

Underground Mining of Metalliferous Deposits
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Lecture 06
Terminology – II

TERMINOLOGY

MINING

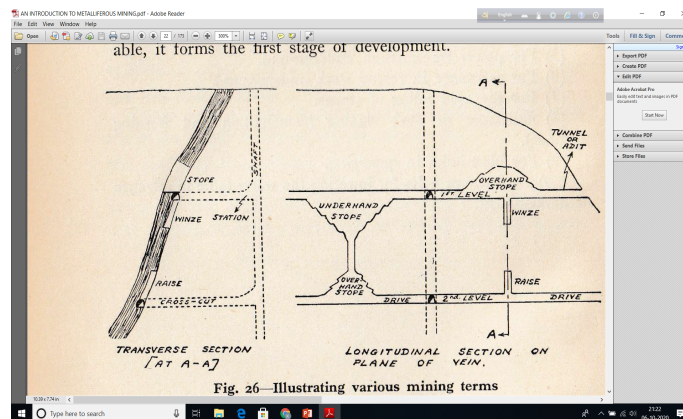
Mining is defined as the process of obtaining or excavating minerals or rocks or other valuable materials either solid or liquid. More than 4,000 mines are under operation in the country.

Mining is carried out for excavation of –

- Rocks
- Minerals
- Fuels

Level

All the horizontal openings created at an RL is called level. Cross-cut, drift, drives etc. For a multi-level operation levels are the openings created at different stations (shaft).



The operation is a little bit easy in case of single level operation, but for multi level operation the material flow are at different levels, the deployment of machinery are at different levels, machinery from one level to another level cannot be shifted very easily.

Cross cut:

X-cut is the horizontal opening created in the underground for the access from shaft to orebody or between orebodies. This is driven perpendicular or close to perpendicular of the strike direction of the orebody. It is similar to a tunnel. It is basically the roadways and kept through out the mine life or level life. It allows the movement of the machines.

Drift and Drives:

Drift and Drive are the horizontal opening created in the underground parallel to the strike direction of the orebody. In general a drift and drive is driven throughout the strike length of the orebody. It is similar to a tunnel. It is basically the roadways. Drift is driven through footwall rock and kept through out the mine life or level life. Drive is driven through orebody and act as initial cut. Often it is also kept for the hole life.

Raise and Winze:

Raise is a vertical or near vertical opening driven from the lower level to upper level mostly through the orebody whereas Winze is a vertical or near vertical opening driven from the upper level to lower level mostly through the orebody.

Ramp and Decline:

Ramp is a spiral pathway driven from the lower level to upper level mostly around the orebody. Decline is a spiral pathway driven from the upper level to lower level mostly around the orebody. Often Decline term is used only for the surface to underground access made for the ingress or egress the material and man., whereas, ramp is considered as the spiral connection roadways between two or more levels, no matter whether drawn from lower to upper or upper to lower level.

Sub-Shaft or Staple Pit:

Sub-shaft or staple pit is an underground vertical opening that connects a number of levels but does not open up to the surface.

Sub-Incline:

Sub-shaft or staple pit is an underground vertical opening that connects a number of levels but does not open up to the surface.

Shaft Station:

Shaft stations are the junction points between shaft and the level developments. These include Communication arrangements, First Aid room, Rest room, Electrical control room, Ore bin, Sump Pit, Pumping room for sump pit, Ventilation arrangements (doors/regulators).

Ore Bin:

Ore bins are vertical/near-vertical opening constructed adjacent to the main/transfer shaft for gravitated down the ores from the level to the level from which the material transfer system (skip-loading/conveying) is established.

Ore Bin and Shaft Station:

- Sufficient large size
- Inter-connected to a number of levels or act for only one level
- Temporary storage of ore
- Fitted with a grizzly at each level
- Often during development ore bins are used as waste bin