TR 95/36 - Income tax: characterisation of expenditure incurred in establishing and extending a mine

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Taxation Ruling
Income tax: characterisation of expenditure incurred in establishing and extending a mine

other Rulings on this topic

IT 353; IT 356; IT 2269

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*This Ruling, to the extent that it is capable of being a 'public ruling' in terms of Part IVAAA of the **Taxation Administration Act 1953**, is a public ruling for the purposes of that Part. Taxation Ruling TR 92/1 explains when a Ruling is a public ruling and how it is binding on the Commissioner.*

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What this Ruling is about

Class of person/arrangement

1. This Ruling applies to taxpayers who carry on eligible mining operations as defined in subsection 330-30(2) of the *Income Tax Assessment Act 1997* ('the Act').

2. This Ruling deals with:

   (a) the general distinction between capital expenditure incurred in the establishment or extension of a mine and revenue expenditure incurred in operating a mine;

   (b) the type of expenditure that is incurred in underground mining and its characterisation into capital and revenue expenditure, including the taxation treatment of decline tunnels following the decision in *Mount Isa Mines Ltd v. FC of T* 91 ATC 4154; 21 ATR 1294;

   (c) the special features of strip mining, the taxation treatment of costs incurred in overburden removal and the construction of access roads or ramps; and

   (d) open pit mines and the capital/revenue distinction in respect of costs incurred in constructing haulage roads through country rock and within the ore body and the costs incurred in removing overburden.

Ruling

3. Generally, expenditure incurred on the creation, making or extension of a mine is capital expenditure while expenditure incurred in the working or extraction of the ore body is a revenue expense.

4. In underground mining the cost of getting access to the place where extraction of valuable ore is to commence is generally capital expenditure. Such costs may include constructing vertical shafts, ventilation shafts, decline tunnels, horizontal drives, passageways for vehicle transportation, railways or conveyor systems.

5. The excavation costs of extracting ore from an underground mine is a revenue cost being a cost incurred in the operation of a mine. Ore is usually extracted using recognised methods of extraction, including, room-and-pillar mining, longwall mining, sub level open stoping, vertical crater retreat mining, sub level caving, block caving, top slicing, vein or raise mining, cut-and-fill stoping, undercut-and-fill mining, shrinkage stoping, long-hole open stoping and alimak raise mining.

6. The cost of constantly extending a decline tunnel that plays a part in the actual extractive process is a revenue cost. The characteristics of such a decline tunnel are that it is dug in a series of relatively small excavations. It follows the ore body and is dug as close to the ore body as practicable. In addition, the decline allows for the extraction of ore in the immediate vicinity, with the ore being extracted in a relatively short period of time.

7. In strip mining the cost of constructing access roads or ramps to get down to the ore body or seam is a cost of establishing or extending a mine and is a capital expense. The cost of removal of the overburden to access the ore body to expose it and allow for its extraction is a revenue cost.

8. In open pit mines, the cost of overburden removal not associated with the construction of a haulage road and which exposes the ore body to be mined, is a revenue expense. With respect to the haulage roads the size of the pit and their location will determine whether their costs of construction are capital or revenue.

9. The cost of constructing haulage roads into open pit mines that are quickly exhausted, i.e., mined out in one or two years is a revenue cost. With open pits having a longer life the location of the haulage road is relevant. Where the haulage road is constructed over an ore body and the current mine plan provides for that ore to be mined in the future, the cost of constructing the road is a revenue expense. However, where a haulage road is constructed over an area which contains no ore or ore currently not proposed to be mined (as per the mine plan), then the cost of that road is a capital expense.

Date of effect

10. This Ruling applies to years commencing both before and after its date of issue. However, the Ruling does not apply to taxpayers to the extent that it conflicts with the terms of a settlement of a dispute agreed to before the date of issue of the Ruling (see paragraphs 21 and 22 of Taxation Ruling TR 92/20).

Note: The Addendum to this Ruling that issued on 6 August 1997 applies in relation to the 1997-98 or a later income year.

Previous Rulings

11. This Ruling withdraws Canberra Income Tax Circular Memorandum 700.

Definitions

12. Many of the terms used in this Ruling are unique to the mining industry. Some of the common terms are listed below, together with a short explanation:

'chute' - a loading arrangement utilising gravity flow.

'country rock' - a loose term to describe the general mass of rock adjacent to an ore body, as distinguished from the vein or ore deposit itself. Also known as host rock.

