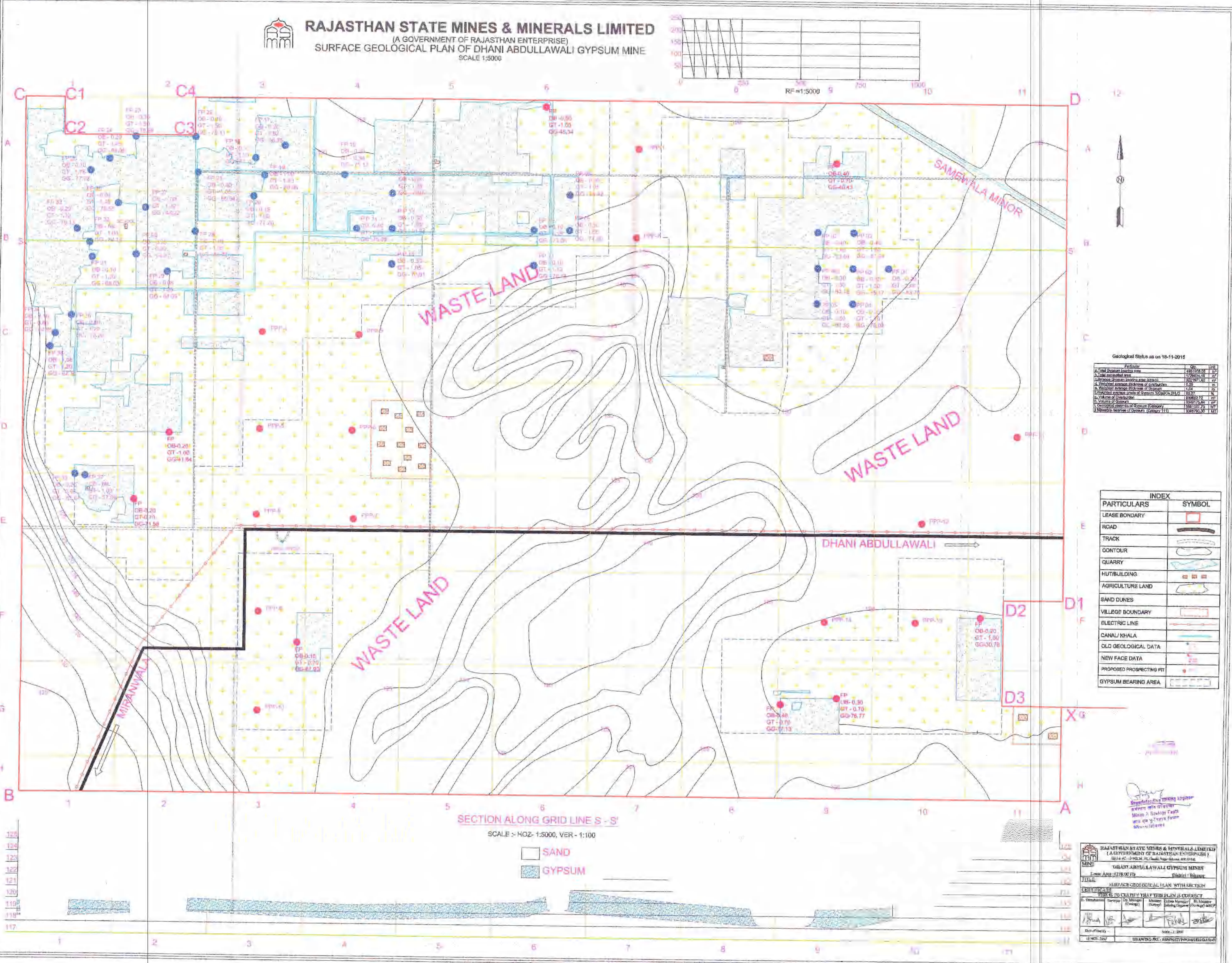
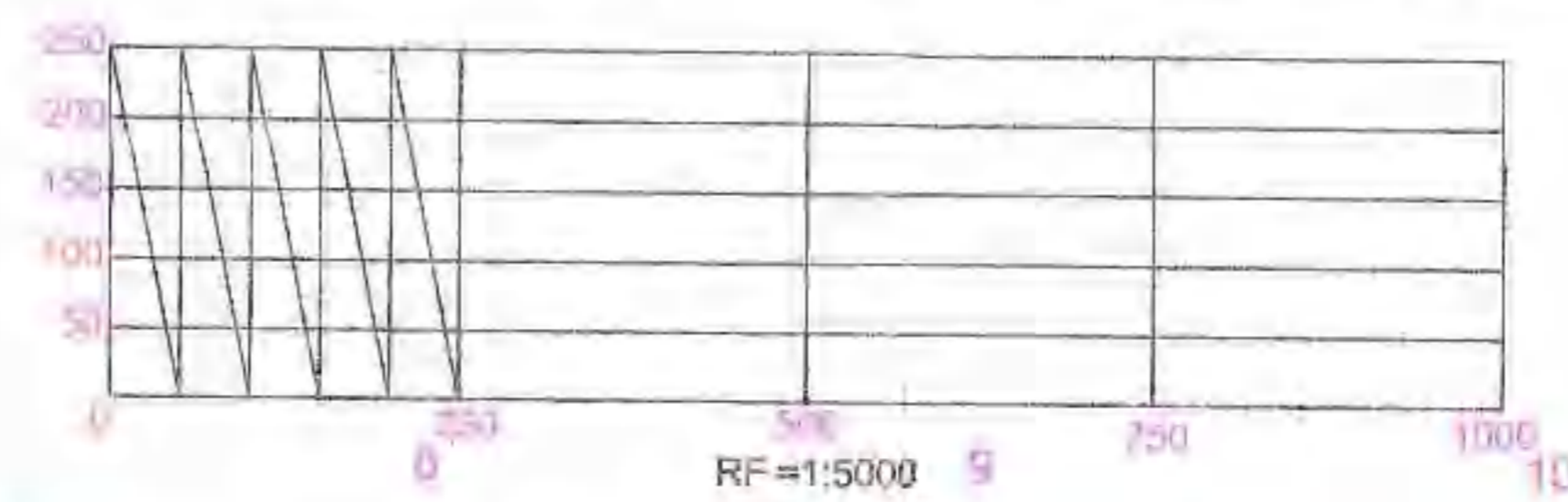
THIS IS TO CERTIFY THAT THIS PLAN IS CORRECT

Checked by: [Signature] Date: [Date]  
Designed by: [Signature] Drawn by: [Signature] Estimated by: [Signature]  
Checked by: [Signature] Drawn by: [Signature] Estimated by: [Signature]

Date of Revision: [Date] Scale: 1:5000  
S.M.M. No. 10000/1980/10000/10000



**RAJASTHAN STATE MINES & MINERALS LIMITED**  
 (A GOVERNMENT OF RAJASTHAN ENTERPRISE)  
**SURFACE GEOLOGICAL PLAN OF DHANI ABDULLAWALI GYPSUM MINE**  
 SCALE 1:5000



Geological Status as on 18-11-2015

Particular	Qty	Unit
A. Total Gypsum bearing area	485158.28	sq. m
B. Total prospecting area	172624.28	sq. m
C. Proposed Gypsum bearing area (sq.m)	342774.00	sq. m
D. Weighted average thickness of Gypsum	12.26	m
E. Weighted average thickness of Gypsum	1.54	m
F. Weighted average grade of Gypsum (Gypsum %)	18.27	%
G. Volume of Gypsum	58962.72	cu. m
H. Volume of Gypsum	7337.74	cu. m
I. Geological reserves of Gypsum (Category I)	58187.23	cu. m
J. Reserve reserves of Gypsum (Category II)	15189.50	cu. m

**INDEX**

PARTICULARS	SYMBOL
LEASE BOUNDARY	[Red dashed line]
ROAD	[Black line]
TRACK	[Dashed line]
CONTOUR	[Wavy line]
QUARRY	[Blue shaded area]
HUT/BUILDING	[Red square]
AGRICULTURE LAND	[Green shaded area]
SAND DUNES	[Yellow shaded area]
VILLAGE BOUNDARY	[Red dashed line]
ELECTRIC LINE	[Red line with cross-ticks]
CANAL/KHALA	[Blue line]
OLD GEOLOGICAL DATA	[Red dot]
NEW FACE DATA	[Blue dot]
PROPOSED PROSPECTING PIT	[Red circle]
GYPSUM BEARING AREA	[Blue shaded area]

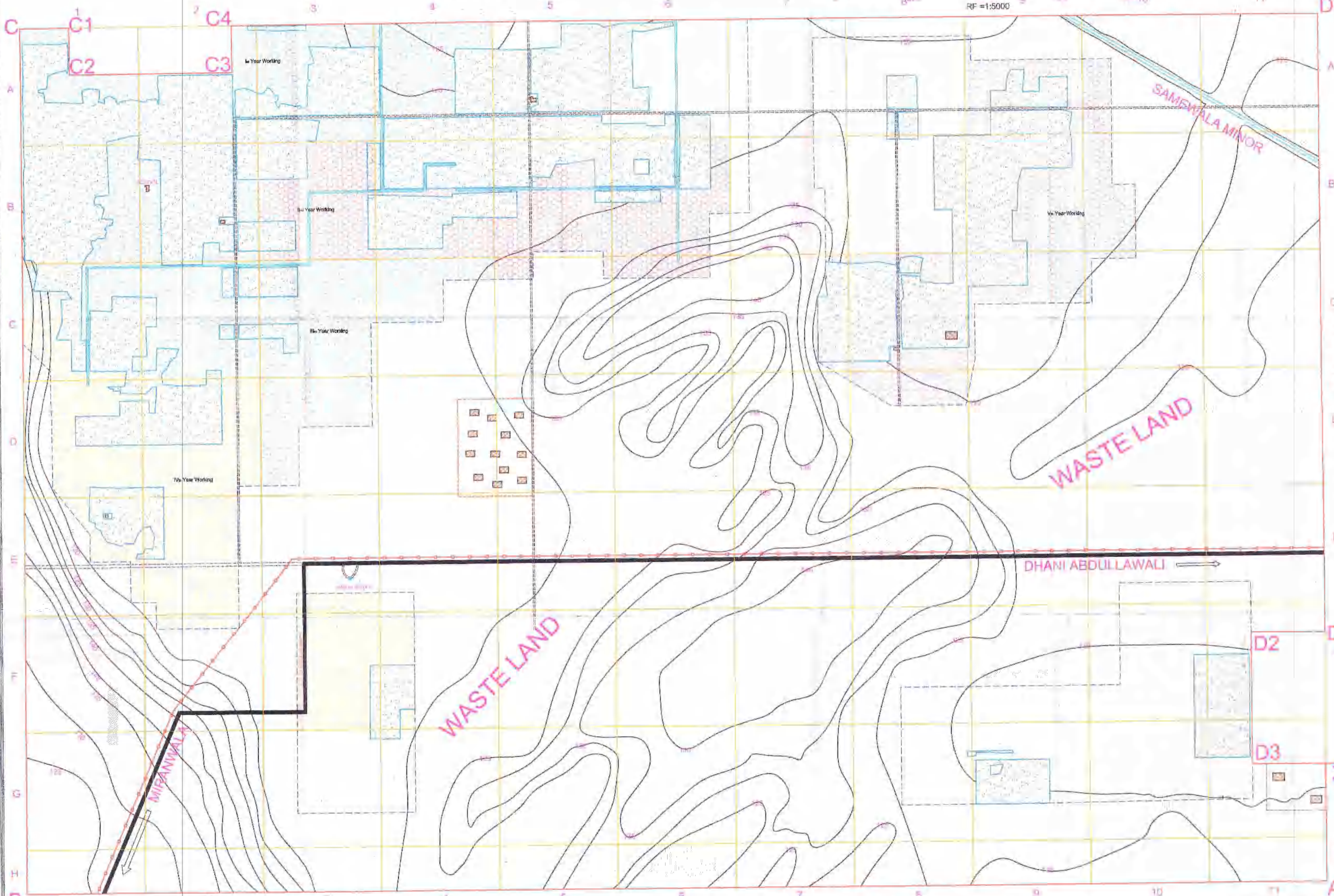
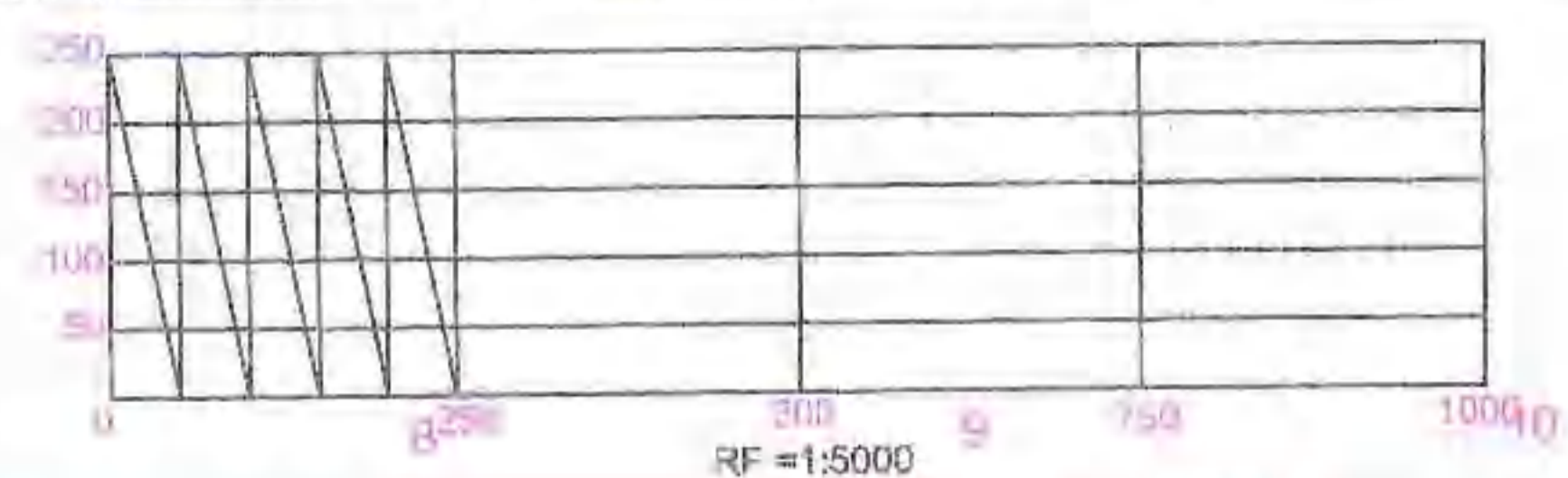
**SECTION ALONG GRID LINE S - S'**  
 SCALE - HOZ - 1:5000, VER - 1:100

