Background
One of the issues commonly faced by entities in the mining industry is the measurement of inventory during periods of abnormally low production. Uncertainty often exists on how to allocate fixed production overheads during such periods (e.g., periods of production ramp-up immediately following the commencement of commercial production, labour strikes, and/or unplanned maintenance).

In accordance with IAS 2 Inventories, fixed production overheads are those indirect costs of production that remain relatively constant regardless of the volume of production, such as rent related to property and production facilities, depreciation on production equipment where not depreciated on a units of production basis, insurance and salaries of production managers and supervisors.

Under IAS 2, fixed production overheads are allocated by reference to the “normal capacity” of a production facility. Normal capacity is the production expected to be achieved on average over a number of periods or seasons under normal circumstances after taking into account any loss of capacity resulting from planned maintenance. The actual level of production may be used if it approximates normal capacity. IAS 2 does not provide further guidance on determining normal capacity.

Mining Industry Task Force on IFRSs
International Financial Reporting Standards (IFRSs) create unique challenges for mineral resource companies. Financial reporting in the sector is atypical due to significant differences in characteristics between mineral resource companies and other types of companies. The Chartered Professional Accountants of Canada (CPA Canada) and the Prospectors & Developers Association of Canada (PDAC) created the Mining Industry Task Force on IFRSs to share views on IFRS application issues of relevance to mineral resource companies. The task force views are provided in a series of papers available through free download. These views are of particular interest to chief financial officers, controllers and auditors.

The views expressed in this series are non-authoritative and have not been formally endorsed by CPA Canada, PDAC or the organizations represented by the task force members.

1 Some mining entities allocate fixed production overheads to inventory as those costs are incurred and monitor for events and circumstances (e.g., strikes, unplanned maintenance, etc.) that may indicate production levels are outside the range of normal capacity. When this occurs, actual fixed production overheads allocated to inventory are adjusted to reflect normal capacity.
Without the concept of normal capacity, in a period of abnormally low production for example, more fixed production overheads costs would be allocated to inventory, resulting in a larger inventory balance.

**Issue**

How should a mining entity allocate its fixed production overheads to inventory in periods of abnormally low production?

**Viewpoints**

**Determining Normal Capacity**

Judgment is required to determine the normal capacity of a production facility and when a production level is abnormally low (i.e., outside the range of normal capacity).

Normal production capacity is the level of production expected to be achieved over a number of periods under usual circumstances, taking into account the loss of capacity resulting from planned maintenance. Normal capacity refers to a range of productions levels. Normal capacity is mine specific and will change over the life of the mine based on specific facts and circumstances. As such some variation in production levels from period to period is expected and this variation is considered when determining the range of normal capacity.\(^2\) When interruptions to production occur, an adjustment is required to the costs to be included in inventory such that they reflect normal capacity. In periods when actual production is lower than normal production capacity, fixed overhead should be allocated to each unit of production (e.g., ounce, pound) based on normal production capacity with any excess amount of overheads charged to operating expenses within cost of sales in the period in which they are incurred. Examples of fixed overheads that may overstate and, therefore, could be excluded from, inventory in these circumstances include:

- indirect wages (e.g., supervisory staff)
- indirect materials (supplies and other small items not usually accounted for individually)
- depreciation on a straight-line basis, plant and equipment maintenance.

In determining what constitutes normal capacity, a mining entity considers a number of factors including but not limited to:

- type of mining
- economic factors affecting demand including operating environment
- stage of mine life
- budgets and forecasts (including their reliability)
- production history with similar production facilities
- maximum production capacity and the expected utilization of production facilities including planned maintenance and shut-downs (note that normal capacity does not necessarily equate to the facility’s maximum capacity)

\(^2\) In such cases, normal fluctuations in the per-unit cost of inventory result from period to period.
• expected levels of production to be achieved on average over a number of periods, adjusted for unusual fluctuations or circumstances.