'crosscut' - a horizontal opening driven from a shaft and at right angles to the strike of a vein or rock formation.

'decline' - a sloping underground opening, usually driven at a grade of 1:7 or 1:9, for machine access from level to level or from surface.

'drawpoint' - an underground opening at the bottom of a stope through which broken ore is extracted from the stope.

'drift' - a horizontal underground opening that follows along the length of a vein or rock formation as opposed to a crosscut which crosses the rock formation.

'finger raise' - a raise for transport of ore, usually arranged in a system of similar raises branching together to a common delivery point.

'level' - a system of horizontal underground workings, connected to the shaft. It is customary to establish levels at regular intervals, generally about 50 metres apart.

'ore' - a mineral deposit that can be worked at a profit under existing economic conditions.

'ore body' - a natural concentration of valuable material that can be extracted and sold at a profit.

'ore pass' - an inclined underground opening intended for transfer of ore.

'overburden' - the surface waste or worthless rock overlying a flat or moderately inclined economic deposit, thin enough to warrant its removal to expose and mine the deposit by open pit mining.

'raise' - an underground opening driven upward from one level to another.

'stope' - an excavation in a mine from which ore is being or has been extracted.

'waste' - barren rock or rock of too low grade to be mined economically.

Explanations

13. In *A Concise History of Mining* by C E Gregory (Pergamon Press, Oxford, 1980), 'mining' is defined as 'the process of obtaining useful minerals from the Earth's crust for the benefit of mankind. Mining is mineral production. It includes both underground excavations and surface workings'. A 'mine' is defined in the *Macquarie Dictionary*, 2nd ed, as '1. An excavation made in the earth for the purpose of getting out ores, precious stones, coal, etc'.

14. In *MNR v. Bethlehem Copper Ltd* 74 DTC 6520, the Supreme Court of Canada pointed out that a taxpayer did not acquire a mine merely because it acquired a portion of the earth containing a mineral deposit. A mine was a combination of the mineral deposits, the workings and the equipment and machinery needed to extract the ore.

15. On the facts of that case the court decided that mining itself is complete by the production and hoisting of the ore. The court decided that two open pit mines that operated relatively close to each other were in fact two distinct mines. Each became a mine because each had its own separate and distinct extraction facilities that were used in the extraction of ore from the ground.

16. While the sinking of a new shaft is often the creation of a mine, this is not always the case. A new shaft that joins up with existing

extraction works, thereby allowing for the better overall working of the mine, may simply be the extension of an existing mine.

17. This was the case in *MNR v. The McLean Mining Co Ltd* 70 DTC 6368. This case involved an underground mine where a new ore body was discovered about 300 metres from the nearest other known ore body. An existing shaft was deepened and an exploratory heading from that shaft was driven towards the new ore body. A new shaft was sunk for mining the new ore body and an underground haulage way was built to another shaft close to the mill. However, the existing shaft continued to be used to provide access and fresh air for the miners, compressed air for operating their drills and sand for filling the mined-out stopes. The exploratory heading was used to remove water that seeped into the working of the new ore body. In these circumstances the court decided there was only one mine; the opening up of the new ore-body was an extension of an existing mine as use was made of existing extraction facilities to extract ore from the ground.

18. The question of the existence of separate mines is one that will depend upon the facts of each individual case. Varying degrees of physical separation or separation in the time and mode of operation need to be considered. Where there is more than one mine on the mining property, the deduction allowable for allowable capital expenditure is based upon the lesser of ten years or the estimated life of the mine that has the longer or longest estimated life: refer section 330-100 of the Act.

19. To qualify as allowable capital expenditure, the expenditure must be of a capital nature. There is a long line of judicial authority that regards expenditure on establishing and extending a mine as capital expenditure. The general rule is that:

- expenditure incurred on the creation, making or extension of a mine is capital expenditure; while
- expenditure incurred in the working or extraction of the ore-body is revenue expenditure.

20. This general rule is found in the frequently quoted statement of Dixon J in *Sun Newspapers Limited v. FC of T* (1938) 61 CLR 337 at 359, where he said:

> 'The distinction between expenditure and outgoings on revenue account and on capital account correspond with the distinction between the business entity, structure, or organisation set up or established for the earning of profit and the process by which such an organisation operates to attain regular returns by means of regular outlays, the difference between the outlay and returns representing profit or loss.'