□ SAND  
 ■ GYPSUM

RAJASTHAN STATE MINES & MINERALS LIMITED  
 (A GOVERNMENT OF RAJASTHAN ENTERPRISE)  
**MINE** DHANI ABDULLAWALI GYPSUM MINE  
 Date: 18/11/2015, To: District Engineer, Bikaner  
**TITLE** SURFACE GEOLOGICAL PLAN WITH SECTION  
**OBJECTIVE** TO CERTIFY THAT THIS PLAN IS CORRECT  
 Sr. Geologist (Survey) Mr. M. S. Singh  
 Sr. Geologist (Geology) Mr. P. K. Singh  
 Sr. Geologist (Mining) Mr. P. K. Singh  
 Sr. Geologist (Survey) Mr. P. K. Singh  
 Date of Issue: 18/11/2015  
 Scale: 1:5000  
 DRAWING NO.: SURFACE/PROSPECTING/2015/1



**RAJASTHAN STATE MINES & MINERALS LIMITED**  
 (A GOVERNMENT OF RAJASTHAN ENTERPRISE)  
**FIVE YEARS PROPOSED DEVELOPMENT PLAN OF DHANI ABDULLAWALI GYPSUM MINE**  
 SCALE 1:5000



PROPOSED NEXT FIVE YEARS WORKING

Financial Year	Broken Area in m <sup>2</sup>	Volume of Overburden in m <sup>3</sup>	Volume of Gypsum in MT	Geological Reserves in MT	Residual Reserves @75% in MT
I Year 2018-19	55222.10	97803.97	422534.31	750438.10	562977.07
II Year 2019-20	400799.07	74555.06	488007.62	786013.16	585609.67
III Year 2020-21	422617.87	1460740.05	486040.87	786071.33	686653.84
IV Year 2021-22	528227.17	164895.35	458850.80	739955.55	597477.88
V Year 2022-23	333591.76	84437.59	482244.63	739678.11	697636.57
<b>Total</b>	<b>2038887.77</b>	<b>1558874.06</b>	<b>3245778.54</b>	<b>3831882.24</b>	<b>2948988.53</b>

INDEX

PARTICULARS	SYMBOL
LEASE BOUNDARY	[Symbol]
ROAD	[Symbol]
TRACK	[Symbol]
CONTOUR	[Symbol]
QUARRY	[Symbol]
HUT/BUILDING	[Symbol]
AGRICULTURE LAND	[Symbol]
SAND DUNES	[Symbol]
VILAGE BOUNDARY	[Symbol]
ELECTRIC LINE	[Symbol]
CANAL/KHALA	[Symbol]
PROPOSED 1st YEAR DEVELOPMENT	[Symbol]
PROPOSED 2nd YEAR DEVELOPMENT	[Symbol]
PROPOSED 3rd YEAR DEVELOPMENT	[Symbol]
PROPOSED 4th YEAR DEVELOPMENT	[Symbol]
PROPOSED 5th YEAR DEVELOPMENT	[Symbol]
Gypsum Bearing Area	[Symbol]

*Handwritten notes and signatures in the bottom right corner of the map area.*

**RAJASTHAN STATE MINES & MINERALS LIMITED**  
 (A GOVERNMENT OF RAJASTHAN ENTERPRISE)  
 DHANI ABDULLAWALI GYPSUM MINE  
 Lease Area: 1279.00 Ha. District: Barmer

**FIVE YEARS PROPOSED DEVELOPMENT PLAN**

**CERTIFICATE**  
 THIS IS TO CERTIFY THAT THIS PLAN IS CORRECT

As Drawn by: [Signature] Checked by: [Signature] Approved by: [Signature]  
 (Scale) (Date) (Date) (Date)

Date of Issue: [Date] Scale: 1:5000  
 No. of Sheets: [Number] SHEET NO. - 802/MAST/PR/01/04/00

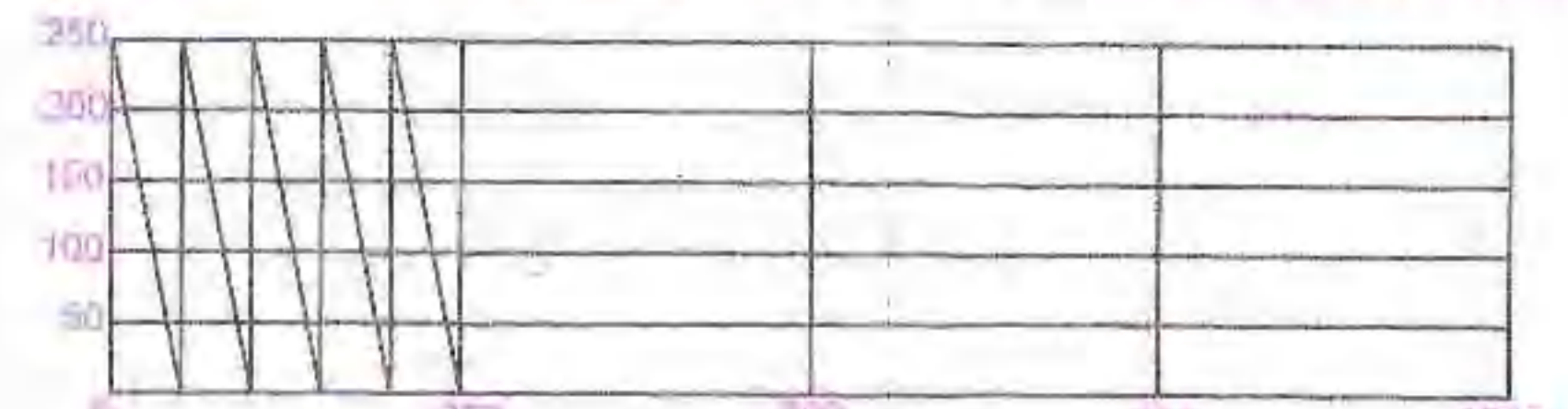


# RAJASTHAN STATE MINES & MINERALS LIMITED

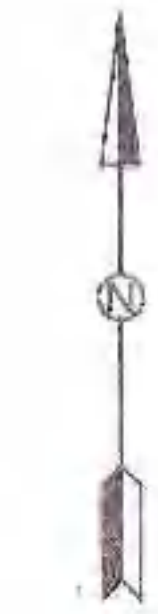
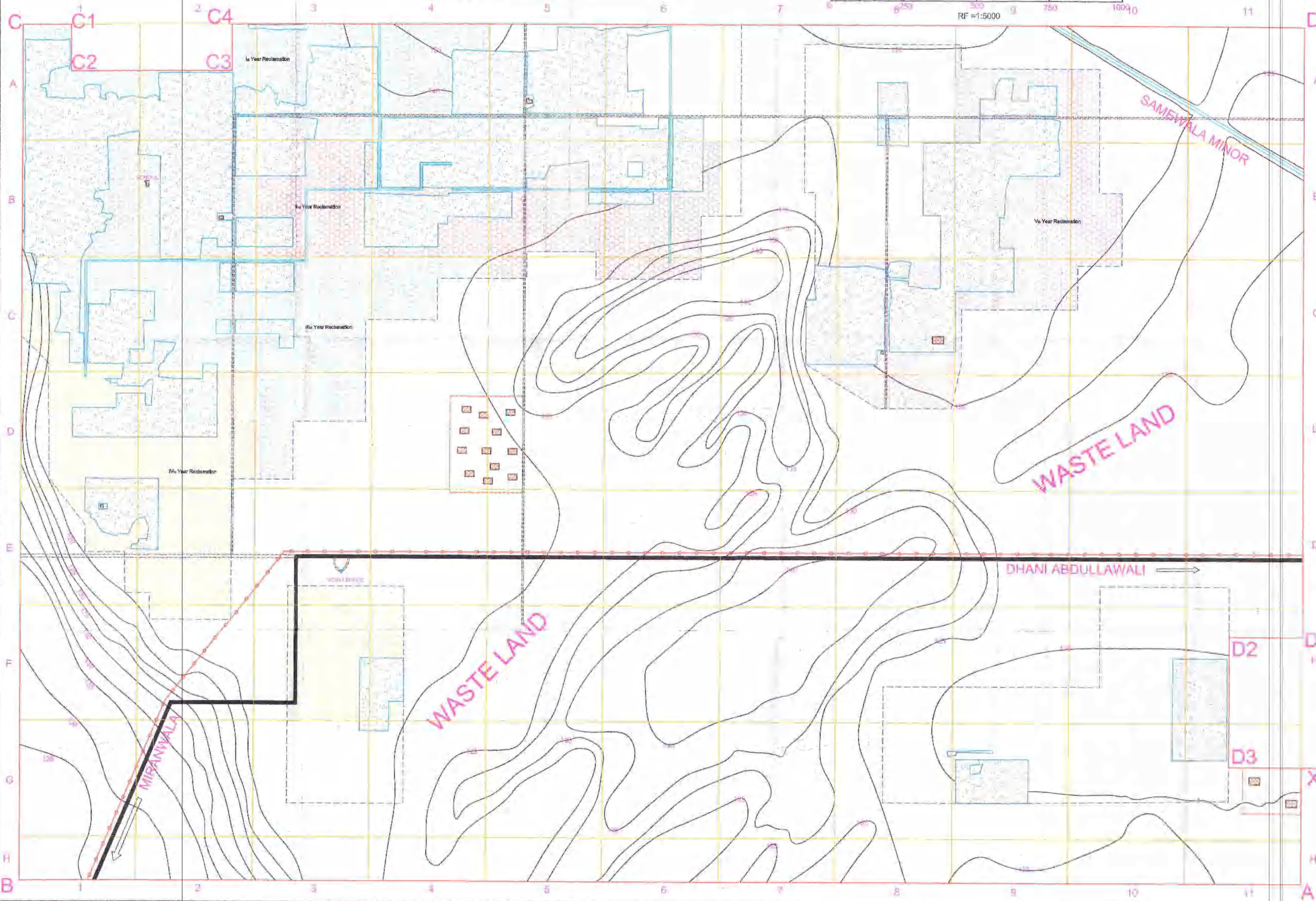
(A GOVERNMENT OF RAJASTHAN ENTERPRISE)

## RECLAMATION PLAN OF DHANI ABDULLAWALI GYPSUM MINE

SCALE 1:5000



RF = 1:5000



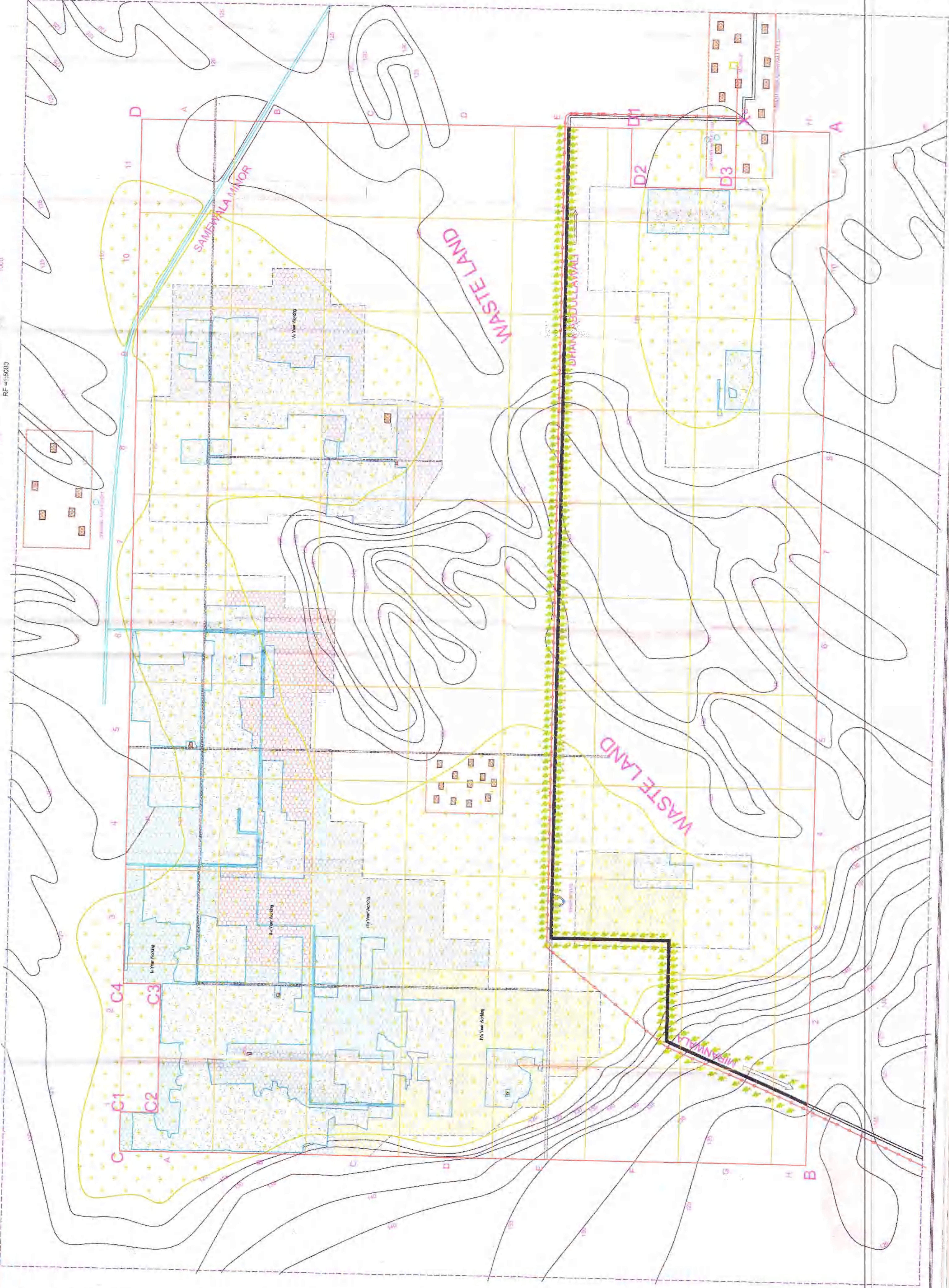
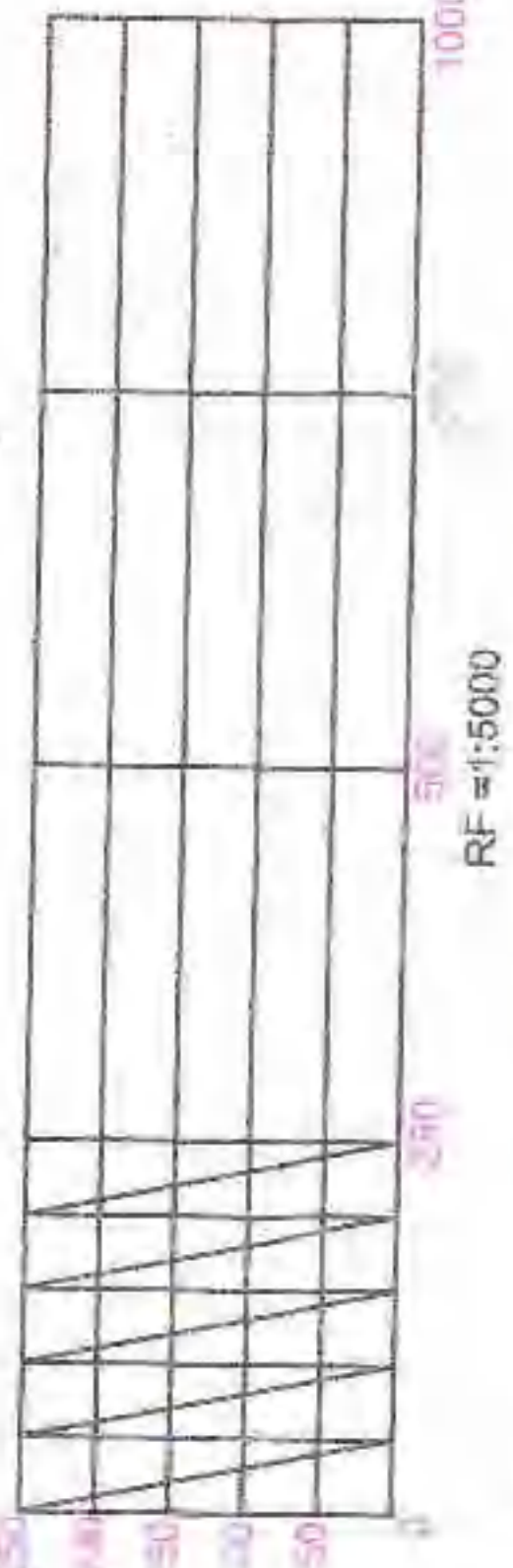
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ROAD	[Symbol]
TRACK	[Symbol]
CONTOUR	[Symbol]
QUARRY	[Symbol]
HUT/BUILDING	[Symbol]
AGRICULTURE LAND	[Symbol]
SAND DUNES	[Symbol]
VILLEGE BOUNDARY	[Symbol]
ELECTRIC LINE	[Symbol]
CANAL/KHALA	[Symbol]
I <sup>st</sup> Year Reclamation	[Symbol]
II <sup>nd</sup> Year Reclamation	[Symbol]
III <sup>rd</sup> Year Reclamation	[Symbol]
IV <sup>th</sup> Year Reclamation	[Symbol]
V <sup>th</sup> Year Reclamation	[Symbol]
Gypsum Bearing Area	[Symbol]

