

# EXECUTIVE SUMMARY

*of*

Proposed Quartz Mine (30.667 Ha.) with a Production of 91,125 TPA  
*at*

Sy. No. 410, D.Cherlopalli Village, Bathalapalli Mandal,  
Anantapur District, Andhra Pradesh.

ToR Letter No. SEIAA/AP/ANT/2015-3568 Dated 14.08.2015

Monitoring Period : October 2016 to December 2016



Applicant

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## **Executive Summary**

### **1.0 Introduction**

M/s. S.L.V. Mines & Minerals has been applied for Quartz mine lease over an area of 30.667 Ha in Sy. No. 410 at D.Cheropalli Village, Bathalapalli Mandal, Anantapur District, Andhra Pradesh. Application was inspected and letter of intent was issued by Government of Andhra Pradesh Industries and Commerce (M-III) Department, **vide Memo. No. 9505/M.III (1)/2008-1, Dated 05.09.2013** attached as **Annexure-1**.

As per the EIA notification of Ministry of Environment Forests and Climate Change, Government of India (MoEF&CC), dated 14<sup>th</sup> September, 2006, as amended from time to time. this project falls under category 'B' project, activity 1(a) of EIA Notification, an Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) is required for obtaining Environmental clearance based on Terms of Reference (TOR) as approved by the statutory authority, the TOR was presented to State level Expert Appraisal Committee (SEAC), Andhra Pradesh and TOR was granted on dated **14.08.2015 (No. SEIAA/AP/ANT-169/2015) attached as Annexure-2**.

This EIA has been prepared as per the Terms of Reference granted and the EIA Notification. Further to assess the impact on environment, it is necessary to ascertain present status of environment prevailing at the project site and proposed construction and operation including identification and Assessment of impact on the environment.

Keeping these points and statutory requirement in view, this **Environment Impact Assessment Report (EIA) and Environmental Management Plan (EMP)** (here in after described as the EIA/EMP Report) has been prepared. Environmental Study has been carried out within 10 km radius of the mine area over a period of **October '2016 To December '2016 (Post monsoon season)**.

### **1.1 DESCRIPTION OF THE ENVIRONMENT**

The study area covers 10 km radius around the proposed quartz mine located near D.Cheropalli Village, Bathalapalli Mandal, Anantapur District, and Andhra Pradesh.

As part of Environmental Impact Assessment study, baseline environmental monitoring was carried out covering the months of October, 2016 to December, 2016.

Ambient air quality of the study area has been assessed through a network of eight ambient air quality locations. Results of the ambient air quality at all the above locations were found to be well within the limits of National Ambient Air Quality (NAAQ) Standards specified for

Rural, Residential and Industrial areas. Concentrations of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>x</sub> are mainly contributed due to vehicular traffic and local activities. The following is the summary of ambient air quality in the study area.

**Table 1.1 Summary Of Ambient Air Quality (µg/m<sup>3</sup>)**

	98 <sup>th</sup> Percentile Values			
	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>
Mine Site	53.9	22.3	13.6	16.4
Study Area (Max)	58.9	23.3	14.7	17.5
NAAQ	100	60	80	80

Note: CO values are observed less than 1 ppm during study period.

Noise levels were monitored at 8 locations in the study area of 10 km radius. Noise levels recorded were found to be in the range of 50.8-52.6 dB (A) during day time and in the range of 40.7 to 42.3 dB (A) during night time in the buffer zone.

Four water samples were collected from different locations. Ground water samples collected from the study area showed compliance of all parameters with the drinking water standard of IS 10500.

Soil samples were collected from eight locations in the study area for assessing the soil quality. All the soil samples showed average to good fertility. There are no endangered flora/ fauna species in the area.

## 1.2 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

### 1.2.1 AIR ENVIRONMENT

The air borne particulate matter is the main air pollutant contributed by opencast mining.

Predictions have been carried out for the worst-case scenario considering all the operations of the mine will be under simultaneous continuous operation of 24-hours for the proposed emissions.