21. The principle is applicable to taxpayers carrying on mining operations as explained by Lockhart J in *FC of T v. Ampol Exploration Limited* 86 ATC 4859; 18 ATR 103. His Honour said (at ATC 4872; ATR 119):

> 'Ordinarily the purchase by a taxpayer of a right to mine is expenditure of a capital nature and would not be deductible in the absence of special statutory provision. Preliminary expenses incurred in the establishment of a mine also would ordinarily be in the nature of capital expenditure. In general, expenses incurred with a view to setting up a business or extending a business are not allowable deductions. Where expenses are incurred in establishing, developing, extending or rejuvenating a mine, they will generally be of a capital nature since they are incurred for the purpose of bringing a capital asset into existence or enhancing it.'

22. The capital/revenue distinction is important to the timing of deductions. The consequence of the distinction is that revenue costs are immediately deductible under section 8-1, while capital costs are deductible as allowable capital expenditure under Subdivision 330-C.

Underground mines

23. In underground mining it is usual to construct shafts downwards from the surface and then branch out in a horizontal direction. From this position, a particular method of extraction can be employed to obtain ore from which valuable minerals will be extracted. The vertical shaft is usually in the country rock, that is, the barren or low grade rock formation that surrounds a mineral deposit. The horizontal passageways or drifts provide access for personnel and equipment from the vertical shaft to the place where extraction can commence.

24. In *Bonner v. Basset Mines Ltd* (1912) 6 TC 146 the court explained the characteristics of an underground mine as consisting of a vertical shaft that was used as a centre from which levels and roads might be cut in various directions for the purpose of exploring and discovering lodes or pockets of ore. The vertical shaft was used as a ventilation shaft and for raising and lowering men and materials. It was not used for the purpose of following and winning ore from a more or less vertical lode. The court followed the earlier decision in *Robert Addie v. Solicitor of Inland Revenue* [1875] 2 SC 431 and *Coltness Iron Company v. Black* (1881) 1 TC 287 in deciding that the cost of sinking or deepening a shaft was an expense of a capital nature.

25. Once initial access is made to an area where valuable ore is to be mined, the taxpayer has to decide on a particular method of extraction. Depending on the method of extraction, the taxpayer will

need to construct excavations known as finger raises, drawpoints, chutes, cross-cuts, etc. Expenditure incurred on a particular method of extraction is a revenue expense.

26. The decision about what is 'valuable' ore is one for the taxpayer, but 'valuable' ore is basically any ore that the taxpayer intends to sell, either as is, or after further treatment.

27. An important point is that the method of extraction does not necessarily involve all excavations being physically within the valuable ore body. The sinking of shafts, passageways, drives, etc., that merely serve the purpose of gaining access to limited mineral deposits which are exhausted in the near future, i.e., within a year or two, would be part of the method of extraction and be a revenue expense. The decline in the *Mount Isa* case, discussed below at paragraphs 35 to 44, is another example.

28. Where the mineral deposit will take in excess of two years to extract the following costs of construction are generally capital costs:

- costs of constructing vertical or near vertical shafts that provide access for personnel, equipment or materials, including ventilation shafts;
- costs of constructing horizontal or near horizontal passageways through country rock to access ore bodies;
- costs of constructing passageways, drives or declines that are not part of the extraction process but are used in the mine for vehicle transportation, rail or conveyor systems; and
- costs of constructing below ground chambers to accommodate plant, work shops, change rooms, mess rooms, ore loading stations, etc.

29. Once an ore body of the desired quality is reached, extraction can commence. There are many methods of extraction and the most suitable method depends upon the size and shape of the ore body, the type of ore being mined, the condition of the country rock and the facility with which such ore or country rock can be cut, drilled or broken.

30. Some of the methods of extraction are: room-and-pillar mining, longwall mining, sub level open stoping, vertical crater retreat mining, sub level caving, block caving top slicing, vein or raise mining, cut-and-fill stoping, undercut-and-fill mining, shrinkage stoping, long-hole open stoping, alimak raise mining, etc. Each method of extraction is a sophisticated engineering procedure requiring the input of mining specialists.

31. Excavation costs incurred in carrying out the various methods of extraction are revenue costs. From an engineering point of view, the method of extraction differs in complexity to the vertical shafts and horizontal passageways that constitute the capital costs outlined in paragraph 28 above. The various methods of extraction are sophisticated mining engineering processes, they are continually being extended and facilitate the extraction of the valuable ore.

