



THE SINGARENI COLLIERIES COMPANY LIMITED

(A GOVT. COMPANY)

ADRIYALA LONGWALL PROJECT::APA

Sub: Outsourcing of Chemical injection for strata stabilization at fault negotiation in ALP Mine, APA, M/s SCCL. (qty.10000 cu.m)

1.0 MINE PROFILE &GEO-MINING CONDITIONS OF ADRIYALA LONGWALL PROJECT MINE

1.1. GENERAL MINE INFORMATION:

Adriyala Longwall Project Mine is an operating mine in Adriyala Project Area of SCCL. This mine was started in the year 2008 in the name Adriyala Longwall Project Mine. Geological report & Mining Plan (Including Mine Closure Plan) of Ramagundam Coal Mine (RG Coal Mine) [Conversion of UG Mines to OC {closed GDK 10 & working Wakilpalli sequentially} and Amalgamation of RG OC / Expansion Project RG OC II Extension Project & Adriyala Longwall Project] was approved by MoC, GoI vide letter No. 55026/1/20202-CPAM, dated 18.08.2020. As per the Approved Mining Plan, No. 1, 2, 3Top, 3Bottom & 4 Seam are proposed with Bolter Miner (2Nos), Road Headers and Longwall technology (1 Unit) & other than Longwall Patch with Continuous Miner technology / SDLs / LHDs and further new LW Panel No 6 in the batters area of Proposed RG OC I Exp in No. 3 Top, 3 Bottom & 4 Seam was proposed in approved MP.

1.2. MINE LOCATION:

Adriyala Longwall Project Mine is in Adriyala Project Area located in Peddapalli district of Telangana state. The mine is about 24 km from Ramagundam Railway station of south Central Railway. By road it is about 25Kms.from the district head quarters (Peddapalli) and 240 Kms. from Hyderabad, the state capital.

ALP Mine is located in the south-east extension of South Godavari mining lease, lies between Latitude $18^{\circ} 38' 05''$ - $18^{\circ} 48' 45''$ and Longitude $79^{\circ} 34' 49''$ and $79^{\circ} 29' 59''$ and south-west extension of Pandulapalli mining lease, lies between Latitude $18^{\circ} 46' 54''$ - $18^{\circ} 36' 51''$ and Longitude $79^{\circ} 32' 47''$ and $79^{\circ} 36' 46''$. It is covered by Survey of India Topo-sheet No. 56N/10. It falls in Ramagiri Mandal of Peddapalli District, State: Telangana. The location of work will be within the Adriyala geological block / within the above said

lease areas. The location of mine is enclosed as Plate-I.

1.3. ACCESSIBILITY:

Nearest Airport : Hyderabad
Nearest Railway Station : Ramagundam
Approach by Road : 25 Kms. from Peddapalli
240 Kms. from Hyderabad.

1.4. COMMUNICATION:

The Hyderabad to Ramagundam (Rajiv Rahadari) State Highway passes 25 Km due SW of the proposed area. The ALP Mine can be approached from this road by an all-weather feeder road. Godavarikhani town is about 18 km from ALP Mine. The nearest rail station is Peddapalli Railway Station, on the section of SC Railway. It is located at a distance of about 25 Km due SW of the block.

1.5. Geology

The proposed area is falling in Dip side of block.

South - Shaft block-III boundary & south side and dip side of Adriyala LW 5&6 Panels

North - F2-F2, and Jallaram block boundary

East - Proved limit of III and IV seams.

West - GDK-10A Incline boundary

Drilling details:-

In the proposed Continuous miner panels area (1.63 Sq.kms approximately), a total of 14 boreholes were drilled. The borehole density in this area works out to 9 BHs per sq.km.

1.6. Geology of the Mining Block:

Ramagundam Area, located in the North-Western part of the Godavari Valley Coalfield, forms a potential coal bearing tract. The general strike is NW-SE with gentle Northeastern dips. Ramagundam Area is in conformity with the regional set-up of Godavari Valley Coalfield.

Geologically, Adriyala Longwall Project forms as integral part of the Ramagundam Area and constitutes the Southern and South Eastern part of the belt. Several recognizable coal horizons designated as 1A, 1, 2, 3B, 3A, 3 and 4 seams in descending order occur within the block in Barakar formation, of which 4 seams attain workable status and are being worked in Gdk.10 & 10A Incline mining block.

Dip & Strike: - The coal seams in general trend North-East and dip towards NE. The gradient of the drivages is ranging from 1 in 4.0 to 1 in 7. As per the seam contours it is observed that gradient changes as go deeper.