**Table 1.2 Overall Scenario, µg/m<sup>3</sup>**

Sr. No.	Activity in the Quarry	Maximum Baseline Concentration (µg/m <sup>3</sup> )	Incremental GLCs (µg/m <sup>3</sup> )	Resultant Concentration (µg/m <sup>3</sup> )	Limit (Industrial, Residential, Rural and other area) (µg/m <sup>3</sup> )
1.	Drilling+Loading+ Transportation	58.9	4.6	63.5	100

Sr. No.	Activity in the Quarry	Maximum Baseline Concentration ( $\mu\text{g}/\text{m}^3$ )	Incremental GLCs ( $\mu\text{g}/\text{m}^3$ )	Resultant Concentration ( $\mu\text{g}/\text{m}^3$ )	Limit (Industrial, Residential, Rural and other area) ( $\mu\text{g}/\text{m}^3$ )
2.	Blasting	58.9	8.7	67.6	100

### 1.2.2 AIR POLLUTION CONTROL MEASURES

The following air pollution control measures will be implemented in the mine to control the impact of air pollution.

- In order to minimize the dust emanating from the mining operations water sprinkling is proposed at the mine pit, waste dump and also on the haulage roads to suppress the dust.
- Dust masks will be given to the mine workers.
- Regular grading of haul roads will be done to clear the accumulation of loose materials on the roads.
- Transport vehicles are maintained regularly in order to minimize the emissions from them.
- Overloading of tippers will be avoided to prevent the material spillage on the roads.
- Loaded tippers will be covered with tarpaulin before they are allowed on to the main roads.

The air pollution impacts on the nearby villages will be negligible with this small scale mining after adoption of the above air pollution control measures.

### 1.2.3 NOISE ENVIRONMENT

Noise levels in the proposed mine will be produced due to movement of vehicles for transportation of Quartz. But the pronounced effect of noise is felt only near the active working area.

Since the proposed mine will adopt open cast semi mechanised method for mining, there will not be much impact on the surrounding villages due to the mining operations.

#### 1.2.3.1 NOISE POLLUTION CONTROL MEASURES

The following are the noise pollution control measures proposed in the mine.

- Ear plugs will be provided to the mine workers when ever needed.
- Vehicles used for transportation will be regularly maintained.
- Greenbelt will be provided all along the mine in 7.5 m barrier zone to reduce the noise levels.

- Speed of the vehicles entering or leaving the mine will be limited to 25 kmph to avoid undue noise from empty trucks.

#### 1.2.4 IMPACT DUE TO GROUND VIBRATIONS

The proposed mine will adopt open cast semi mechanized method for mining with minimum drilling and blasting for separation of primary rock. Hence, the impact on ground vibrations due to mining will be negligible.

#### 1.2.5 WATER ENVIRONMENT

The total water requirement for the above operations will be 6.0 m<sup>3</sup>/day and will be met from bore well located adjacent to the mine.

Wastewater generation from the above consumption is from domestic consumption i.e., 0.5m<sup>3</sup>/day. Wastewater generated from the Domestic front will be mainly from toilets. This waste water will be treated in septic tank and sent to soak pit.

There are no natural drainage channels within the site, except local drainage pattern of mining lease area.

The ground water table is available at a depth of 40 m from the general ground level. No seepage water is envisaged in the mine as no other mine pits are existing above the present working level of subject mine. Hence there will not be much impact on the ground water table due to mining activities.

It is proposed to construct garland drains with sedimentation pits all along the mine pits to avoid erosion and sedimentation due to storm water. Only fresh water will be left into the nearby seasonal nalas after de-siltation.

#### 1.2.6 LAND ENVIRONMENT

There is no top soil generation in this five years plan period. Out of the total quartz produced 19766 cum of waste will be generated during the five years mining operation.