32. It could happen that the desired location of an access passageway is actually through the valuable ore body itself. Such a situation occurred in *Denison Mines Limited v. MNR* 74 DTC 6525. In that case the taxpayer conducted an underground uranium mine using the room-and-pillar method that consisted of driving passageways into the ore body and extending the passageways into rectangular rooms where the ore was mined. All the passageways were driven through the ore body and not in the waste rock. However, as the passageways were designed for and were in fact, used as main haulage ways after the ore was extracted, they were of an enduring benefit to the taxpayer's business.

33. The court had to decide whether the cost of the passageways was revenue or capital expenditure. In deciding that the costs were on revenue account the court emphasised that no more money would have been spent on extracting the ore, the extraction of which resulted in the passageways, than would have been spent if no long term continuing use had been planned for them. Moreover, the proper calculation of the taxpayer's profit for the year required the cost of goods sold including the cost of extraction to be offset against the proceeds of sale.

34. An important finding of fact was that there was no additional cost associated with the construction of the passageways. This meant that the entire cost could be directly related to the extraction of valuable ore without any apportionment being necessary. At the time the expenditure was incurred it was a revenue cost incurred in operating the mine and the fact that the mined out area was subsequently used as a passageway is regarded as being incidental to its main purpose of extracting ore.

35. Another modern development in the mining industry has seen the vertical shaft and its associated lifting equipment replaced by a decline tunnel. Improved technology has now made it possible to access underground ore by the use of corkscrew shaped decline tunnels.

36. To be effective a corkscrew shaped decline has to have a grade of 1:7 or 1:9. With the development of diesel powered trucks for use in mines, it is now possible to use decline passages for ore body access. Prior to the development of these trucks there was no suitable

machinery that could climb the very steep and sharply winding slope necessary for corkscrew shaped declines, with the only other alternative, namely fixed-track rail or tram vehicles, being unable to operate in a steep corkscrew passageway.

37. As a general rule the cost of constructing a decline tunnel from the surface to the ore body is a capital expense, i.e., it is a cost of establishing or extending a mine. It is only where the decline is used as a method of extracting the valuable ore that its cost could be regarded as a revenue expense. The Full Federal Court considered the deductibility of a decline tunnel in the *Mount Isa* case.

38. In the *Mount Isa* case, the taxpayer constructed a sloping tunnel, described as a decline, through which equipment could be driven for the purpose of access to the area from which the ore was extracted, i.e., the stopes, and to remove the ore from the stopes to the surface of the mine.

39. The decline was extended from time to time as the ore was extracted and comprised relatively straight lengths and a number of sharp bends that established a type of zigzag as the decline extended to greater depths below the surface of the land. The decline was roughly parallel to the ore body but some 20 to 30 metres from it. It was constructed in a flat 'S' configuration to provide access to the ore body at approximately 30 metre intervals. The decline was approximately 5 metres square.

40. The extracting sequence was to excavate the stope from the decline to the ore body and to extract the ore body downwards. As a result the decline had to be extended downwards periodically to provide access to new stoping areas and to permit the removal of the extracted material to the surface of the mine. The ore was extracted at the stopes, loaded into heavy duty trucks with a 30 tonne capacity and transported to the surface of the mine along the decline including those parts of the decline that had been constructed during previous years.

41. In a decision that it described as 'finely balanced' the Full Federal Court held that the cost of constructing the extension of the decline during the particular tax year before the court was a revenue expense and deductible under subsection 51(1) of the *Income Tax Assessment Act 1936*. An important part of the court's decision was its statement that a permanent vertical shaft giving access to an ore body is normally a capital affair but the decline in this case had a significantly different character to that of shafts.

42. Counsel for the taxpayer had argued that the digging of the decline was to make available immediate access to the particular part of the ore to be mined in the near future. The court found that the usefulness of a particular extension of the decline, as a means of

obtaining the ore in the immediate vicinity, lasts only for a short time. Influenced by statements, that the costs of sinking shallow pits to get minerals which are the source of profits for that particular year are revenue expenses, made in *Coltness Iron Company v. Black* (supra) and *Morant v. Wheal Grenville Mining Co* (1894) 3 TC 298, the Court found 'that the annual expenditure in extending the decline in each year, substantially for the purpose of immediately mining the ore in the vicinity of the extension, should be deductible under s.51(1)'.