Supervising Mining Engineer  
 Mining Engineering Department  
 Rajasthan State Mines & Minerals Limited  
 Jaipur

RAJASTHAN STATE MINES & MINERALS LIMITED  
 (A GOVERNMENT OF RAJASTHAN ENTERPRISE)  
 DHANI ABDULLAWALI GYPSUM MINE  
 RECLAMATION PLAN  
 Scale: 1:5000  
 Date: 1/1/2000  
 Drawing No.: RSM/DM/1/2000/1000



**RAJASTHAN STATE MINES & MINERALS LIMITED**  
(A GOVERNMENT OF RAJASTHAN ENTERPRISE)  
ENVIRONMENTAL PLAN OF DHANI ABDULLAWALI GYPSUM MINE  
SCALE 1:5000



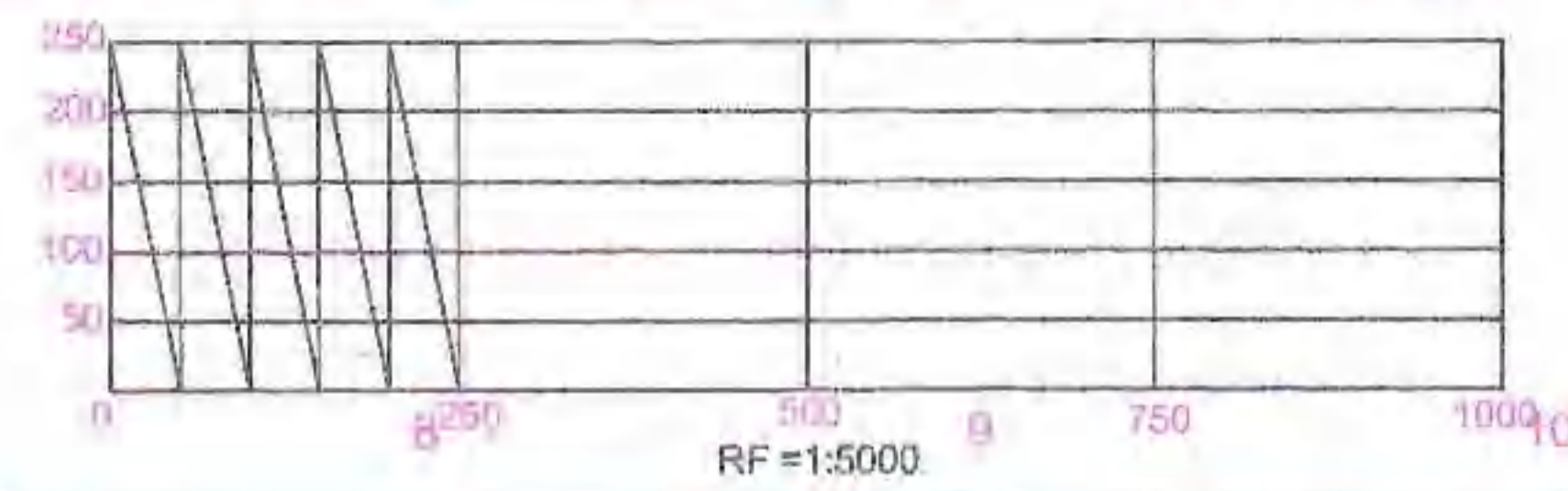
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ROAD	[Black line]
TRACK	[Dotted line]
CONTOUR	[Brown line]
QUARRY	[Blue hatched area]
WATERBODIES	[Blue area]
SPECIAL USE LAND	[Green hatched area]
SAND DUNE	[Yellow hatched area]
WASTE LAND	[Pink hatched area]
ELECTRIC LINE	[Red line]
WATER BOUNDARY	[Blue line]
CANAL/PIPILA	[Blue line]
PROPOSED MIN	[Blue hatched area]
PROPOSED 10 YEAR WORKING	[Blue hatched area]
PROPOSED 15 YEAR WORKING	[Blue hatched area]
ENVIRONMENTAL PLAN	[Green hatched area]
500m Buffer Zone Boundary	[Dotted line]
Proposed Infrastructure	[Various symbols]

**RAJASTHAN STATE MINES & MINERALS LIMITED**  
(A GOVERNMENT OF RAJASTHAN ENTERPRISE)  
ENVIRONMENTAL PLAN  
DHANI ABDULLAWALI GYPSUM MINE  
SCALE 1:5000  
DATE: 15/07/2011  
PROJECT: ENVIRONMENTAL PLAN  
PREPARED BY: [Signature]  
CHECKED BY: [Signature]  
APPROVED BY: [Signature]

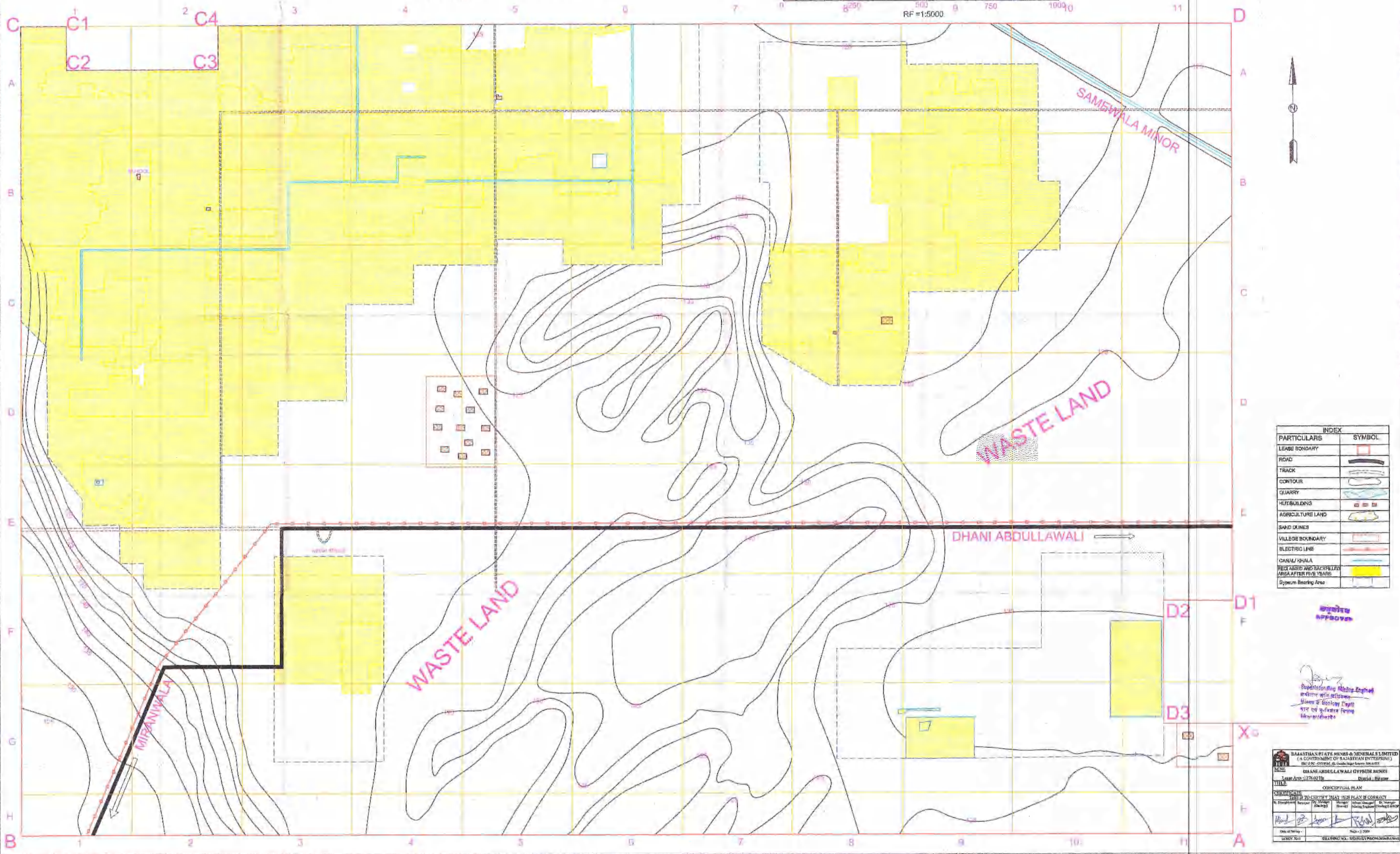


# RAJASTHAN STATE MINES & MINERALS LIMITED

(A GOVERNMENT OF RAJASTHAN ENTERPRISE)  
CONCEPTUAL PLAN OF DHANI ABDULLAWALI GYPSUM MINE  
SCALE 1:5000



RF=1:5000



INDEX	
PARTICULARS	SYMBOL
LEASE BOUNDARY	
ROAD	
TRACK	
CONTOUR	
QUARRY	
HUT/BUILDING	
AGRICULTURE LAND	
SAND DUNES	
VILLAGE BOUNDARY	
ELECTRIC LINE	
CANAL/SHALA	
RESERVED AND SACERDLED AREA AFTER FIVE YEARS	
Gypsum Bearing Area	

*[Signature]*  
 Supervising Mining Engineer  
 Mines & Minerals Deptt.  
 Govt of Rajasthan, Jaipur

RAJASTHAN STATE MINES & MINERALS LIMITED (A GOVERNMENT OF RAJASTHAN ENTERPRISE)	
DHANI ABDULLAWALI GYPSUM MINE	
CONCEPTUAL PLAN	
DATE: 12/28/02	
DRAWN BY: [Name]	
CHECKED BY: [Name]	
DATE: 12/28/02	
SCALE: 1:5000	

कार्यालय उप वन संरक्षक, इ.गां.न.प. स्टेज-11 बीकानेर

क्रमांक एफ ( ) सर्वे/उवसं-स्टेज-11/16-17/402

दिनांक:- 28-9

निमित्त:-

सीनियर मैनेजर (जियोलॉजी),  
आरएसएमएमएल,  
बीकानेर।



विषय:- Approval of Conservation plan for Indian Peafowl (Peacock)  
for Dhani Abdulwali Gypsum Mines, Teh. Kolayat Distt.  
Bikaner.

प्रसंग:- आपका पत्रांक 01 दिनांक 19.04.2016

महोदय,

उपरोक्त प्रासंगिक विषयान्तर्गत निवेदन है कि प्रासंगिक पत्र द्वारा आपने Indian Peafowl (Peacock) के कन्जरवेशन प्लान की ढाणी अब्दुलवाली जिप्सम माईन तहसील कोलायत जिला बीकानेर की स्वीकृति मांगी गई हैं। अतः इस कार्यालय द्वारा ढाणी अब्दुलवाली जिप्सम माईन तहसील कोलायत में Indian Peafowl (Peacock) के कन्जरवेशन प्लान की स्वीकृति प्रदान की जाती हैं।

भवदीया

*Manali Sen*  
(मनाली सेन)  
उप वन संरक्षक  
इ.गां.न.प., स्टेज-11  
बीकानेर

*BAS*  
*28/9/16*

*Sm (Geo)*  
*C. Sharma*

*28-9-16*  
*DM (Geo) ill. Anand*

## कार्यालय उप वन संरक्षक, वन्य जीव बीकानेर

क्रमांक :- एफ ( ) विविध/उवसवजी/2017-18/2656

दिनांक:- 17/10/17

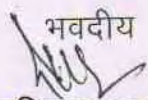
वरिष्ठ प्रबन्धक (भू विज्ञान)  
राजस्थान स्टेट माईन्स एण्ड मिनरल्स लि.  
02- गांधीनगर स्कीम, बीकानेर ।

विषय:- Forest area/Wild life Sanctuary/Authenticated list of Schedule-I species.