- i) **Fault:** - In the proposed area, one faults viz: F2- F2 and have been deciphered. The details of the faults are presented in Table . The location of fault is Shown in the plans enclosed.

Table : Details of Faults in the proposed workings area

Sl. No	Fault No	Type of Fault	Trend of Fault	Throw amount and Direction	Linear Extension	Evidences of Faulting
1	<u>F2-F2</u>	<u>Oblique</u> fault	N63°W- S63°E	0 to 10m	<u>2600m</u>	Proved in underground workings of No. 1 Seam.

2.0 Present Status:

In ALP Mine, at present, two longwall panels extraction completed, Longwall panel-3 is under extraction and will be completed by June-2024. Towards the dip side of the ALP Mine, in line to LWP No.4, there is a Fault plane F2 with a down throw of 10m. This fault crosses several trunk roadways (PE1, PE2, PE3, PE5, RA1, RA2, RA3, 86L, 87L, 91L and 92L) as well as gateroadways.

I. Importance of negotiation of fault:

- Currently, mine operations have reached the dip side and are halted by the fault plane. To begin operations in LWP No.4, the gateroads must be extended up to the trunk roadways, specifically up to PE1Dip for personnel transportation, and the trunk belt must be developed up to 92L in PE2Dip.
- Additionally, the galleries in PE3Dip must be developed for material transportation with FBL's, along with return airway connections for the ventilation circuit, pumping circuit, and all trunk roadways and return airways. Negotiating the fault plane is essential for the uninterrupted and safe production from LWP-4.
- The failure to negotiate the fault plane has necessitated numerous alterations in the mine circuit, including changes to belt conveyors,

personnel and material transportation systems, ventilation systems, and pumping systems.

- These modifications are currently being implemented, though with significant difficulties and obstacles.

II. Experience while negotiating fault plane:

- During the development of PE2Dip with a Roadheader below 87 Level, fault No. F2, with a downthrow of 10 meters, was encountered. At the fault plane, continuous seepage of water mixed with gauze, silt, and sandstone impeded further progress.
- A similar issue was observed while developing RA1Dip below 87 Level, resulting in the stoppage of development along the trunk roadways. This forced the shortening of Longwall panel-4, leading to a loss of 400,000 tons of coal reserves.
- Subsequently, plans were made to shift the mine trunk belt conveyors from PE2 to N5 Dip below 85 Level to facilitate coal extraction from LWP No.4.
- It was also planned to develop along 91L south of N5Dip to establish Gateroads (MG-5 and TG-5) for LWP No.4. However, upon encountering the fault plane, continuous water seepage of approximately 100 gallons per minute was observed, and further development caused a cavity to form at the face. The approach area to this cavity near the fault plane was reinforced with additional supports, such as girders and cable bolts, but the strata conditions near the fault plane were found to be unmineable.
- Similar attempts were made along 87L S/S1 Dip, but crossing the fault plane became difficult with similar phenomenon like water seepage and silt materials, further complicating the development process.

III. Recommendation for Fault Plane Stabilization

- It was recommended by competent authority to employ strata stabilization techniques using microfine cement injection or polyurethane (PU) injection.
- Following this recommendation, the available technologies for strata stabilization were explored. The competent authority advised using

chemical injection for strata consolidation, a technique being employed at the Annaram Barrage in Telangana State.

- The proposed solution involves injecting polyurethane grout material by drilling long holes near the proposed fault negotiation site. The detailed method and solution are provided in Annexure-I. Based on site conditions, the amount of chemical injection required will be determined, with an initial estimate of approximately 10,000 kg of polyurethane grout needed.
- The firm has to provided a quotation for 10,000 kg of polyurethane grout but initially shall agreed to perform the work using 20% of the total quantity. Upon satisfactory performance, the work will continue.
- Therefore, it is proposed to outsource the activity of chemical injection for strata stabilization to negotiate the fault in ALP Mine.

3.0 Proposed work:

Sl.No.	DESCRIPTION
1	Outsourcing of Chemical injection for strata stabilization at fault negotiation in ALP Mine, APA, M/s SCCL. (qty.10000 cu.m)

4.0 Tentative Scope of work of bidder: – Supply of chemical injection material with pumps and other accessories and its application (on their own) at Adriyala Longwall Project Mine, Adriyala Projects Area, M/s SCCLtd.