**Table 1.3 : Land Use Pattern for five years.**

S. No.	Particulars	land use pattern for 5 years
1	Area will be under excavation	2.4210
2	Dumping	1.8400
3	Plantation	0.0750
4	Approach Road	0.0900
5	Site services	0.0150
6	Others(Area for future use)	26.226
<b>Total</b>		<b>30.667</b>

### 1.3 AFFORESTATION

About 4800m<sup>2</sup> area along SE boundary will be planted during first five years. In every year about 150m length and 7.5m width of the barrier will be planted with 1125 plants like Neem, Sababul and Babul at 2m grid interval.

### 1.4 SOCIO ECONOMIC ENVIRONMENT

The mine area does not cover any habitation. Hence, the mining activity does not involve any displacement of human settlement. No public buildings, places, monuments etc. exist within the lease area or in the vicinity. The mining operations will not disturb/relocate any village or need resettlement. Thus, no adverse impact is anticipated.

The mining activity can improve the economic status of the people around the mine area. Local people will get employment with the continued mining activities and infra-structural facilities will be developed. Hence there is possibility of positive impact on socio- economics of people living in the nearby villages.

### 1.5 ENVIRONMENTAL MONITORING PROGRAMME

To evaluate the effectiveness of environmental management programme, regular monitoring of the important environment parameters will be taken up. The schedule, duration and parameters to be monitored are shown in below table.

**Table 1.4 Monitoring Schedule for Environmental Parameters**

Attributes	Sampling		Measurement Method	Test Procedure
	Network	Frequency		
<b>A. Air Environment</b>				
<b>Pollutants</b> PM10 PM2.5	4 locations in the project impact area (Minimum 2 locations in upwind side, 2 sites in downwind side / impact zone)	Once in a season.	Gravimetric method	-
SO <sub>2</sub>			Gravimetric method	-
			EPA Modified West & Geake method	Absorption in Potassium Tetra Chloromercurate followed by Colorimetric estimation using P-Rosaniline hydrochloride and Formaldehyde (IS: 5182 Part - II).
NO <sub>2</sub>			Arsenite modified Jacob & Hochheiser	Absorption in dil. NaOH and then estimated colorimetrically with sulphanilamide and N (1-Nepthyle) Ethylene diamine Dihydrochloride and Hydrogen Peroxide (CPCB Method).

<b>B. Water Environment</b>				
pH, Turbidity, Colour, Odour, Taste, TDS, Total Hardness, Calcium hardness, Magnesium hardness, Chloride, Fluoride, Sulphate, Nitrates, Alkalinity, Iron, Copper, Manganese, Mercury, Cadmium, Selenium, Arsenic, Cyanide, Lead, Zinc, Chromium, Aluminum, Boron, Phenolic Compounds	Set of grab samples during pre and postmonsoon for ground and surface Water in the vicinity.	Diurnal and Season wise	As per IS 10500-2012	Samples for water quality should be collected and analyzed as per : IS : 2488 (Part 1-5) methods for sampling and testing of Industrial effluents Standard methods for examination of water and wastewater analysis published by American Public Health Association.
<b>C. Noise</b>				
Noise levels at Day & night time - Leq dB (A)	Mine Boundary, High noise generating areas within the lease	Quarterly / Half yearly	As per CPCB norms	As per CPCB norms
<b>D. Soil</b>				
pH, Bulk Density, Soil texture, Nitrogen, Available Phosphorus, Potassium, Calcium, Magnesium, Sodium, Electrical Conductivity, Organic Matter, Chloride	4 locations in the project impact area	Yearly/half yearly	As per USDA Method	As per USDA Method

### 1.5.1 LOCATIONS OF MONITORING STATIONS

The location of the monitoring stations are selected on the basis of prevailing micro – meteorological conditions of the area like Wind direction & wind speed, Relative Humidity, Temperature. eight AAQM stations are selected (including minimum 2 locations in upwind side, more sites in downwind side / impact zone) to assess ambient air quality of the area.