संदर्भ:- आपका कार्यालय पत्रांक RSMM/gyp/BKN/Dhani Abdulla/2017/70  
Dated 17-10-2017

महोदय,

निवेदन है कि प्रासंगिक पत्र से चाही गई "वन्यजीव प्रभाग की टिप्पणी निम्न प्रकार है-  
"ढाणी अब्दुल्ला जिप्सम खदान, राजस्थान स्टेट माईन्स एण्ड मिनरल्स लिमिटेड,  
तहसील कोलायत जिला बीकानेर के 10 किमी. परिधी क्षेत्र में कोई वाईल्ड लाईफ सेन्चुरी नहीं  
है । क्षेत्र में मोर एवं हिरण हैं जो कि Wildlife (Protection) Act 1972 की अनुसूची-1 में आते हैं  
जिनका अनुमोदित संरक्षण प्लान संलग्न है । आवेदक को हिदायत दी जाती है कि वह  
अनुमोदित संरक्षण प्लान का खनन गतिविधियों के साथ-साथ पालन करेगा।"

भवदीय  
  
(रामनिवास कुमावत)  
उप वन संरक्षक  
वन्य जीव, बीकानेर

**DETAILS OF FLORA – FAUNA AND CONSERVATION  
PLAN FOR SCHEDULE-I SPECIES**

**FOR**

**DHANI ABDULLAH WALI GYPSUM MINE (AREA-1278 HA)**



**APPLICANT**

**M/S RAJASTHAN STATE MINES & MINERALS LTD.  
SBU & PC BUILDING, 02, GANDHI NAGAR SCHEME  
BIKANER, RAJASTHAN, PIN-334001**

**CONSULTANT:**

**Mantec Consultants Pvt Ltd,  
D-36, Noida Sector-6  
Uttar Pradesh, 201301**

**Contact No: +91-120 4215804**

**E-Mail: [environment@mantecconsultants.com](mailto:environment@mantecconsultants.com)**

# **Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan**

---

<b>INDEX</b>		
<b>S. No</b>	<b>PARTICULARS</b>	<b>Page No.</b>
1	Chapter-1: Introduction	2-8
2	Chapter-2: Objective & Methodology	09-12
3	Chapter-3: Study of Flora & Fauna	13-16
4	Chapter-4: Description Of Schedule-I Species And Their Conservation Plan (Peacock & Chinkara)	17-28
5	Chapter-5: Action Plan & Financial Projection for conservation plan	29-40

## **List of Annexure**

**Annexure-1: Questionnaire for Biodiversity.**

**Annexure-2 CV of Ecology & Biodiversity Expert.**

# **Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan**

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## **INTRODUCTION**

The project is being proposed by M/s Rajasthan State Mining & Mineral Ltd (RSMML), the proponent is operating mining lease in the name of Dhani Abdullah Wali Gypsum Mine having a lease area of 1278 ha located near Village- Dhani Abdullah Wali, Tehsil- Kolayat, District- Bikaner , Rajasthan. The Mines was granted in the favour of M/s Rajasthan State Mines & Minerals Ltd. (RSMML) vide GOR order no. P.3 (14) Khan/Group-1/2007, dated 31.07.2009 for a period of 20 years from the date of registration of mining lease agreement i.e. 20.01.2010. The mine is in operation since 03.02.2010 within gypsum production capacity limit as per Environment Clearance i.e.5 lac TPA. In mining lease area 805 ha is agricultural land, 462.62 ha is Government barren land (wasteland) and 10.38 ha roads/village tracks. No forest land is involved in mining lease area. Mine is being carried out by opencast semi-mechanized method without involving drilling and blasting.

### **Address for correspondence**

Shri Devi Shankar Acharya

Senior Manager (Geology)

SBU & PC building, 02, Gandhi Nagar Scheme, Bikaner, Rajasthan

PIN-334001, Telephone no- +91-151-2200171 to 175

Fax no. +91-151-2523519, 2202842

There is no legal case against the project and project proponent

### **1.1 BRIEF DESCRIPTION OF PROJECT**

Proposed project is to Extraction of Gypsum (minor minerals) from Dhani Abdullah Wali Gypsum Mine Lease No-32/2005 over an area of 1278 ha. The lease is located at Village: Dhani Abdullah Wali, Kolayat District Bikaner Rajasthan. Mining operations will be carried out by Open cast Semi-Mechanized method without Drilling & Blasting. The production capacity of the mine will be 6.0 lakh TPA. As per the MoEF, New Delhi Gazette EIA Notification dated 14th September 2006 as amended; the proposed mining project is categorized as category 'A' project. The expected project cost of the mine is Rs. 1548 lacs approximately.

### **1.2 STATUS OF THE LEASE**

# Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan

The Mining lease area of 1278.0 Hectares in village Dhani Abdullah Wali Tehsil Kolayat District Bikaner for mining of Gypsum was granted to RSMML vide GOR order no. P.3 (14) Khan/Group-1/2007, dated 31.07.2009 for a period of 20 years from the date of registration of mining lease agreement i.e. w.e.f. 20.01.2010.

Project Area: Out of the total mine lease area of 1278 ha; 805 ha is agricultural land, 462.62 ha is Government barren land (wasteland) and 10.38 ha roads/village tracks. No forest land is involved.

## 1.3 ACCESSIBILITY

To reach the mine, passing road through the mine site that merges with Godu-Dantore road. Mineral will be transported by Truck/Dumper from Mine site to end user of Gypsum. The Nearest Railway station is at Kolayat at a Distance 76 Km in SE direction. The Nearest National highway is NH-15(72Km) in SE direction. The Nearest Airport is Jodhpur Airport at Distance of 219 Km in SW direction.

Location map of the project is given below in Fig no-1

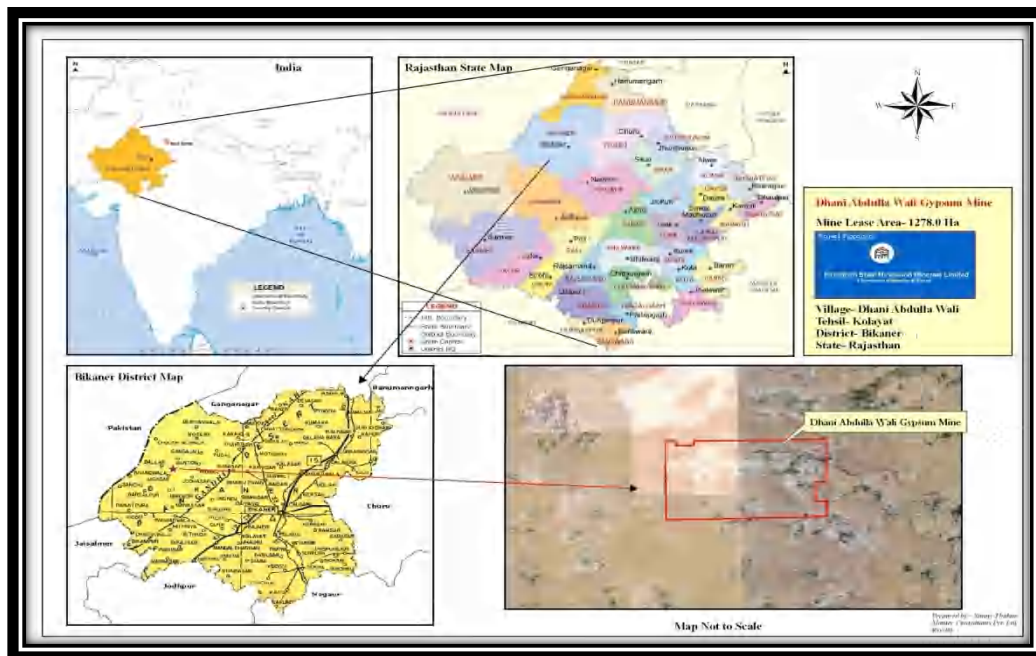


Fig 1: Location Map of the Project Site

## 1.4 LOCATION AND CONNECTIVITY DETAILS

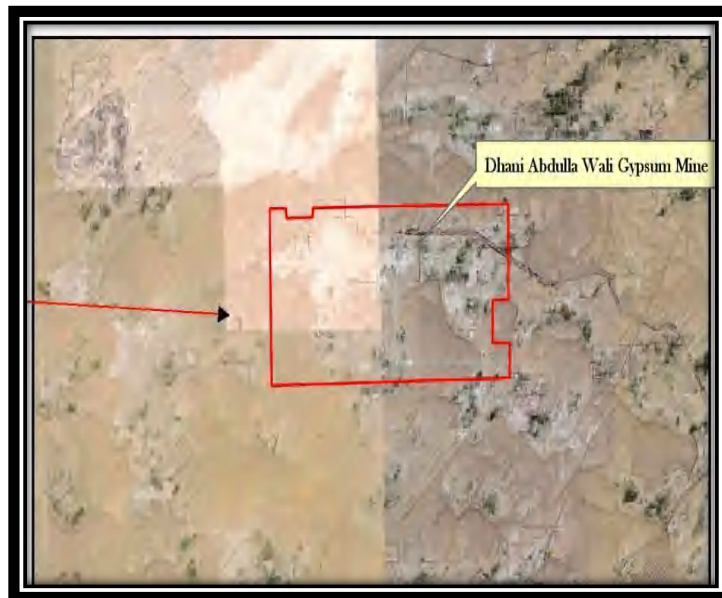
# Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan

The lease is located in village-Dhani Abdullha Well, Tehsil-Kolayat of District-Bikaner in the state of Rajasthan. The proposed project area falls in survey of India Toposheet 44D/7.

## Co-ordinates:

Latitude: 28°20'3.25"N to 28°21'39.2"N

Longitude: 72°22'52.97"E to 72°25'34.97"E



**Fig 2: Corner coordinate map of Project Site**

**Table1: Connectivity Details**

Connectivity Details		Distance & Direction
Nearest Railway Station	Kolayat Railway Station	76 km, SE
Nearest Airport	Jodhpur Airport	219 Km,
Nearest Highway	NH-15	72 Km, SE

## 1.5 ENVIRONMENTAL STATUS TOPOGRAPHY AND GEOLOGY

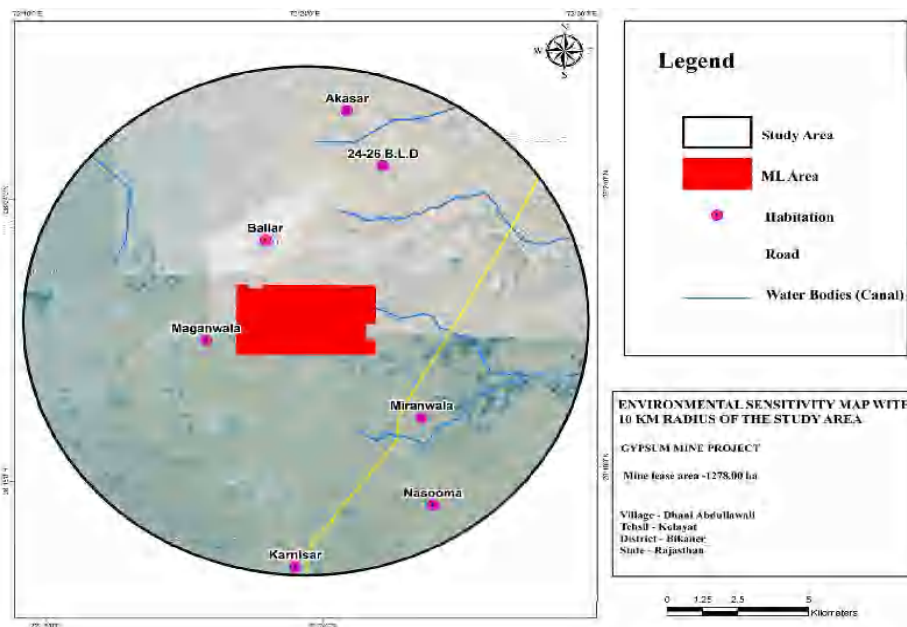
District Bikaner is situated between 28° 01' North latitude and 73° 22' East longitude. It has an average elevation of 140 m to 118 m AMSL: The district of Bikaner is a vast sandy tract. Five of the seven tehsils are covered with sand except some exposures near Kolayat and in Nokha tehsil. These are locally called as Magras. In these areas various types of

# Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan

sandstone, clay & limestone have been revealed at different levels. Thus the geology of the district is based on subsurface studies only.

Many geologists believe that during the Jurassic, Cretaceous and Eocene periods the western part of Rajasthan including Bikaner district was under the sea. Later in upper Tertiary period area got up lifted in to dry land.

Geologically the oldest rocks exposed in the limited area and encountered in dug & tube wells etc. have been equated to upper vindhyan of south east Rajasthan known as trans Aravalli- Vindhyan Overlying them are Tertiary formations followed by quaternary to recent sediments.



