

CAS 23

Overburden Removal Cost

- CMA Ajay Deep Wadhwa

Introduction

- In many mineral industries, like coal industry, in open cast mines, coal can be extracted only after removing layers of soil, stone etc. This soil and stone etc is known as over burden.
- The removal of this overburden is known as “Over burden Removal” (OBR) and involves heavy cost.

CAS 23 deals with the principles and methods of measurement and assignment of Overburden Removal (OBR) cost and its presentation & disclosure in cost statements to bring uniformity.

Definitions

Like any other CAS, CAS 23 has also defined many usual terms like Abnormal Cost, Administration overhead, Amortization, Cost Object, Depreciation, Imputed Cost, Interest & Finance Charges, Overheads, Repairs & Maintenance Cost.

New Definitions

Some new terms, which are used in this CAS only have been defined as follows –

Current ratio – the ratio of “overbuden (OB) removed” to “mineral produced” in a particular patch of mine during the year.

Suppose in an opencast mine (ABC), 1350.14 CuM OB was removed in 2015-16 against the production of 432.98 Te of coal, the current ratio will be 3.12

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- **Mines Overhead** – It is indirect cost related to both – mineral extraction and overburden removal
- **Mining Plan** – it is a part of project report, showing information required to measure the stripping activity with reasonable consistency.
- **Overburden** – it is overlying materials like soil, stones, boulders etc generally having no commercial value but required to be removed before reaching the mineral for extraction

- **OBR Cost** – it is the cost of removing overburden (overlying material) for extraction of coal
- **Standard stripping ratio** - the ratio of “overburden (OB) to be removed” to “the mineral to be produced” during the whole project life. Suppose in an opencast mine, 20 lakh CuM OB will be removed during the life time (suppose 15 years) against the production of 10 lakh Te of coal, the standard stripping ratio will be 2.1

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- **Stripping activity** – It is the activity of overburden removal that benefits the identified component of an ore to be mined by the entity.
- **Advance Stripping** – Advance stripping is the excess overburden removed than what is needed for extraction of mineral. It can be understood with the real example given in the last slide.

Principles of Measurement:

- Aggregation of direct and indirect cost of overburden activity.
- Direct cost = Cost of consumable stores & spares+ detonators + manpower + equipment usage + payment made to contractors+ other identifiable resources.
- Indirect cost = Cost of unidentifiable resources to mining operation + administrative OH+ loading & unloading equipment usage + other allocable cost to overburden.

- Overburden removal cost attributable to a development phase of mine area shall be capitalized as non-current asset when there is probability of future economic benefits to the entity and such cost is identifiable & measurable.
- Overburden cost attributable to developed area of mine shall be charged to production of ore at the standard stripping ratio.

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- Overburden measurement = Multiplying the no. of trips undertaken by equipment/any electronic mode. Measurement at regular intervals to arrive at fair qty of overburden removed. Final assessment on the basis of scientific methodology.
- Current ratio = $\text{Actual overburden removed (net qty)} / \text{Actual production of mineral}$
- Cost of overburden carried out by outsourcing shall be determined at agreed price including duties & taxes and other expenditure directly attributable.

- Cost of overburden removal of each mine shall be computed and considered separately.
- Subsidy/grant etc. received/receivable for overburden activity shall be reduced for ascertainment of the cost of overburden removal for a patch/plot to which the amount relates.
- Any cost resulting from abnormal circumstances or fine, penalties etc. and similar levies or interest & finance charges shall not form part of the overburden removal cost.

- Any change in the cost accounting principles shall be made only if it is –
 - required by law
 - Result in more appropriate preparation & presentation of cost statements.
 - To comply with the requirements of CAS.

Assignment of costs

- Direct Cost shall be assigned to the overburden removal activity.
- Cost of equipment shall be assigned in the ratio of machine hours actually engaged for mineral & overburden or any other appropriate method.
- Admin OH and other indirect OH shall be apportioned to mineral on the basis of ratio of actual mineral produced and overburden removed during period or actual machine hours or any other appropriate basis.

Presentation

- Overburden removal, absorption and cost details shall be presented separately for each time.

Disclosures

- Cost statement shall disclose:
 - Basis of determination of overburden removal cost.
 - Any variation from the current ratio where cost of removal is considered on the basis of standard ratio.
 - Any subsidy/grant/incentive reduced from the cost of overburden removal.
 - Credit/recoveries relating to overburden.
 - Any abnormal cost/penalties/damages excluded from overburden removal cost.

- Disclosure shall be made when there is material, significant and quantifiable information.
- It shall be made in the body of the cost statement or as a foot note or as a separate schedule.
- Any change in the principles and methods during the period which has a material effect on the overburden removal cost shall be disclosed. Where it is unascertainable wholly or partly, the fact shall also be indicated.

A real example

Particulars		AR>CR	OR A/C - CR	
1	Coal production (000 Te)	432.98		
2	Avg.Striping Ratio	2.20		
3	Current Striping Ratio	0.94		
4	Solid OBR Production (000 CuM)	1350.14		
5	Rehandling	20.50		
6	Total Obr Production	1370.64		
7	Opening direct Advance Striping	276.52		
8	OBR production During the Year	1350.14		
	Total	1626.66		
9	Less,Closing direct Adv Striping	1217.70		
10	Net	408.96		
11	Coal Production	457.98		
12	Mineable Exposed Coal-Opening	50.00		
13	Mineable Exposed Coal-Closing	25.00		
14	Total	432.98		
15	Current Ratio	0.94		
16	Advance Striping	1217.70		
Cost particulars (000 Rs)		QNT	Amt	Rate
a	Opening Advance Striping	276.52	171133	618.88
b	OBR during the year	1350.14	839731	621.96
c	Total (a+b)	1626.66	1010864	621.44
d	Less, Closing Advance Striping (at weighted Avg Cost)	1217.70	756724	621.44
e	Net	408.96	254140	621.43
f	Ratio Variance QNT & Amt	543.60	338094	621.96
g	Write off QNT & AMT (e+f)	952.56	592234	621.73
h	OBR during the year	1350.14	839731	621.96
i	OBR Adjustment (h-g)	-397.58	-247497	622.50

Thanks a lot