43. The characteristics which distinguished the decline from a shaft are:

- the decline was part of an extractive technique known as 'slope mining';
- the decline was dug, not all at once, but in a series of relatively small excavations; and
- the decline was not dug as an asset to be used in the mine as a whole, but was made in the process of getting access to the particular part of the ore to be mined in the near future.

44. Expenditure incurred on such a decline and similar excavations is accepted as a revenue expense. To be a revenue expense the excavation must do more than simply provide access to the ore, it must be directly involved in the extraction of the ore. The excavation must access ore to be mined in the near future and the ore must be mined out in a relatively short time to allow for the continued extension of the excavation. The cost of continually extending the excavation must qualify as recurring costs in the extraction of the ore. The excavation must be dug as close as practicable to the ore body and follow the ore body.

Strip mines

45. Strip mining is the term applied mainly to the mining of near surface coal seams. However, other mineral deposits with low cohesive strengths can also be mined by this method. Most strip mines involve bedded sedimentary formations.

46. The first stage in strip mining is to remove the natural vegetation and topsoil. This is usually done by bulldozers and graders. Pre-stripping then takes place. Pre-stripping involves the construction of a level area from which a dragline can operate. A typical dragline currently in use is electrically powered and can walk under its own power. Some have a boom length of up to eighty metres and a bucket capable of lifting up to 100 tonnes of material at one time.

47. Once a level area is established by pre-stripping, the surface area is drilled with an electrically powered drill. Holes are drilled at intervals in a grid pattern from the surface to the top of the coal seam. Explosives are placed in the holes and the overburden material, i.e., the dirt, rock, shale and clay, in the drilled area is loosened by blasting.

48. The dragline then cuts an elongated trench exposing the coal seam, usually starting at the point where it is nearest to the surface. The overburden from this first cut is usually deposited at a pre-selected location. The exposed seam is then mined.

49. After the exposed seam has been mined, the overburden from the next cut is back-filled into the first cut while at the same time exposing a further strip of coal. In this way, mining proceeds in a series of parallel strips minimising the distance over which overburden is transported.

50. The dragline does not remove the coal but only exposes it. The exposed coal is loosened by drilling and blasting and is then loaded onto trucks by bucket or front-end loaders. The trucks carry the coal out of the mine via access roads or ramps.

51. The access road or ramp is constructed by cutting into the land at a downwards angle usually at right angles to the coal seam, until the base of the seam is reached. Ramps usually have a decline of about eight degrees and have to be of sufficient quality to carry large trucks and equipment. The overburden over the ramp is often removed by the dragline making a detour as it makes its pass over the coal seam. The ramp is always constructed where there is no mineable coal below, as coal below a ramp is not mined. Once the ramp reaches the floor or base of the coal seam it is then possible to commence extracting the coal.

52. Sometimes, more than one ramp will be constructed. This would occur, for example, where the length of the pit is long and an extra ramp reduced the distance that the trucks have to travel to the processing plant. Each ramp would generally be used throughout the life of the pit.

53. Each pit has its own access ramp and a pit is extended by the dragline as it excavates adjoining parallel strips. The fact that several pits are in operation may arise because of geological factors or as a result of production requirements. The coal may not be in one continuous seam, so that it can only be commercially exploited by opening several separate pits on the one site. Furthermore, the use of multiple pits or mines can be a planning decision in relation to the effective utilisation of expensive equipment, such as a dragline. Such equipment is usually rotated over the mine site to ensure maximum usage and minimum down time.

54. It is the cost of constructing the ramps that are regarded as capital expenditure. Their purpose is to create or extend a mine where previously only underground coal existed. The ramps are a necessary pre-condition before any extractive process can commence in that particular part of the pit. Without the ramps there would be no means of getting personnel or equipment to the coal face or of getting the extracted coal to the surface. The ramps perform a function similar to that of the vertical access shafts in underground mines.

55. The costs incurred in the removal of overburden necessary to expose the coal seam are revenue expenses and deductible under section 8-1. The purpose of this expenditure is to extract the coal below the overburden that is removed. It is not a pre-condition or prerequisite to establishing a mine but part of the actual process of working or operating the mine. Overburden removal does not add to the capital value of a mine in the same way as a vertical shaft adds value to an underground mine. Rather, being part of the extractive process, the purpose of overburden removal is to reduce the capital value of the mine. A mine being a wasting asset is reduced in value every time valuable ore is extracted.