**Fig 3: Image showing different features of the project sites and vicinity**

## LAND USE PATTERN:

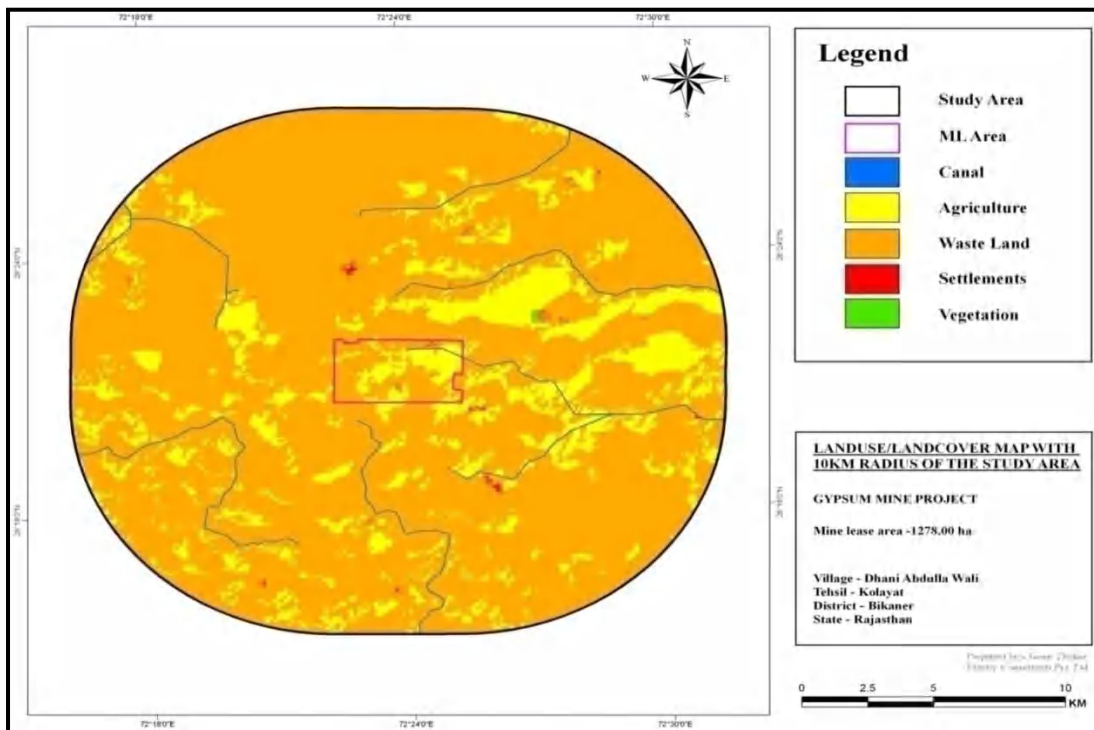
The study area is prominently covered by agriculture land (14.70%). Vegetation covers 0.10 % of the study area. The water bodies cover .07 % while settlements are covering 0.16 % of the study area. Waste land constitutes about 84.97 % of the study area. Land use of the study area is given below table.

# Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan

**Table 2: Land Use Cover of 10 km radius**

S.No.	Feature	Area in Hectare	Area in %
1	Agriculture	7028.74	14.70
2	Water Bodies	34.42	0.07
3	Settlement	74.88	0.16
4	Waste Land	40631.73	84.97
5	Vegetation	49.89	0.10
	<b>Total Area</b>	<b>47819.65532</b>	<b>100</b>

Land use map of the study area is given below in Fig 4.



**Fig 4:Land Use Map of the Project Site**

# **Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan**

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## **CLIMATE**

Bikaner is situated in the middle of the [Thar Desert](#) and has a [hot desert climate \(Köppen climate classification BWh\)](#) with very little rainfall and extreme temperatures. In summer temperatures can exceed 45 °C, and during the winter they may dip below freezing. The climate in Bikaner is characterized by significant variations in temperature. In the summer season it is very hot when the temperatures lie in the range of 28–48.5 °C (82.4–119.3 °F). In the winter, it is fairly cold with temperatures lying in the range of 5–23.2 °C (41.0–73.8 °F). Annual rainfall is in the range of 260–440 millimeters .

## **HYDROGEOLOGY**

The geological formation met within the district are ferugineous chist associated argillaceous rocks of Aravalli group, Alwar quartzite of Delhi system, malani suite of volatiles of lower Vindhyan age, Older alluvial deposits of Quarternary age and aeolian sands of recent age the out crops are, however, limited to small parts of the district, Older alluvium Occurs extensively in the area consisting of inter-bedded lenticular, inter fingering deposits or gravel sand, silt, clay and Kankar mixed in various proportions, The youngest formations are aeolian deposits, which are unconsolidated surface sands cover in large area in the western part of the district, these deposits occur as sand dunes at the surface and consist of sands. Ground water occurs in alluvium and neolian sands and underlying jointed and. The fractured hardrock formations also form the aquifers, in alluvium, sands, silt, kankar and gravel form the water bearing zones, In-shallow aquifers zones, ground water occurs under water table conditions whereas in the deeper zones, confined/semi - confined condition.

The district of Bikaner is a vast sandy tract. Five of the seven tehsils are covered with sand except some exposures near Kolayat and in Nokha tehsil. These are locally called as Magras. In these areas various types of sandstone, clay & limestone have been revealed at different levels. Thus the geology of the district is based on subsurface studies only. Many geologists believe that during the Jurassic, Cretaceous and Eocene periods the western part of

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Rajasthan including Bikaner district was under the sea. Later in upper Tertiary period area got up lifted in to dry land.

Geologically the oldest rocks exposed in the limited area and encountered in dug & tube wells etc. have been equated to upper vindhyan of south east Rajasthan known as trans Aravalli- Vindhyan Overlying them are Tertiary formations followed by quaternary to recent sediments.

Rock formation belonging to Nagaur group of Trans Aravali Vindhyan (Marwar Supergroup) includes basal conglomerates, sandstone, siltstone, shale, clay, limestone, anhydrite & halite.

Tertiary rocks are represented by Palana, Marh and Jogiara formation comprising fine grained sandstone, sandy clay variegated clays and lignite. Quaternary formation includes. Sandy alluvium sand, Kankar, Iron stone nodule etc. (Source: Department of Mines & Geology, Rajasthan).

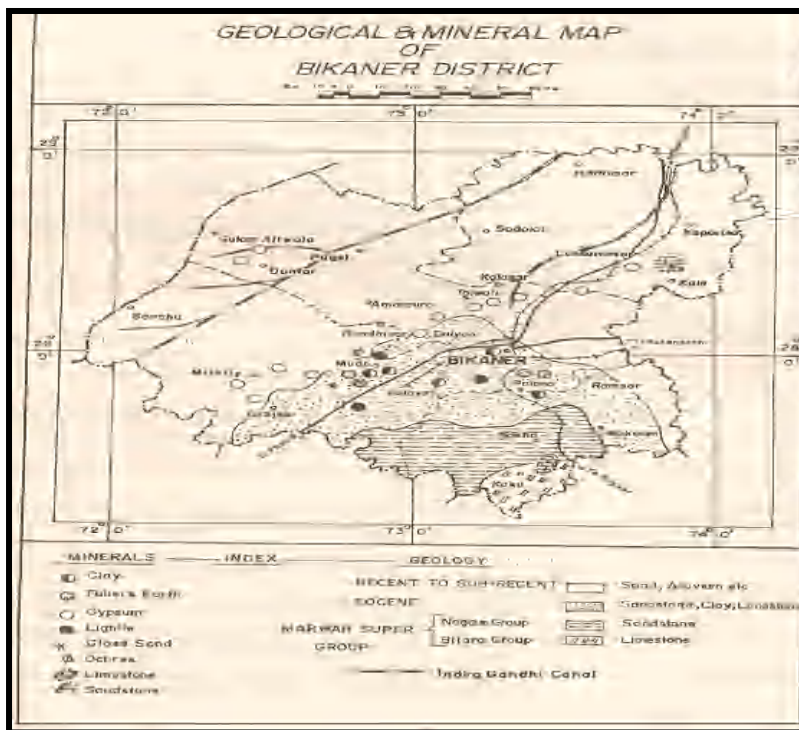


Figure 5 : Geological & Mineral Map of District Bikaner

# **Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan**

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## **CHAPTER-2**

### **OBJECTIVES & METHDOLOGY**

#### **2.1 OBJECTIVES**

- To prepare list of plants and animals of the core and buffer zone along with classification as per Schedule given in the Wildlife (Protection) Act, 1972 (for fauna) and in the Red Data Book (for flora).
- To evaluate ecological sensitivity of the area.
- To explore whether the area forms a corridor for any endangered wildlife.
- Prepare a comprehensive Conservation Plan, for the endangered/ endemic/ economically important biotic species found in the study area and
- Mitigation of any probable impact of mining on the movement of any endangered species using the area as corridor.

#### **2.2 METHODOLOGY**

To enhance the quality of evaluation study the following characteristics are made a part and partial of the process;

1. Impartiality.
2. Usefulness
3. Technical Adequacy
4. Stakeholder involvement.
5. Feedback and Dissemination.

#### **2.3 PHASING**

1. Planning & Preparatory.
2. Data Collection.
3. Analysis of collected data in alignment with Standard statistical Devices & Assessment.
4. Preparation of Draft Report.
5. Discussion of Draft Report with the Competent Authority.
6. Finalization of Report.

# **Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan**

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7. Final Report Submission.

## **2.4 DATA COLLECTION**

The data collection is done in pre-designed format especially for this specific purpose. In data collection the support and help of local villagers are taken. Local senior citizens were engaged for this specific project to help in identification of fauna and flora by direct and indirect method both.

Data collection on vegetation was done through laying of square quadrats. 10 percent area of the core zone is taken as sample. Information on animals is collected through interviews from the villagers of the core and buffer zones by using the questionnaire survey.

We had surveyed the five villages namely Akasar, Nasooma, Karnisar, Miranwala & Majanwala for getting information about the flora and fauna in that study area. We met over there 35 villagers and asked the details of plants, animals, birds in the surrounding area. We had used the standard survey method for ecology & biodiversity in the study area. (Questionnaire is used for survey is attached as **Annexure-1**.)

## **2.5 LAYING OF SAMPLE PLOTS**

Sample plots are laid in core as well as in the buffer area adjoining to the boundary representing up to 10 km. Selection of centre of the plot of 1 ha. i.e. the point of inter-section of two diagonals i.e. NE to SW and NW to SE of the plot is done. The length of each diagonal measures 141.42 m. After reaching the plot centre stout peg, fixed firmly on the ground in the centre, Dimensions of the plot i.e. all sides' measures 100 a meters horizontal distance.

## **2.6 SAMPLING FOR TREE LAYER**

Saplings and trees with a girth of 20cm or more were taken as trees. The core zone was divided on the map in to 100 x 100m squares. At the intersection of the lines one ha (100 x 100m sq) plots were taken. In total 37, such 1 ha sampling plots were marked. The marked sampling plots were reached with the help of GPS. Circumference of all the trees at the breast height is recorded species wise.

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## **2.7 SAMPLING FOR SHRUB LAYER**

Seedlings and saplings of trees and other woody shrubs were included in this category. Shrub layer was sampled with the help of 5 x 5m square quadrats, one within each 1 ha sampling plot. Only the numbers of shrubs, species wise, were recorded.

## **2.8 SAMPLING FOR HERB LAYER**

Small, non-woody plants were included in this category. The herb layer was sampled with the help of 1 x 1 m quadrants. Like the shrub layer only the number of herbaceous plants, species wise, were counted.

## **2.9 COLLECTION OF SECONDARY DATA**

Secondary data is collected i.e., Compartment History prepared by the Forest Department, Working Plan of the Area other relevant records such as plantation journals and records of wild life / forest offence cases.

## **2.10 REVIEW / REFERENCE OF RELEVANT LITERATURE/BOOKS**

To complete this study the information from published books, materials and scientific literature is relied upon. Information was collected from the forest department, published research paper & educational institute, universities.

## **2.11 DATA ANALYSIS**

Frequency and density of all the species, in all the categories viz: tree, shrub and herb layer were calculated while for the tree layer density, frequency and basal area were calculated. From these values relative frequency, relative density and relative basal area and then Importance Value Index (IVI) were calculated for trees using following formulae:

**(a) Frequency:** Frequency was calculated as:

Frequency: No. of segments in which species is present / Total no. of segments studied

**(b) Relative Frequency:** Relative frequency was calculated with the help of the following formula

$$R.F\% = \text{No. of species} / \text{Total no. of species} * 100$$

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**(c) Dominance:** Dominance was calculated as:

$$\text{Dominance} = \sum (n_i/N)^2$$

Where:  $n_i$ - number of individual species.

$N$ = total number of species.

**(d) Relative Dominance:** Relative dominance was calculated by using the formula as given below:

$$\text{Relative Dominance} = \text{Cover of one species} / \text{Cover of all species} * 100$$

**(f) Importance Value Index (IVI):** As per Curtis (1959).

$$\text{IVI} = \text{Relative Frequency} + \text{Relative Density} + \text{Relative Dominance}$$

### **2.12 DATA SYNTHESIS AND RESULTS**

The primary data collected from the field are subjected to standard statistical tests and species are identified with reference to published books and materials. The study revealed following status of the species i.e. Flora and Fauna in tin given area. When we asked the details of peacock from Jaggasar and Haji Janu Khan, they told us they have seen 5-6 peacock daily in the morning and often come for taking water from roof pot, & we villagers generally kept water pot & cereal grains over the roof of our houses for feeding them.

# **Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan**

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## **CHAPTER-3**

### **STATUS OF FLORA AND FAUNA IN STUDY AREA**

#### **Biological Environment**

“Ecology is the study of the relation/Interaction between organisms with its surrounding Environment of a particular area at a particular time” This will affirm co existence of biotic communities and their interaction with abiotic components.

#### **Methodology for Baseline Data Generation**

To achieve the above objectives a detailed study of the area was undertaken in 10km radius around proposed mine area. The different methods adopted were as follows:

- Generation of primary data by undertaking systematic ecological studies in the area;
- Discussion with local people so as to elicit information about local plants, animals and birds.

The primary data was generated through:-

- Preparing a general checklist of all plants encountered in the study area. This would indicate the diversity for plants.
- Determining the bird population of migratory and local birds by taking 10 random readings at every Location;
- Observing mammals, amphibians and reptiles, noting their calls, droppings, burrows, pugmarks and other signs.

#### **Flora of the Core zone**

The core zone comprises of undulating rocky terrain, where mining operation is proposed. This area consists of semi arid vegetation in which herbs and shrubs plants are the main component. The impact of desert region lying nearby to this area is evident in its vegetation as well. No ecologically sensitive plant species has been reported from this area, In core

## Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan

zone 3 Tree Species, 3 Shrubs Species & 2 Grass Species have been observed & . List of flora in core zone given in below table 3.

