Implementation of Shallow Angle Drilling (<45°) Technology at Zawar-HZL: Advancing Surface Exploration for Mineral Resource Evaluation

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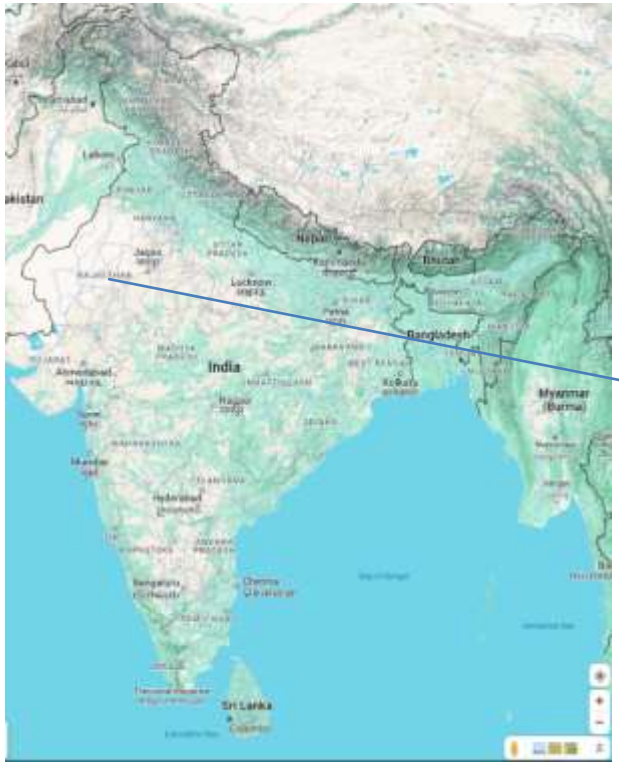
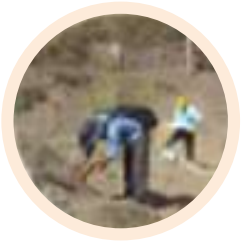
Location Map- Zawar Group of Mines



Location:
42 km South of Udaipur

Exploration Process

Project Generation

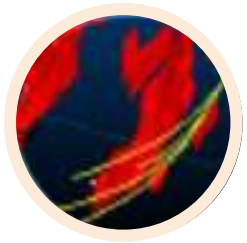


Reconnaissance Survey

Geochemical survey

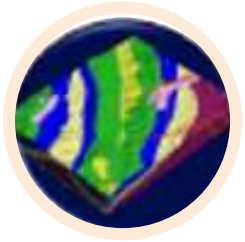
Geophysical Survey

Mining



Ore body Modeling

Test Drilling



Data Integration

Challenges with Conventional Drill Rigs

To target shallow depth orebody have following challenges with conventional drill Machines -

- **Location Limitations:** Traditional drilling rigs often face difficulties in setting targets at precise locations, especially in confined or difficult-to-access areas.

- **Drilling Angle Constraints:** Conventional rigs are unable to drill at angles less than 45 degrees, limiting their effectiveness in certain geological settings.

Challenges with Conventional Drill Rigs

- **Geometry of Mineralization:** Steeply dipping and narrow veins pose a challenge for conventional drilling methods.

- **Depth of Mineralization:** Accessing shallow mineral deposits without disturbing the surface excessively requires precise and adaptable drilling capabilities.

Conventional drill Rig V/s Shallow Angle drill Rig

Conventional Drill Rig

Shallow Angle Drill Rig

- First Time developed such machine for surface drilling
- +1000m drill capacity

Benefits of Implementation Shallow Angle drill Rig

Targeting Shallow Deposits: The ability to drill at any angle, even in restricted sites, allows for precise targeting of shallow mineral deposits.

Resource Upgradation: The machine facilitates fast-tracked resource upgradation by providing mining-ready ore bodies, accelerating the overall exploration process.

Benefits of Implementation Shallow Angle drill Rig

Discovery of New Lenses: The ability to drill at shallow angles without requiring extensive mine development enables the explore new mineral lenses at Shallow level, guiding future mine development strategies.

Cost Savings: The machine reduces overall drilling costs to drill from surface, instead of making mine development & exploratory drive to explore the shallow level potential area and making exploration more cost-effective.

Conclusion

The implementation of shallow angle drilling technology

- ✓ Advanced safety features of the machine have improved the safety of drilling operations.
- ✓ Has significantly enhanced the productivity of exploration activities.
- ✓ Enabled the discovery of shallow-depth lenses close to mine development areas.
- ✓ Increased the rate of drilling, opened new areas for exploration, and optimized costs.

This innovative approach to mineral exploration demonstrates how customized solutions can overcome specific geological challenges and drive the efficient discovery and development of Mineral Resources.

Thanks