56. By necessity the overburden to be removed is always larger than the area of the seam to be mined to allow for side wall stability or for the required angle of the spoil line. All this overburden removal is part of the method of extraction and is an operating expense. Also included is the cost of removal of the natural vegetation, topsoil and any pre-stripping necessary to get at the coal seam. The exposed coal is usually mined within a year and the overburden that has been removed is replaced so that rehabilitation of the site can proceed.

57. The cost of constructing ramps to the point of contact with coal, that is to be sold, is a capital expense. After that the ramps are extended along previously mined out strips. The cost of mining out these strips would be a revenue cost and, like the situation in the *Denison Mines* case discussed in paragraphs 32 to 34 above, the fact that they are subsequently used to extend the ramps is regarded as being incidental to their main purpose of extracting ore. Of course, any costs incurred in stabilising the ramps for long term use would be a capital expense, such costs would include drainage works and surface improvements.

58. Usually the construction of the ramps is done contemporaneously with the removal of overburden, but this may not necessarily be the case in all strip mines. In some strip mines the pre-stripping or overburden removal may precede the construction of the ramps. This does not affect the treatment of the ramps as capital expenditure or the pre-stripping or overburden removal costs to access the coal seam as being treated as revenue expenses. As Dixon J said in *Hallstroms Pty Ltd v. FC of T* (1946) 72 CLR 634 at 648, the

answer to the income/capital question 'depends on what the expenditure is calculated to effect from a practical and business point of view'.

Open pit mines

59. Open pit mining, also referred to as open cut or opencast mining, is employed to exploit mineral deposits in any rock type lying on or near the surface. The optimum configuration of the pit depends upon the geometry of the ore body, the results of geotechnical studies and the mining rate at which the best economic return can be obtained.

60. Planning of an open pit mine is done from the bottom up, after first ascertaining the bottom economic limit of the pit operation. A safe pit slope must be maintained, this involves the excavation of the upper bench or benches beyond the ore limits and into the waste rocks that form the walls of the open pit.

61. In a comparatively shallow mineral deposit a single bench open pit can be employed. Where pit depth is in excess of 8 to 15 metres, more than one bench is usually necessary. With more than one bench, the bench width or berm will vary according to the size of the excavation and haulage equipment as well as the rock material in the bench face. Widths may be from 6 to 20 metres.

62. Access to and extraction of the ore is via haulage roads or ramps. In an open pit mine the benches or berms are used as roadways, either forming a spiral to the area being mined or being connected via ramps. Bench widths or berms are also designed to provide protection for men and materials from small slope failures.

63. For income tax purposes, the same general principle concerning the revenue/capital distinction that applies to underground and strip mines also applies to open cut mines. That is, the cost of establishing or extending a mine is a capital expense while the cost of conducting the extractive process is a revenue expense. However, with open pit mines there is a great diversity in the size and scale of mining. In addition, there are various alternatives as to the exact location where mining will commence. There is no fundamental rule that says that the cost of first accessing the ore in an open pit mine is capital. The answer to this question depends upon the individual mine configuration and different mine configurations result in different outcomes.

64. The taxation treatment of various expenditures in relation to open pit mining was considered by the Supreme Court of Canada in *Johns-Manville Canada Inc v. The Queen* 85 DTC 5373. In this case the court decided that the on going costs of acquiring land surrounding

an open pit mine to maintain a proper slope for economic and safety reasons were revenue expenses.

65. In the course of its decision the Supreme Court of Canada referred (by analogy) to a mining operator faced with the presence of a body of water such as a lake above an ore body. The court said that the removal of the water to lay bare the minerals on the floor of the lake could hardly be seen as creating an asset. The cost of pumping would not be an expenditure that would create an asset.

66. The Supreme Court also stated, at 5384, that:

> 'In the mining industry, where the undertaking is underground mining with its associated assets such as vertical shafts and horizontal transportation elements not created directly by the removal of commercial ore, the tax treatment of capitalisation is invoked. On the other hand, open pit or strip mining requiring none of these fixed facilities leads to the attribution of the associated expenditures to the revenue account.'

67. However, the Court did recognise in its analysis of facts, at 5382, that:

> 'to the extent that the wall of the cone (in an open pit mine) is used for haulage of materials from the bottom of the pit on temporary roads, there may be some transitional asset created.'