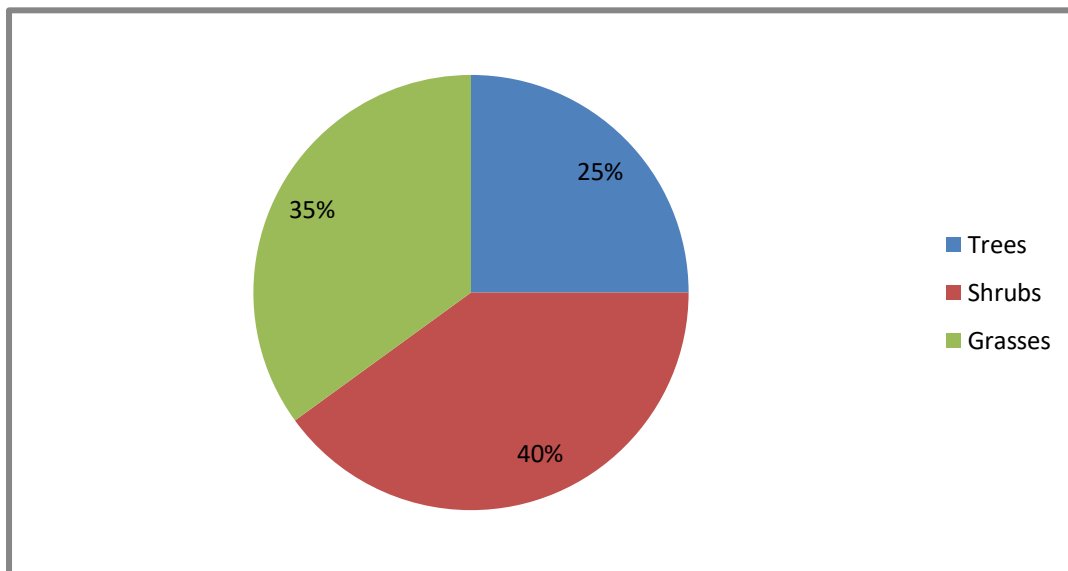
**Table 3: List of Flora in Core Zone**

Local Name	Botanical Name
<b>Trees</b>	
Vilayaty Kikar	<i>Prosopis juliflora</i>
Babul	<i>Acacia arabica</i>
Ber	<i>Zizyphus jujuba</i>
<b>Shrubs</b>	
Bui	<i>Aerva tomentosa</i>
Phog	<i>Calligonum polygonoides</i>
Aak	<i>Calotropis procera</i>
<b>Grasses</b>	
Bharut	<i>Cenchrus catharticus</i>
Dhaman	<i>Cenchrus ciliaris</i>

### Flora of the Buffer zone:

On analyzing the habit of the plants species, it is found that 5 trees species, 8 shrubs species and, 7 Grass species and, is represented as pi-chart below Fig. Details of all plant species, their family, local name and habit are given in table 4 below.

**Figure 6: Distribution of Floral Habitat in study area**



**Table 4: List of Flora in Buffer Zone**

## Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan

Local Name	Botanical Name
<b>Trees</b>	
Khejri	<i>Prosopis cineraria</i>
Babool	<i>Acacia arabica</i>
Rohira	<i>Tecomella undulate</i>
Moonj	<i>Saccharum munja</i>
Ber	<i>Zizyphus jujube</i>
<b>Shrubs</b>	
Kumat	<i>Acacia senegal</i>
Bui	<i>Aerva tomentosa</i>
Phog	<i>Calligonum polygonoides</i>
Aak	<i>Calotropis procera</i>
Kair	<i>Capparis aphylla</i>
Goondi	<i>Cordia rothii</i>
Khimp	<i>Leptadenia spartium</i>
Jal-pilu	<i>Salvadora oleoides</i>
<b>Grasses</b>	
Bharut	<i>Cenchrus catharticus</i>
Servan	<i>Lasirus indicus</i>
Ghancod	<i>Panicum antidotale</i>
Murat	<i>Panicum turgidium</i>
Kans	<i>Saccharum spontaneum</i>
Ganthil	<i>Dactyloctenium scindicum</i>

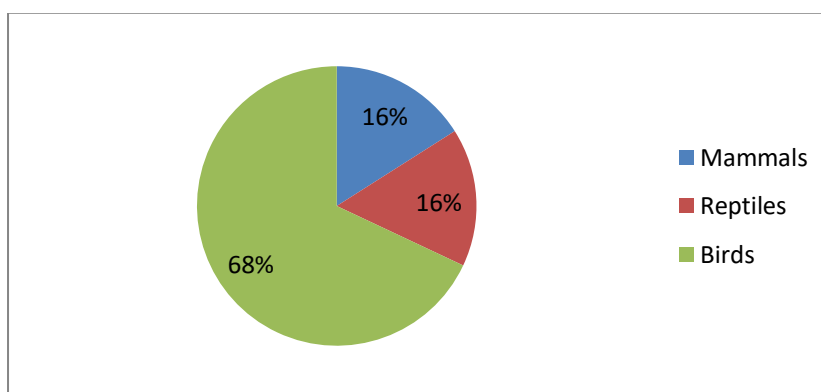
### Faunal diversity of the Study Area:

The information of important terrestrial animal groups such as birds, reptiles and mammals were collected by trekking inhabiting areas, along the road, nearby village areas and agricultural fields present in the study area. Core area is covered less vegetation whether no any faunal activities are observed. An inventory of the animals has been prepared separately for mammals, reptiles and birds. 03 species of mammals, 13 species of birds, 3 species of reptiles. Class wise list of species has been given below in Tables-5 & is represented in figure 6 below.

## Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan

**Table 5: List of Fauna in Buffer Zone**

English Name	Zoological Name	Schedule as per
<b>Mammals</b>		
Stripped squirrel	<i>Funambulus pennatii</i>	Schedule-IV
Wild boar pig	<i>Sus scrofa cristatus</i>	Schedule-III
Common Jackel	<i>Canis aureus</i>	Schedule-II
<b>Reptiles</b>		
Cobra	<i>Naja naja</i>	Schedule-II
Indian Krait	<i>Bungarus caeruleus</i>	Schedule-IV
Russell's Viper	<i>Vipera russelli</i>	Schedule-II
<b>Birds</b>		
House crow	<i>Corvus splendens</i>	Schedule-V
Jungle crow	<i>Corvus macrorhynchos</i>	Schedule-V
Red vented bulbul	<i>Pycnonotus cafer</i>	Schedule-IV
Grey headed myna	<i>Sturnia malabarica</i>	Schedule IV
House sparrow	<i>Passer domesticus</i>	Schedule-IV
Barn owl	<i>Tyto alba</i>	Schedule-IV
Black Kite	<i>Milvus migrans</i>	-
Rock pigeon	<i>Columba livia</i>	Schedule-IV
Sand grouse	<i>Pterocles exustus</i>	Schedule-IV
Indian Peafowl	<i>Pavo cristatus</i>	Schedule-I
Chinkara	<i>Gazella bennettii</i>	Schedule-I
Grey partridge	<i>Perdix perdix</i>	Schedule-IV
Common Duck	<i>Tadorna tadorna</i>	Schedule-IV
Snipe common	<i>Capella gallinago</i>	Schedule-IV
Grey shrike	<i>Lanius excubitor</i>	-



**Figure 6: Faunal Distribution of study area**

# Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan

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## CHAPTER-4

### DESCRIPTION OF SCHEDULE-I SPECIES AND THEIR CONSERVATION PLAN

#### 4.0 CONSERVATION PLAN FOR SCHEDULE-I SPECIES PEACOCK (*Pavo cristatus*, Linnaeus, 1758)

##### Scientific classification

Kingdom: Animalia

Phylum: Chordata

Class: Aves

Order: Galliformes

Family: Phasianidat

Genus: Pavo



##### Species: *Pavo cristatus*

Vernacular Name Mor or Peacock

The Indian Peafowl (*Pavo cristatus*) has been an integral part of the people of the India and their culture for centuries. From religion and mythology to civilization and socio-culture, the Indian Peafowl occupies an important place in the lives of the people. In addition to this, the Indian Peafowl is well recognized for its ecological and aesthetical values, and hence aptly declared as the 'National Bird' of India in the year 1963. Since the early 1990s, there have been reports of increasing illegal trade in peafowl feathers, large-scale mortalities due to increased use of insecticides/pesticides in agricultural lands, poaching, and retaliatory killings by people due to alleged crop depredation by peafowl. Several peafowl stronghold areas in the country are now concerned about the current declining status. Peacock which is in **Schedule-I** of the wildlife (protection) Act 1972 is found in the study area.

# **Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan**

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## **4.1 GENERAL DESCRIPTION**

Peacock or Indian peafowl (*Pavo cristatus*) is a familiar and universally known large pheasant. It is the National bird of Indian. The term “Peacock” is commonly used to refer to birds of both sexes. Technically, males are Peacock, females are peahens and together they are called peafowl. The male has a spectacular glossy green long tail feathers that may be more than 60 percent of the birds total body length. These feathers have blue, golden green and copper collared acelli (eyes). The long tail feathers are used for mating rituals like courtship displays. The feathers are arched into a magnificent shape across the back of the bird and almost touching on both sides. Females do not have these graceful tail feathers. They have the fan like crest with whitish face and throat, chestnut brown crown and hind neck, metallic green upper breast and mantle, white belly and brown back rump and tail. Their primaries are dark brown.

## **4.2 HABITAT**

Body Length -180-230 cm

Weight - 2750-6000 gm

In the undergrowth in deciduous forests near streams tall trees for roosting Size of the male tail feathers, its coloration and numbers of eyes present determine the dominance of the male in peacock hierarchy. The females are believed to be attracted towards the male with longest and most colourful tail feathers.

## **4.3 PEAFAWL BEHAVIOR**

Peacocks are gregarious by nature. In the breeding season they are usually seen in small parties of one male with three to five females whereas in the non breeding season they remain in separate parties of adult males and females with juveniles. Peacock roost in tall trees and emerge from the dense thickets to feed in fields and openings in forests and fields.

## **4.4 FOOD HABIT**

Peafowl are **omnivores** and eat most plant parts, flower petals, seed heads, insects and other **arthropods**, **reptiles**, and **amphibians**. Wild peafowl look for their food scratching

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around in leaf litter either early in the morning or at dusk. They retreat to the shade and security of the woods for the hottest portion of the day. These birds are not picky and will eat almost anything they can fit in their beak and digest. They actively hunt insects like ants, crickets and termites; millipedes; and other [arthropods](#) and small mammals.

Domesticated peafowl may also eat bread and cracked grain such as oats and corn, cheese, cooked rice and sometimes cat food. It is noticed by keepers that Peafowl love protein rich food including larvae that infest [granaries](#), different kinds of meat, as well as vegetables including dark leafy greens, broccoli, carrots, beans, beets, and peas. They also relish many fruits.

Peacocks are ground feeders. Indian peafowl's do most of their foraging early in the morning and shortly before sunset. They retreat to the shade and security of the trees for the hottest portion of the day. They make a meal of grains, berries drupes wild figs and some cultivated crops. They can also eat insect's small reptiles and small mammals.

Project proponent will distribute the 200 Sehjan seed & Cereal grain food packets (500gm to 1.0 kg) to the village panchayats under which project is located; these village panchayat will further distribute these food packets to the peafowl dominant villages namely Akasar, Miranwala, Nasooma,

### **4.5 CONSERVATION AND RELATIONSHIP WITH MAN**

The great beauty and popularity of the Indian Peafowl has ensured its protection throughout most of its native ranges. It is a national bird of India. The Peafowl is prominent in the mythology and folklore of the Indian people. The Hindus consider the bird to be scared because of its association with Lord Krishna who used to wear its feathers as crown (Mor Mukut). It is also associated with the God Kartikeya, son of the Lord Shiva and Parvati and brother of Lord Ganesh. It is "Vaahan" (transport) of Lord Kartikeya. This long and close association with humans has proven the peafowl's adaptability of human- altered landscapes. In villages where it is protected it becomes quite tame, but it is very shy and secretive where hunted. Peacock is generally protected by the local people.

# **Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan**

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## **4.6 CONSERVATION STATUS**

**Wild Life (P) Act** Schedule-I

**CITES** Not Listed

## **4.7 THREATS**

Threats to the peacock in the area are:

- Habitat loss, especially the shortage of tall tree in and around the villages for roosting and for providing shades during hot summer month.
- Shortage of drinking water for the birds during the hot summer days.
- Casualities caused by eating chemically treated agricultural crop seeds.
- Illegal hunting by some communities for meat and feather.
- Killing of birds by stray dogs.
- Accidental deaths due to electrocution

## **4.8 ACTION PLAN FOR CONSERVATION OF PEA FOWL:**

- Mapping of habitat and distribution status of the species across the 10 km radius from mining lease area.
- Time series analysis of habitat change to quantify the rate of change and identify high Risk areas and potential sites for further affirmative action.
- Estimation of population size by established count method such as line transect, call counts and roost counts.
- Intensive ecological investigation in reprehensive sites in major biogeography zone with focus on the effects of threats in relation to breeding success and survival probability.
- Quantification of trade, with details on source and people involved.

## **4.9 CONSERVATION MEASURES (HABITAT IMPROVEMENT PRACTICE)**

Direct and indirect approach is required to provide effective conservation, which is suggested as under:

- Increase the tree cover in the buffer area shelter and roosting of peacocks. This will be achieved by planting of tree groves (a group of trees grows close together, generally without many bushes or other plants) in buffer area.

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- Some local species such as Kikar, Neem, Ardu, Shisham, Sirsi, Jund, Peepal tree etc will be planted. Planting of tree groves in school compounds in the villages of buffers area as per the plantation programme.
- By conducting awareness programmes (community and school level) for conservation of peacocks in the area and also through organizing competitions during "Wildlife Week" and "Van Mahotsav" celebrations,
- Encourage Afforestation activities around or close to peafowl habitation. The selection of plant species will be based on requirements of peafowl roosting, food, shelter.
- Some provision of rewards to informers for the control of poaching and illegal trade in wildlife.
- Small water tank should be constructed in habitation zone of Peafowl and its water quality will be maintained,
- Provision of veterinary care and cages for injured and sick/deformed birds.
- Suggest strategies to minimize negative impacts of changing environment in nearby area of peacock population and to promote conservation of peacock habitats.
- Farmers will be educate and aware to adopt organic farming and use of safe pesticides in the agriculture
- Another way to help preserve the endangered species is to create society dedicated to ecological ethics. All the conservation measures will be implemented with the help of and in the consultation of the state forest department Haryana.
- With the objective of effectively protecting the wild life and to control poaching, smuggling and illegal trade in wildlife and its derivatives the government of India enacted Wild Life (protection) Act 1972.The Act was amended in January 2003 and punishment for offences under the act has been made more stringent.
- Habitat improvement of Pea-fowl will be done in study area of Akasar, Miranwala, Nasooma, Majanwala villages. Under this financial assistance will be provided to the concerned departments/villagers to maintain resting places of the peafowl by providing the adequate drinking water facilities and cereals grain.

## Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan

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### 4.10 *Gazella bennettii* (Chinkara)



#### Scientific classification

Kingdom:	Animalia
Phylum	Chordata
Class:	Mammalia
Order:	Artiodactyla
Family:	Bovidae
Genus:	<i>Gazella</i>
Species:	<i>G. bennettii</i>

**4.11 GENERAL DESCRIPTION:** Chinkara is the smallest Asiatic antelope native to India, Pakistan and Iran. The distribution covers much of western and central India and the Thar Desert of western India remains a stronghold. They have been observed in dry deciduous forests, open woodlands, and dry areas such as sand dunes, semi-arid deserts, and arid valleys. These are facultative drinkers and can withstand relatively long intervals between visits to water points by conserving metabolic water and taking advantage of water found in vegetation.

**4.12 HABITAT:** These animals are very shy and avoid human habitation. Although most are seen alone, they can sometimes be spotted in groups of up to four animals. It can thrive in a variety of habitats and share their habitat with several other herbivores, such as nilgai, blackbuck, chausingha, wild goats, and wild pigs. These animals mate once a year and Males compete for access to females.

**4.13 ECOLOGICAL SIGNIFICANCE:** These animals eat fruits such as pumpkins and melons and thus act as seed dispersers. The droppings of Chinkara harbored cellulolytic organisms suggesting their role in the Carbon cycle and increasing the fertility of soil. The mycological study revealed that fifteen fungi from the dung sample play an important role in the ecosystem, responsible for recycling the nutrients in animal faeces.

## **Flora/Fauna Details & Conservation Plan For Dhani Abdullah Wali Gypsum Mine Located at Vill.-Dhani Abdullah Wali, Tehsil-Kolayat, Dist-Bikaner, Rajasthan**

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**4.14 FOOD HABITS:** Indian gazelles are better adapted to browsing than grazing, but they can consume legumes and grasses in large quantities. Their diet typically consists of grasses, various leaves, crops and fruits such as pumpkins and melons. A majority of their metabolic water intake comes from the vegetation they consume. The chinkara was noticed to pick up the highly nutritious green or dried pods shed by *Prosopis cineraria*. In the arid area, Indian gazelles mainly consume four species: *Crotalaria burhia*, *Ziziphus nummularia*, *Maytenus emarginata* and *Prosopis cineraria*.

**4.15 CONSERVATION STATUS:** CITES APPENDIX: III; Indian Wildlife (Protection) Act, 1972 (As amended in 2002); Schedule-I; IUCN Red list, 2008: Least Concern

**4.16 THREATS:** The main threat to these animals is indiscriminate hunting for their meat by local people. The other threat includes habitat loss through overgrazing, conversion of forest lands to agriculture lands and for industrial developments.

### **4.17 ACTION PLAN FOR CONSERVATION OF CHINKARA:**

- Mapping of habitat and distribution status of the species across the 10 km radius from mining lease area.
- Time series analysis of habitat change to quantify the rate of change and identify high Risk areas and potential sites for further affirmative action.
- Estimation of population size by established count method such as line transect, call counts and roost counts.
- Intensive ecological investigation in representative sites in major biogeography zone with focus on the effects of threats in relation to breeding success and survival probability.
- Quantification of trade, with details on source and people involved.

### **4.18 CONSERVATION MEASURES (HABITAT IMPROVEMENT PRACTICE):**

- Identification of sites for preparation of grass lands for the Chinkara
- Increase the grass cover for potable grass by spreading the grass seeds in the appropriate space in buffer area.
- Development/maintenance of artificial water ponds for drinking water for Chinkara.

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- Regular monitoring of productivity potential of planted grass in the available space.
- Plantation of *Crotalaria burhia*, *Ziziphus nummularia*, *Maytenus emarginata* and *Prosopis cineraria*, as these are the most potable food for Chinkara.
- Conducting awareness programmes (community and school level) for conservation of Chinkara in the area and also through organizing competitions during "Wildlife Week" and "Van Mahotsav" celebrations.

### 4.19 Conservation Plan

**Table: 6 Brief Conservation Plan**

S. No.	Plan	Details
1	<b>Biological goals &amp; Objectives</b>	<ul style="list-style-type: none"> <li>• To ensure creating critical habitat</li> <li>• To plan for reducing conflicts</li> <li>• To arrange food, water supply within their natural habitat</li> </ul>
2	<b>Measures to achieve the goals</b>	<ul style="list-style-type: none"> <li>• Develop suitable roosting and nesting sites with acacia species.</li> <li>• Planting of Acacia trees etc. in association with forest department.</li> <li>• Awareness generation among local communities (if Chinkara is sighted inside human habitation, then it should not be attacked or killed. The Forest Officials should be informed)</li> <li>• Establish trained teams at two levels; the primary response team (village level) and the emergency response team (Forest Officials),</li> <li>• Use of cutting edge technology and scientific know-how to improve efficacy of capture, handling, care and translocation of the animal. Purchase of Equipment, Cage and Vehicle etc.</li> </ul>
3	<b>Measures to minimize impacts to the</b>	<ul style="list-style-type: none"> <li>➤ Minimize noise level, will be adopted.</li> <li>➤ To prevent dust and fugitive emission a robust green belt will be developed.</li> <li>➤ Regular monitoring of the pollution will be done so that air quality should be checked of the surrounding area.</li> <li>➤ Plantation of suitable species within the forest so that wild animals can reside within the forest</li> </ul>

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### **4.20 Plan Implementation**

#### **Phase-1 (Short term- immediately)**

Immediate action required at the moment and arrangement of budget and its proper allocation need to finalize.

#### **Phase-2 (Mid-term)**

Preparation and training at village level will be done for the conservation of Schedule-I. Species.

#### **Phase-3 (Long term)**

Creation, development & maintenance of habitat artificial waterholes. Plantation and Development of roosting site by Acacia species around mine lease area. Regular monitoring mechanism to be developed near plantation areas and other places so as to check the effectiveness of measures implemented.

### **4.22 Conclusion**

We are living in the world where both environment and development should move on together. We can't avoid any of them. Development at the cost of environment will certainly cause irreparable damage in the long run. So the development should be in a sustained and responsible manner.

One bird Peacock (*Pavo cristatus*), One mammals namely Chinklara (*Gazella bennettii*), exist in the Buffer Zone (10 km area around the Mine Lease). An effective conservation plan will help in proper management of habitat of such ecologically and nationally significant species. Implementation of conservation plan should be step by step in described format. M/s RSMML will allocate budget in assistance with the Forest department, Bikaner, Rajasthan.

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## **Some anticipated impact on Flora**

- As None of the plants will be cut during operational phase of the mine, so that there will not be any impact anticipated on the flora
- There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.

## **Some anticipated impact on Fauna**

- The fauna in the vicinity of the mine is restricted to few common species.
- There will be no significant impact on fauna due to this mining project.

## **Mitigation Measures**

### **Flora**

- No adverse impacts will be envisaged on the flora of the area.
- Plantation will be done along the approach roads. These activities will help to improve the floral cover of the area, which helps counter soil erosion.
- All the preventive measures will be taken for growth & development of flora.
- Although, the project will not lead to any tree cutting, it is proposed to improve the greenery of the locality by plantation services. To avoid dust emissions, the mined materials will be covered with tarpaulin during transportation.

### **Fauna**

- The workers shall be directed to not venture out of the leased area for collecting fuel wood, or hunting. They shall also be trained to not harm any wildlife, should it come near the project site. No work shall be carried out after 6.00 pm.
- Suitable plan for conservation of Schedule-I Species have prepared and necessary fund for implement for the same will be made.
- All the preventive measures will be taken for growth & development of fauna.
- Creating and development awareness for nature and wildlife in the adjoin villages

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## **5.0 ANTICIPATED IMPACT ON SCGHEDULE-I SPECIES & THEIR HABITAT**

### **General**

Identification of all potential environmental impacts due to project is an essential step of Environmental Impact Assessment. In case of mining projects, impacts on biodiversity, air pollution, water pollution, waste management and social issues are significant. Both direct and indirect environmental impacts will be created on various environmental attributes due to proposed mining activity in the surrounding environment, during the operational phase. The occurrence of gypsum deposits, being site specific, their exploitation often does not allow for any choice except adoption of eco-friendly operation. Positive impacts on socio-economic environment are expected due to creation of employment opportunities. Mining activities are normally carried out over a long period which also encourages development in the area such as roads, schools, hospitals etc. As such, the impact of the plant on these wild lands and on the animals sheltered within is likely to be from several Factors. Impacts on the biodiversity are as follow:

### **Impact of Particulate matter**

Particulate matter is the major source of the gypsum Mining. Dust is generated during Excavation, transport of materials, site development and loading and unloading of gypsum etc. Dust gets deposit over surrounding vegetation being carried by wind. Dust has an inhibiting growth on plants and creates allergy and respiratory disorder in animals. The soil property and micro flora and fauna are also affected by dust.

### **Impact of Air Pollution**

Gases such as Sulphur Dioxide, Oxides of Nitrogen etc. emitted from vehicular exhaust. Other important gaseous pollutants are SO<sub>2</sub> and N<sub>2</sub>O. It is well known that SO<sub>2</sub> has harmful effects on plants and animals. The levels of foliar injury, chlorophyll content and ascorbic acid were found to decrease and that of Sulphur increase in vegetation. Beyond permissible limits SO<sub>2</sub> can cause cough, irritation of respiratory tract and breathing problem in animals and birds. Exposure to N<sub>2</sub>O at concentrations of 100 ppm or more can prove disastrous to fauna.

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### **Loss of Biodiversity**

Of the total number of species in a plant community, a relatively small percent are abundant while large number is rare. While the few abundant species regulate the energy flow in the community, the large numbers of rare species determine the species diversity. Higher diversity in plant means longer food chains, more species interactions, greater possibilities for negative feed-back control, which reduces oscillations in species structure and increase stability. This condition is obtained in climax mature forests. Community of animals, birds & plants species are vulnerable to external stressors like pollution, fire and thinning up of trees. Once, the plant species start disappearing by selective removal, dependent animal communities loose out in the struggle for survival. Plant species of interior habitats may be lost at a faster rate compared to edge habitats.

### **Impact of Heavy Traffic Movement**

During operation phase, large scale movement of vehicles will generate noise and dust and may reduce habitat utilization by birds.

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## CHAPTER-5

### ACTION PLAN & BUDGETARY PROVISION FOR CONSERVATION PLAN OF SCHEDULE-I SPECIES

**1. Protection and development of habitat:** Will keep vigil on illicit felling, illegal grazing and illegal hunting in the nearby area. All other activities which may damage the habitat will be kept on watch. There will be strict prohibition of hunting of schedule-I wild animal in the core zone. Improve will be done of the habitat of peafowl by providing the drinking water facilities and tree plantation in villages namely Akasar, Manganwala, Miranwala, Nasooma. Approximately 5.0 ha land will be used for the green belt development. Which will be used for habitat improvement of peafowl and other avi-fauna etc.

**2. Creation of tree grooves:** The groves of tree like Neem, Peepal, Bargad\_ Gular, Arjun, Kikar etc. will be planted on the Panchayat land, Common Lands, Religious Places, School campus in the surrounding area to provide shelter, food and fodder to the wild animals. The Tall plants will be used in the Tree Grove Plantation.

**3. Development of Resting and Roosting Places:** Will be ensured by proper protection of the vegetation in the project area especially big trees. The peafowl are generally roosted either alone or also with one or two male adults or also with females (peahens) and sun adult males in small groups on same tree. The majority of peahens roosted together in small groups of 3-8 individuals along with sub adult males. During day time they prefer ground in dense thorny bushes, whereas, on trees, they prefer highest branches for roosting. The peacocks generally prefer the tallest trees for roosting. The species like *Azadirachta indica*, *Ficus religiosa*, *Acacia nilotica*, *Syzygium Cumini*, *Prosopis cineraria* are favourite plants for roosting. The plantation of these species will be carried out by planting tree groves.

**4. Nesting Place Management:** the nesting period of Peafowl is generally coincide with monsoon. The nest on ground but interestingly, if predation potential is high, they built their nests at protective places by using *Prosopis*, and *Acacia* bushes and dried grasses

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intermingled with small dry twigs of *Prosopis* which effectively concealed their nests. The habitat improvement for nesting will be carried out by planting bushes and shrubs in the surrounding area. The species like *Prosopis juliflora*, *Sacchharum*, *Ipomea*, *Zyzyphus*, etc. will be planted.

**5. Creation of Drinking Water Facility:** Water, particularly during drier seasons, becomes the most important factor to all types of wild animals including the mammals, birds and reptiles. If water is available safely, then all other factors become secondary for the presence and survival of the wild life in any forested area. Places suitable for mini watersheds will be identified in the core as well as in the buffer zone to store rainwater. Further, to make water available at all the times, throughout the year, some of these water holes will be recharged through artificial means. Proper slope will be given to approach these water sources so that the wild animals will be able to drink water without any difficulty. Proper cover through vegetation or any other type of even artificial cover will be developed near to these water sources so that the prey species will be able to hide themselves from the predators, at the time of approaching the water sources. To attract the birds, plants yielding food to the birds will be planted on priority basis. If water and food are available to the birds without any anthropogenic disturbances. Water holes/ Khels will be constructed in the surrounding area at strategic locations having water facilities for filling the water holes. The water will be filled in the Khels at regular interval or as needed. Compensation of salt requirement through salt licks is one of the major requirements of the wildlife. Salt licks will be provided to them near the waterholes. Water pots also will be kept at the roof of the household and buildings for the provision of water to the avi-fauna.

### **6. Augmentation of available water**

The terrain of the locality and structure of soil (very porous) is such that water on the higher slopes recedes very fast, therefore, water in the higher reaches does not last for the entire period of summer months. Hence the wild animals are forced to come down to the nalas and rivers, sometimes even to the villages in search of water. Many of the waterholes are common for cattle as well as wild fauna. This is one of the major reasons for the transfer of diseases such as MD, Rinderpest, Anthrax, etc. from the cattle to the wild

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animals. Hence, wherever small perennial water holes, are present on the higher reaches, they will be cleaned and deepened to increase the water availability. Series of loose boulder and brushwood check dams will be constructed on suitable sites, so that water retention period of the water holes in the down streams could be maintained. Wherever possible small check dams, anicuts, saucers and ponds will also be constructed, especially near grazing grounds.