- Place of work – ALP Mine 87LS/PE1/1Seam/SCCL.
- Duration/Period of work – 3 Months Max.
- Required skilled manpower
- Handling of material at work place

5.0 Tentative Scope of work of SCCL:

- Un skilled manpower
- Drilling of holes
- Transportation of material to the site

6.0 Enclosed plans:, Mine plan, Fault plane location, Part Plan.

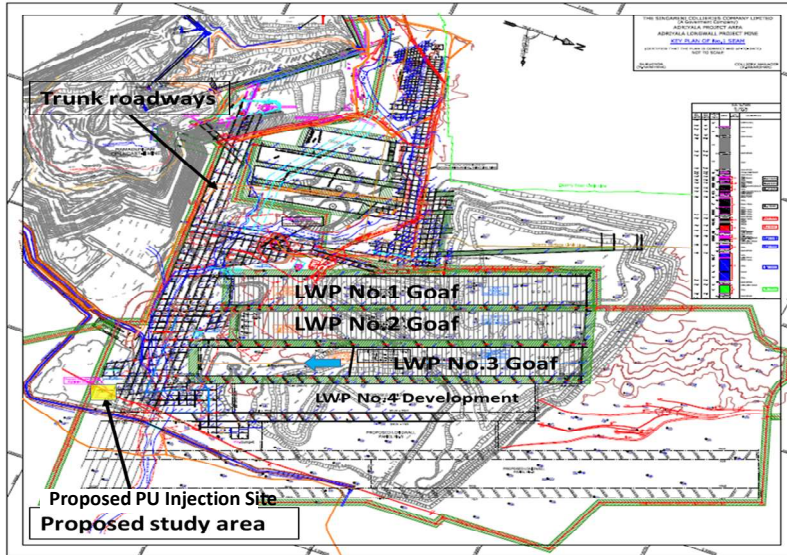


Fig 2: Plan showing the No.1 seam underground workings at ALP

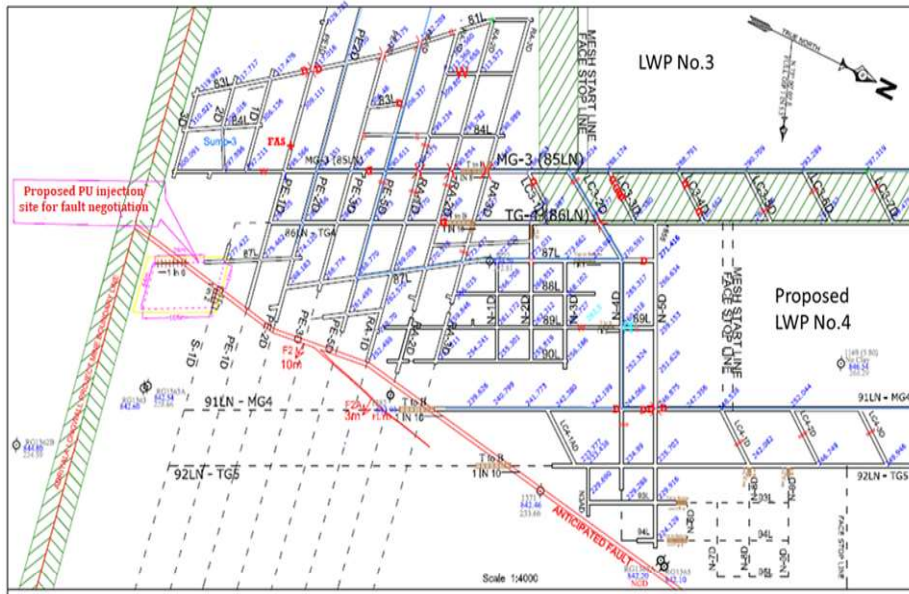


Fig 3: Plan showing the proposed PU Injection site for negotiating 10m down throw fault in No.1 seam

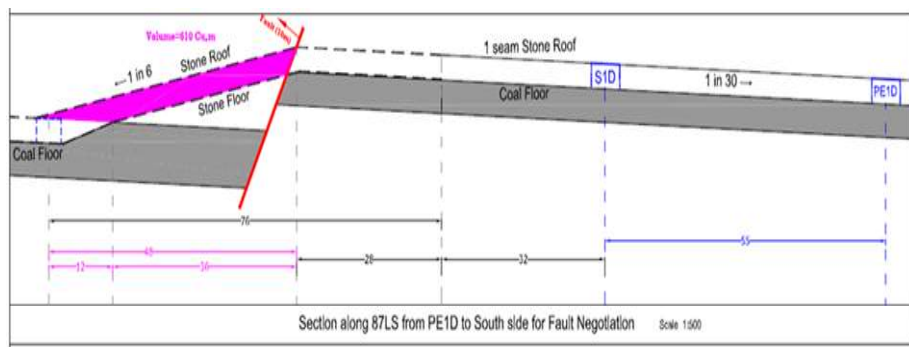


Fig 5: Method of working for negotiating 10m down throw fault in 87LS and S-1D

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