In making a determination of a range of normal production capacity, judgment is required to determine when production levels are abnormally low (that is, outside the range of expected variation in production). The range depends on a number of factors (e.g., location, type, etc.). Together with other qualitative considerations, the following may be used individually or in combination to determine a normal range of production levels:
• production as per the long-range plan
• production per the current year budget
• actual production from recent prior periods.

Normal capacity is separately evaluated for each operation because each operation may be affected by the above factors differently. For example, a mining operation that is newly commissioned or in a less-developed part of the world (e.g., locations with infrastructural issues) may have a wider range of normal production capacity than a mine site that is more mature or in a developed area.

Examples of interruptions to normal production capacity that could generate abnormal production levels include:
• pit wall failures and/or seismic activity that cause the pit walls in an open pit mine to be unstable
• flooding due to heavy rains and/or a buildup of water in the bottom of the pit due to dewatering issues
• electrical or gas supply line disruptions
• labour disruptions
• damage, failure and/or major unplanned repair to critical parts of the operation
• sudden and accidental discharge of pollutants that causes operations to be temporarily suspended.

**Inventory Costing during Production Ramp-Up**

After the commencement of commercial production, production usually continues to ramp-up. During this ramp-up period, production levels are typically lower compared with periods that follow. Different views exist on how to account for the unallocated fixed production overheads during this period.

**View A—Expense**

Proponents of this view believe that low production during the production ramp-up period of a mine does not reflect normal capacity. Excess fixed production overheads are not allocated to inventory but, instead, are recognized as an expense during the period in which they are incurred.

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3 Viewpoints—Commencement of Commercial Production discusses how to determine when a mine has reached the commercial production phase.
**View B — Capitalize to Inventory**
Proponents of this view believe that low production during the production ramp-up period of a mine is a normal part of the mine production cycle. In this case, all fixed production overheads are capitalized to inventory, thereby increasing the cost of inventory. This may result in inventory impairment if the net realizable value is lower than cost.

In the experience of the Mining Industry Task Force on IFRSs, **View B** is generally used in practice.

Note that costs incurred before commencement of commercial production are not assessed in this Viewpoint as “normal capacity” may not have been determined and would not have been reached at that time, and the company would be determining their allocation of fixed overhead between development expenditures and inventory, if any were produced in this period.

**Inventory Costing during Labour Strikes**
Low production levels as a result of labour strikes are typically considered to be abnormal and, therefore, any unallocated fixed production overheads during this period are expensed as incurred.

**Inventory Costing during Maintenance Periods**
One of the primary considerations in the case of maintenance is whether the maintenance is planned or unplanned.
- Planned maintenance is considered in the determination of “normal capacity”. In this case, fixed production overheads will continue to be allocated by reference to the normal capacity of a production facility.
- Unplanned facility downtime as a result of unplanned maintenance is one of the factors that may result in abnormally low production. In this case, any unallocated fixed production overheads are recognized as an expense in the period in which they are incurred.

**Inventory Costing during Pit Wall Failures and Other Technical Difficulties**
Costs arising from unforeseen technical difficulties (e.g., pit wall failure) are generally not considered fixed production overheads and are recognized as an expense in the period in which they are incurred.

**Assessment of Normal Capacity**
During periods of normal production, the amount of fixed production overheads allocated to inventory may fluctuate within a normal range; however, if actual production differs substantially from normal capacity over a period of time, a mining entity should consider whether it needs to revise its consideration of what constitutes normal capacity.

Consequently, a mining entity should ensure that fixed production overheads are allocated by reference to the normal capacity of the facility and review the cost of inventory against its net realizable value to ensure it is appropriately measured.
**Significant Judgment**

IAS 1 *Presentation of Financial Statements* requires the disclosure of any significant judgments made in the application of an entity’s accounting policies. Since the exercise of judgment is required to determine normal capacity for the purposes of inventory costing, management may consider disclosing the significant factors considered in exercising its judgment.
The Mining Industry Task Force on IFRSs

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For more information on IFRSs visit www.cpacanada.ca/viewpointsmining.