68. In open pit mines it is the cost of construction of the access or haulage roads from the surface to the point of contact with ore that is to be extracted and sold, either as is, or after further treatment, that may be a capital expense. Whether or not it is a capital expense depends upon the size of the open pit and the location of the haulage roads. The cost of removal of overburden for the purpose of accessing the ore is part of the method of extraction and is a revenue expense.

69. In some cases the open pit mine may be quite short lived. With some bauxite deposits, the ore is sometimes located in numerous small shallow pods which are close to the surface and are worked out one by one. The bauxite is extracted by means of front-end loaders, working with adjacent primary crushers. After the removal and setting aside of the top-soil, the bauxite is accessed directly. Each deposit of bauxite is small and quickly exhausted, usually within one or two years. In this situation the cost of removal of overburden and the cost of constructing haulage roads into each pit would be revenue expenditure.

70. For open pit mines having a life in excess of two years, the location of the haulage roads assumes some importance. Where the decision is taken to construct haulage roads over the ore body and the current mine plan provides for that ore to be mined in the future, the roads would subsequently be consumed by future mining operations to

extract ore from beneath them or from their immediate vicinity. In this situation, the excavation costs associated with the construction of the haulage roads would be part and parcel of the cost of extracting overburden to expose the ore body both for present and future extractive purposes and be revenue expenditure. The reference to a haulage road being above the ore body is a reference to the road being within the perimeter of the proposed open pit including an area necessary to form safe working slopes for the exposure of the ore to be mined.

71. On the other hand the excavation costs associated with constructing haulage roads over an area not above the ore body to be mined being an area which contains no ore or ore currently not proposed to be mined (as per the mine plan), are a capital expense. These costs are incurred in providing access for machines, equipment and personnel and do not form part of the actual extractive process. The extractive process is limited to the removal of overburden necessary to expose the ore body to be mined including any overburden removal necessary to maintain a safe working slope for the open pit.

72. Haulage roads are usually between six to twenty metres in width and either spiral around the outside perimeter of the pit or zigzag down one side or face of the pit. Upon reaching the level where the first extraction of ore is to take place the haulage road flattens out and extends to the base of the first extraction bench.

73. Benches or berms that form the outside of the open pit and which are to be used as haulage roads are made wider than normal. It is normal to make benches or berms only about five metres wide to form a safe working slope for a pit. However, where the same benches or berms are to be used as haulage roads they are usually made about twenty metres wide.

74. With respect to haulage roads that are constructed over an area which contains no ore or ore currently not proposed to be mined (as per the mine plan), it is the additional cost of making the benches or berms wider ie. the cost of constructing them the additional fifteen metres or so, that is the capital expense. Of course any costs incurred in improving the quality of the haulage roads such as, drainage or surface improvement would be capital expenditure.

75. The cost of removing any overburden not associated with the construction of the haulage road and being necessary to expose the ore body to be mined would be a revenue cost being part of the method of extraction that is open pit mining.

Examples

Example 1

76. XYZ Mining NL carries on underground mining at various levels. It constructs a horizontal drive of about 100 metres to access a particular valuable ore body. The drive is constructed over a number of years and extraction of the ore is by stoping. No haulage trucks use the drive, the ore being removed from the stopes by a front end loader and discharged down a pass. The drive will have no further use after the extraction of the ore body and this is expected to take about six years.

77. The cost of constructing the drive is a capital expense. It is not part of the extraction process but rather it is an extension of the mine itself, it is providing access to a new ore body that will last for six years. The drive is not an excavation that has to be regularly extended as a result of the continuous removal of ore in its immediate vicinity.

Example 2

78. A mining company extracts coal using the strip mine method. Because of the depth of the coal seam it is necessary to construct a bench from which the dragline can access the top of the seam. The construction of the bench involves a pre-stripping operation that removes about 25 metres of overburden.

79. The cost of the pre-stripping and the cost of the overburden removals are revenue expenses. They are both part and parcel of the extractive process to obtain coal. The revenue nature of the pre-stripping costs do not change notwithstanding that the pre-stripping may occur considerably in advance of the dragline removing the overburden. It is the purpose for incurring the expenditure that gives it its revenue nature.