Noise level monitoring will be carried out on lease boundary & in high noise generating area within the lease. Water & soil monitoring locations will be decided on the basis of general slope of the area & drainage pattern. Locations for the post project monitoring shall be as under:

Table 1.5 Post Project Monitoring Locations

S. No.	Description	Location
1	Ambient Air Quality	Mine site, Villages in downwind direction from the mine site
2	Meteorological data	Mine site
3	Noise Level Monitoring	Mine Boundary, High noise generating areas within the Mine boundary
4	Water Level & Quality	Nearby Surface & Ground water sources
5	Health Check-up	Workers
6	Monitoring of Agricultural crops	In the nearby area (on yearly basis)
7	Socio – economic status	In the nearby area (on yearly basis)

## 1.6 ADDITIONAL STUDIES

### 1.6.1 RISK ASSESSMENT

The proposed mining is limited to a depth of to 20 m (i.e. upto 522.6m RL) from the present pit level. The anticipated risks are mentioned below:

#### Fall of Sides

- Overall slopes angles of benches will be 45°.
- No disaster like land slide, flood or inundation or fire is anticipated as the height of benches will be 3 m and width will be 4 m.

#### Storage and Use of Explosives

- Proper and safe storage of explosives in approved and Licensed Magazine.
- Proper, safe and careful handling and use of explosives by competent Blasters having Blaster's Certificate of Competency issued by DGMS.
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc.

#### Water

- Proper drainage will be maintained to eliminate inundation of working pits during rains from run-off water.
- There is no danger of flood or inundation as the ground level.
- Mining operations are not carried below the ground water table; therefore, there will be no disturbance to ground water quality due to mining activity.

#### Natural Resource Conservation

- A green belt will be developed so that minimum soil erosion takes place.
- The excavated soil will be used in buffer zone in order to minimize the impact on environment.



- Water conservation techniques will be employed.

#### **Fire**

- Sufficient fire extinguishers will be installed at selected locations such as mine office, garage, stores etc. Besides, sufficient water hydrants with sufficient length of hosepipes will be made available on the surface for fire protection.

#### **Health Hazards**

- For the purpose of this document, health hazards are interpreted as being harmful dust and noise which is emitted during surface mining operations.

#### **Personal Protective Equipment (PPE)**

- The PPE of good construction, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particular hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection. It will only be used as a last resort and then as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

#### **Rehabilitation and Resettlement**

- There will be no resettlement or rehabilitation involved in the project.

### **1.7 PROJECT BENEFITS**

It is proposed to employ about 46 persons for carrying out mining operations and the lessee proposed to give preference to the local people in employment. In addition there will be indirect employment to many people in the form of contractual jobs, business opportunities, service facilities etc. this will enhance the economic status of the local people.

The impact of mining activity in the area will be positive on the socio- economic environment of the region. The employment directly and indirectly will be increased and better infrastructure and communication facilities will be provided.

M/s. S.L.V. Mines & Minerals would be required to initiate the following measures to minimize the possible negative impacts, as a consequence of setting up proposed quartz mining project at D.Cherlopalli Village in Bathalapalli District, on the surrounding socio-economic environment:

- Implementation of adequate dust control measures to check air pollution.
- Organize monthly health camps in the area to check the incidence of any respiratory and other related disorders.

- Conduct Entrepreneurship Development Camps to nurture entrepreneurial talents among the local youth.

### **1.8 ENVIRONMENTAL MANAGEMENT PLAN**

In order to implement an effective environmental management plan for mitigating the adverse impacts on the environment, regular monitoring of various environmental components is necessary. Mines Manager with the support of foreman and other workers will monitor the environment management plan of this area. Budget allocated this project Capital Cost is Rs.3, 96,000/- and Recurring Cost is Rs.3, 09,000/-.

### **1.9 CONCLUSION**

Based on the EIA study it is observed that there will be a marginal increase in the dust pollution, which will be controlled by sprinkling of water and transportation of Quartz in closed trucks.

There will be negligible impact on ambient environment & ecology due to mining activities, moreover the mining operations will lead to direct and indirect employment generation in the area.

Hence, it can be summarized that the mining of Quartz from the proposed mine of M/s. S.L.V. Mines & Minerals will have a positive impact on the socio-economic environment of the area.

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