**7. Development of Pastures and Brows:** The planting of Palatable grasses and trees will be done on Gauchar lands, wastelands and community lands to provide fodder and shelter for wild animals. The development of pastures in the surrounding villages certainly will help to avoid man-animal conflict besides providing food and shelter to the animals. The fodder trees like ber, Subabool, Khejri, Kikar, Ailanthus, Peepal, Neem, siris etc. will be planted along boundaries and in scattered form on the pastures lands, pachayat lands. The grasses like *Cenchrus ciliaris*, *Cenchrus biflorus*, *Cenchrus setigarus*, *Lasiurus indicus*, and legumes will be planted between and under the fodder trees.

**8. Creation of Shelterbelts:** The shelterbelts will be raised along the roads, canal, bunds existing in the area to reduce pollution as well as to provide fodder and shelter for the wild animals. The multipurpose trees will be planted under shelterbelt plantations. Single row or multiple row plantations will be done depending on available width along the road. Following considerations will be there in the selection of plant species. The green belt should consist of plants:

- a. Having tolerance to dust pollution.
- b. Should maintain leaves for as longer a time as possible.
- c. Combination of plants should be such so that almost a screen of plants is formed to check the dust from escaping the area. Thus the green belt plants will consist of mainly the trees and shrubs with some herbs also.
- d. The trees should provide shade, fodder, food and shelter to the animals.
- e. Plants possessing economic and/or aesthetic value should be given preference.

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f. Trees less affected due to pruning should be given preference because pruning will yield fuel wood.

g. Every plant species to be planted in the green belt should have some basis for its selection to be planted in the green belt.

h. Only local species will be taken for plantation.

**9. Promotion of Agro forestry:** The farmers of the area will be encouraged to adopt the agro forestry and Farm forestry on the agricultural lands. Fodder and fruit trees will be given preference in the agro forestry plantations. The quality planting material will be distributed to the farmers of the area. The agro-forestry will provide the shelter, food and day time refuge to animals besides providing other eco-logical and environmental services.

**10. Plantation of Bushes:** The bushes of *P. Juliflora*, *Zyzyphus*, *Saccharum*, *Lantana*, *Typha*, etc. will be planted along the river bank and other mining prohibited areas to provide shelter and natural hiding places for the wild animal, especially reptiles. This activity will help to provide escape cover, ambush cover, reproductive cover and special refuges to wild animal.

**11. Preservation of Natural habitat places:** The existing natural habitats like hides, creeks, burrows, depressions, patches of trees, bushes, earthen embankment, water bodies, grasslands, nesting places, mounds, termite mounds, etc. will not be disturbed and preserved as such. This will help to protect and preserve the habitat of Rat Snake other reptiles and Mongoose.

## **12. RECLAMATION AND HABITAT RESTORATION**

### **12.1 GREEN BELT DEVELOPMENT**

A green belt will be developed along the boundary of the mining lease area. The area for green belt plantation consists of undisturbed soil; hence plantation could be made in any garden or road side plantation. Green belt will be developed not from biodiversity conservation point of view but is basically developed as a barrier to check the spread of fugitive dust pollution. Following considerations will be there in the selection of plant species.

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The green belt should consist of plants:

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- c. Combination of plants should be such so that almost a screen of plants is formed to check the dust from escaping the area. Thus the green belt plants will consist of mainly the trees and shrubs with some herbs also.
- d. The trees should provide shade.
- e. Plants possessing economic and/or aesthetic value should be given preference.
- f. Tree less affected due to pruning should be given preference because pruning will yield fuel wood
- g. Every plant species to be planted in the green belt should have some basis for its selection to be planted in the green belt.
- h. Only local species will be taken for plantation.

### **12.2 CORE ZONE IN GREEN BELT**

- A green belt, 7.5m in width will be developed around the core zone.
- Green belt plantation will be started with the beginning of the mining and will be completed within five years from the beginning.
- To raise seedlings for plantation in the green belt a nursery will be developed. Seedlings of only local species, suitable for green belt plantation will be raised in this nursery.
- Green belt plantation will be protected properly. If need arises then the saplings will be protected with tree guards. Together with the trees green belt plantation will include shrubs, climbers and some herbaceous species also. However, only local species will be used in the plantation.
- Green belt will help in reducing the spread of any dust and noise pollution from the mining area.
- Selection of plants for green belt plantation will be made on following criteria:

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- The plant should be a fast growing species
- It should have deep root system
- Should bear the leaves for a longer period
- Should be a local species
- Should have good survival rate.

### **12.3 OVERBURDEN DUMP MANAGEMENT**

The overburden soil will first be dumped, temporarily and then later on it will be used for filling the void. The overburden consists of two types of soil:

- I). The top soil about 0.5 meter average thickness. It is rich in nutrients and suitable for plant growth, and
- II). The lower soil, which in true sense is not a soil but is earth, because in this soil organic matter is totally absent and is generally poor in nutrients required for plant growth. These two types of soil will be dumped separately. After dumping the soil for 2-3 years the topsoil, dumped separately, will then be used as the top layer over the lower soil.

### **12.4 RECLAIMATION OF BACKFILLED AREA**

The soil used for backfilling will be a better soil than the original soil. This will be because of compost layers, laid during the dumping of the overburden soil. However, additional amount of compost will be added to the soil, at the time of plantation in the backfilled area.

### **12.5 Bio- Reclamation**

Biological reclamation will be done to transform the degraded land and waste dump into a self - sustaining ecologically bio- diverse stable land form. This will prevent soil erosion, dust pollution and recreate the aesthetic beauty of the environment. Re- vegetation of waste dump through systematic means, increase the slope stability, enhances the infiltration rate of rain water and its availability, increases the soil fertility and promotes natural regeneration of native plant species.

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## **12.6 Species Selection for Reclamation of the Area**

Successful bio- reclamation would largely depend on the selection of appropriate species for re-vegetation. While selecting plant species following parameters will be considered.

- Local and native to the soil
- Nitrogen fixing leguminous species
- Shrubs, herbs and grasses for nutrient retention and recycling Apart from above top Soil management will be done to ensure the inoculation of Micro-organism, seed, organic matter etc.

## **12.7 The Planting of Plants**

Criteria For the selection of plants: Plant species selected for plantation in the backfilled, overburden soil' should possess any or more of the following properties. It should

- a. Have soil binding property.
- b. Be a nitrogen fixer.
- c. Be able to tolerate, at least to some extent, the crack formation in the soil.
- d. Have drought tolerance ability.
- e. Be able to grow in a slope.
- f. Be able to grow in nutrient and organic matter poor soil.
- g. Be a local species.

Plantation of the overburden soil will be taken up in two phases.

### **Phase: I**

The first phase will be aimed to establish plants, which will make the overburden soil suitable for plantation and or natural growth of the local species.

### **Phase: II**

Second phase will then vegetate the area, introducing as much local biodiversity as possible with the aim to develop a natural ecosystem, prevalent in the area. The first phase of

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stabilization of the overburden soil is expected to take 3-4 years. After that, in the overburden soil reclamation area, the local tree, shrub, herb, grasses and sedges and climber species, inhabiting the nearby forest area, will be introduced. This will lead, gradually, to the development of a natural forest and thus the natural ecosystem, in the area.

### **13. Training and Awareness strategy:**

Each individual should develop a personal ethic towards nature and wildlife which could pave the way for commitment and conviction not to destroy wildlife particularly that neither considering hunting as a sport, meat, nor to use products made out of skins or other parts of endangered animals. Unless these products are boycotted by their users, the clandestine killing and poaching of wildlife at the hands of unscrupulous people will continue. Everyone can play important role in spreading the message of conservation among their friends, family and community at the large. Awareness programs will be organized to make the wildlife conservation plan as popular as possible among the local people. This is the most important aspect of wild life conservation. People will be educated regarding the importance of wild life conservation through mass publicity by installing sign-boards, conducting audio visual classes and distributing literature in respective villages in the buffer zone. Experts in the field of wild life conservation will also be invited to deliver talks through slides. Sign-boards will be in English as well as in local language. Some examples of sign-boards, to be displayed are:

- **WILDLIFE HAS RIGHT TO MOVE THROUGH ROADS**
- **WILDLIFE IS OUR PRECIOUS HERITAGE**
- **DON'T THROW BURNING OBJECTS**
- **CAPTURING/HUNTING WILD ANIMALS IS PUNISHABLE OFFENCE**
- **FIRE DESTROYS BOTH THE PLANTS AND ANIMALS**
- **PLANT TREE SAPLINGS WITH YOUR NAME**
- **REPTILES CROSSING, DRIVE SLOW**

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### **14. Special Awareness Generation for Local Farmers:**

The farmers are the main target group for the wildlife conservation view. The farmers are the main suffers in man- animal conflict situation. The animal damages the crops of famers and they put some control measures that causes harm to the wild animals. The farmers put the barbed wire fencing along the field boundaries that restrict the movement of wild animal. Sometime feral dogs chase the animal and they strangled in the barbed wire fencing and fall pray of stray/ feral dogs. The farmers will be educate and motivated towards use of vegetative fence along the boundaries instead of barbed wire fencing. The district authorities will also convince to put ban on barbed wire fencing in the area. The farmers will also be aware, educate and motivate to stop injudicious of pesticides, fertilizers and other agro-chemicals that harms to the wild animals. They will also motivate to adopt organic farming. They will also motivate to adopt minimum tillage practices and not to burn the crop residue after harvesting.

**15. Strengthening of Village level Institutions:** The village level institutions like Self Help Groups and Village Forest Committees will be strengthened with regular training and capacity building programmes.

**16. Management of Traffic Movement:** To avoid the accidental hazards for wild animal, the speed breakers will be made across the roads, during the night low beam light will be used and pressure horn will not he used. The drivers will be educated about the wildlife conservation. Efforts will be made to cover the lights suitably with paint so that strong beam of head light is not formed and light falls in front of the vehicle only. Noise generated by pressure horn disturbs the wild life and forces them to leave the place. No pressure horn will be fixed on vehicle plying in these mines. All the drivers will be advised to make minimum use of horn while working in mines. All operators will also be advised to stop the vehicle on seeing animals and let them go away before moving the vehicle further.

**17. Far Surveillance:** With the people's participation some guides will be included from the adjoining villages in the project team which will keep alerting for any unwanted incidences to happen Alley will be awarded for such surveillance support activities.

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**18. For offending elements:** The enforcement authorities will be informed and with their help action will be taken against such elements.

**19. For patrolling of the area:** The forest department is expected to patrol the surrounding areas for curbing any prohibited activities. The project team may provide conveyance facilities to these teams on availability.

**20. Fencing of area:** The mining area will be fenced by chain linked fence in a phase manner to avoid any accidental death of wild animal.

**21. Purchase of Animal Ambulance:** An ambulance will be procured to provide timely medical help to injured/ ill animals.

**22. A Study of impact of Mining:** Study will be conducted through reputed institute like Wildlife Institute of India, Dehradun to ascertain the impact of mining on wildlife habitat, behavior and wildlife population dynamics.

**23. OTHER SAFEGUARD MEASURES:** Some of the measures to be followed are mentioned below.

i. Strict monitoring of laborers and associated workers for any activity related to endangering the life or habitat of wild animals and birds.

ii. Strict restrictions will be imposed on the workers at Project sites to ensure that they do not harvest any produce from the natural forests and cause any danger or harm to the animals and birds in wild.

iii. The Project authorities will be bound by the rules and regulations of the Wildlife Protection Acts or any such agency of the State, which may exist or will be promulgated from time to time for the preservation of habitats and protection of wild animals.

iv. It is to be ensured that the noise levels in no case go above 100-150 dB in the Project area. One of the measure proposed that the heavy noise is to be restricted early mornings and late afternoons, which are the feeding times of most of the fauna. The suggested

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methodologies aim at reducing and mitigating noise so as it) cause as little disturbance to the animals as possible:

**v.** Each worker shall he provided with identity card and would not be allowed to access plantation areas without permission.

**vi.** The workers shall be discouraged for plantation of non-native species in the surrounding of labor colony.

**vii.** Possession of firearms by Project workers shall be strictly prohibited, except for security personnel.

**viii.** The fuel wood to the laboures will be provided from the nearby-timber markets or provision made for the supply of Kerosene or LPG to avoid the forest degradation and destruction of wildlife habitat.

**ix.** The traffic used for the project works will be managed to produce a smooth flow instead of noise producing stop or start flow. Necessary training/ orientation will be provided to the traffic operators/ drivers. Sounding of laud horns will be banned. The project authorities will use water sprinklers on the road to avoid the dust from mining area.

The Proponent has proposed a sum of Rs, 14 Lakhs for conservation of schedules-I species under the following heads. The site specific estimates will be prepared for each interventions and Forest Department schedule of rates will be followed to carry out works. These are the tentative proposal and their tentative provisions will be changed as per requirement at later stage. The regular maintenance of the assets created will be done as required. The total financial plan is also specifically mentioned in the table below:

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**Table 7: Budget for Conservation measure**

S. No	Work Activity	Budget Provision in Rupees Lakh
1.	Spreading the grass seeds Bharut ( <i>Cenchrus catharticus</i> ) & Ganthil ( <i>Dactyloctenium scindicum</i> ) in the appropriate space in buffer area for Chinkara & distribution of <i>Moringaoleifera</i> (Sehjan) Seeds among the villagers for Peacock.	2.00
2	Promotion of Agro Forest in the villages by planting fruit trees	2.00
3	Planting of Tree groves in buffer zone and surrounding villages	5.00
4	Water feeling in the existing water bodies	5.00
6	Post mining rehabilitation works(Backfilling & Levelling of Mined out area)	40.00
7	Awareness generation of labour and local people, distribution of posters, pumphlets, fixing signangs	1.00
8	Development of Pastures in the surrounding villages	1.00
Total		56.00

**Yearly Distribution of Budget for ten years period (in Rupees Lakhs):**

**Table 8: Year wise allocated Budget**

Year	Provision In Rs Lakh
1	5.00
2	5.00
3	5.00
4	5.00
5	6.00
6	6.00
7	6.00
8	6.00
9	6.00
10	6.00
Total	56.00