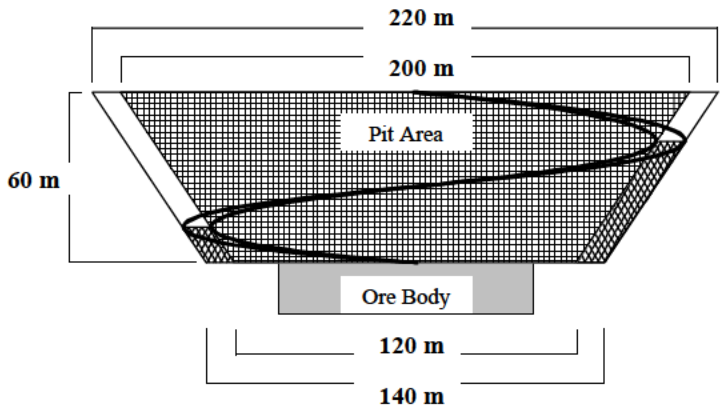
Example 3

80. ABC Mining NL has incurred costs in constructing an open pit to extract valuable ore. The top of the pit has a diameter of 200 metres, while the bottom of the pit, at a depth of 60 metres, has a diameter of 120 metres. This forms a solid shape known as a frustum, and is referred to as the 'inner cone'.

81. Surrounding the pit is a haulage road, 10 metres wide, which spirals up from the bottom of the pit to the top through a 360° turn. The haulage road is wholly within country rock. In effect, this haulage road creates a second frustum 20 metres wider than the first,

and completely encloses the first frustum. This is referred to as the 'outer cone'.

82. The pit, with relevant measurements, is shown in cross section below.



83. ABC wishes to know how much of the total cost of removing all of the earth to get to the ore body is attributable to the costs incurred in constructing the haulage road.

84. In this example, 11.51% of the total cost is attributable to the road and is regarded as capital.

85. The calculation is made by subtracting the volume of the frustum of the inner cone (the pit) from the volume of the frustum of the outer cone. The result represents, in effect, the volume attributable to the haulage road. This volume is then halved to allow for the fact that only half of the earth is needed to construct the haulage road.

86. The formula for determining the volume of a frustum is:

$$\frac{\pi h(r_1^2 + r_2^2 + r_1 r_2)}{3}$$

where h is the height of the frustum, r_1 is the large radius and r_2 is the small radius. The value for π is 3.14159.

87. Therefore, the volume of the inner cone is calculated as follows:

$$volume = \frac{\pi \text{ x } 60 \ (100^2 + \ 60^2 + 100 \text{ x } 60)}{3}$$

$$= \frac{\pi \text{ x } 60 \text{ x } 19,600}{3}$$

$$= \frac{3,694,512.89}{3}$$

$$= 1,231,504.29 \text{ cubic metres}$$

88. Similarly, the volume of the outer cone is calculated as follows:

$$volume = \frac{\pi \text{ x } 60 \ (110^2 + \ 70^2 + 110 \text{ x } 70)}{3}$$

$$= \frac{\pi \text{ x } 60 \text{ x } 24,700}{3}$$

$$= \frac{4,655,840.23}{3}$$

= 1,551,946.74 cubic metres

89. Therefore, the volume of earth required to be removed to construct the road is:

$$volume = \frac{1,551,946.74(\text{outer cone}) \ - \ 1,231,504.29(\text{inner cone})}{2}$$

$$= \frac{320,442.45}{2}$$

= 160,221.22 cubic metres

90. Accordingly, the volume of earth removed to construct the road as a percentage of the total volume of earth removed to construct the pit and haulage road is:

$$percentage\ of\ road = \frac{160,221.22(\text{volume of road})}{1,391,725.51(\text{total volume})} \text{ x } 100$$

= 11.51%

The total volume above is the sum of the volume of earth removed to construct the pit (1,231,504.29) plus the volume of earth removed to construct the road (160,221.22).

Cross references of provisions

91. Subsection 330-30(2) (in relation to 'eligible mining operations'), section 330-100, section 8-1 and Subdivision 330-C of the Act, to which this Ruling refers, express the same ideas as subsection 122(1) (in relation to 'prescribed mining operations'), paragraph 122DG(3)(b), subsection 51(1) and section 122DG, respectively, of the *Income Tax Assessment Act 1936*.

Last Ruling

This is the last Taxation Ruling for the 1995 calendar year. The next Ruling will be Taxation Ruling TR 96/1.

Commissioner of Taxation

13 December 1995

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