

DIVISION OF CORPORATION FINANCE

TRAINING PROGRAM LECTURES

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Subject: Disclosure Problems for Mining Ventures

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MR. ADELSTEIN. The talk today is mainly on mining disclosure. Some of the discussion will also be about mining and mining geology, which may be helpful to you as you review mining registration statements.

As we think of mining in its conventional sense we usually think of the exploration for ore deposits, their development, and their exploitation. We have seen cases here where mining companies are not mining companies in the conventional sense. In an early opinion of the Commission, Plymouth Consolidated Gold Mining Company, 1 S.E.C. 139, the Commission said:

“It is obvious that the enterprise projected by this registration statement is primarily to extract gold and silver from investors, and only incidentally to extract gold and silver from mines.”

Mining by its nature results in the depletion of the known ore bodies, and as a result of that depletion new ore bodies must be discovered if mining is to continue. This, of course, calls for funds, and sometimes that results in public financing, with which we come in contact.

There are various types of mining companies that file registration statements under the 1933 Act, some are going established companies, but predominantly they are in the exploratory stage. That means that they are companies without any known ore deposits. We get registration statements from companies in various countries. Recently, for example, we received registration statements from Venezuela in regard to mining of sulphur, mercury and diamonds. There have been quite a number of uranium issues as you know, and quite recently we had a lithium venture from Canada.

The matter of mining financing as measured in terms of the offering amount, is small compared with other financings. For example, in the year 1956 mining offerings aggregated \$121,000,000. **That** is registration statements and Regulation A offerings both. That compares with the total of all types of financing of 14-1/2 billions of dollars; mining amounting to something less than 1%. You may be interested to know that since the 1933 Act became law, we have had 4,444 mining cases with aggregate offerings amounting to 1-1/4 billions of dollars.

While the amount of mining money-wise is small, the problems presented in obtaining disclosure sometimes become a matter of real importance to us.

You new examiners will want to know what your duties are in connection with the registration statements filed by mining companies. They are much the same as in the case of other registration statements. However, you are not generally expected to do much with the disclosure given concerning the business and properties. Get the mining registration statement and other documents filed containing mining discussions to the mining engineer on the staff at an early date, if possible. He will furnish you with some form of a report. Ordinarily this is a written memorandum. This procedure also applies to companies that have raw material representations, such as cement or steel -- most any raw mineral material except oil and gas. Mr. White will tell you about that.

As you review a mining registration statement of a promotional type, you will probably see a number of technical terms with which you are not familiar. These, at times, are used to impress uninitiated investors and turn attention from the cold facts applicable to the properties. The use of these confusing technical terms, coupled with occasional new items as to important ore finds elsewhere and the general gullibility of people, make an ideal set-up for the sale of worthless mining securities.

As a better basis for understanding some of the more commonly used geological and mining terms, I think that some discussion of the origin of ore deposits may be helpful. There are numerous types of ore deposits, but a principal type is the vein type of deposit. These occur as long tabular type structures in the earth's crust containing various minerals and metals with which you are familiar, such as copper, gold, lead, zinc, silver and a host of others. They are, in fact, a principal source of these metals and minerals.

Veins find their origin in large bodies of rock known as batholiths, one form of which you may have seen as granite. Prior to the time of vein formation, batholiths arose as molten material deep within the earth's surface -- its depth being in terms of miles below the earth's surface. They vary from 10s to 100s of millions of years in age. As to their size and shape, some may be dome-shaped or elongated dome-shaped, and may extend in their horizontal dimensions in tens of miles -- 50, 60, or 70 miles would not be unusual. As the molten material, called magma at times, arose from its deep-seated origin it reached a height in the earth's crust at which it started to cool. At that point progress upwards ceased. The magma at this time contained widely diffused metallic constituents such as gold, copper, lead and zinc. As the cooling took place, various minerals, in effect, reached their freezing point or began to crystallize. The first to crystallize were the rock-forming minerals such as quartz, mica, etc. In the course of their crystallization they excluded from their formation mineral elements that were present, such as gold, silver, copper, lead, which were then left in the fluid that remained. At the same time the crystals were forming and, in effect, isolating the minerals, water vapor is expelled from them. The twofold result was that the remaining fluid became enriched in metals and pressures were built up within and around the batholiths. If the pressure became strong enough, the roof of the batholiths -- the overlying rock -- was fractured with such fractures extending upwards toward the earth's surface. At this point the fluids, containing their supply of the metaliferous mineral materials and other relatively worthless material called gangue material,

advanced through the fractures towards the earth's surface. In so doing, fluids came upon different chemical environments, different pressures, different temperatures, and as a consequence in due course the fluids became solid vein materials such as we see now. But the vein material is not homogeneous as to its metal content due to particular conditions favorable to the deposition of copper sulfide, or other of the minerals of value in commerce. These minerals deposited out in localized areas at times. When they are found today in sufficient richness to be mined on a commercial scale, they are known as "ore-shoots" -- a term which you will see in mining registration statements.

As to other types of geological terms you may see the word "fault," which is a fracture in the Earth's crust where relative movement has taken place between the sides of the fault. Faults give evidence that there has been a shifting. When they are formed prior to vein mineralization they may have a part in the deposition of minerals. It may be one of the favorable factors which cause minerals to deposit at a particular point.

The ore-shoots, if they are to be of any value in commerce, have to be found. In modern day exploration the search for ore is done mainly by diamond drilling. The diamond drill, in effect, drills a hole into the earth's surface and brings up material called a diamond drill core which may be assayed for its mineral content if it reaches an ore structure, such as a vein. The material is assayed to determine whether it contains sufficient minerals to make worthwhile underground workings to gain access to that deposit.

As I have indicated, in order to mine the usual ore deposits, you have to gain access to them. The first working is usually a shaft -- a working which may be on the order of six to eight feet wide and 15 or 20 feet long, driven usually vertically downward. A shaft is the means whereby men can be taken down into the mine, materials necessary for mining can be taken downward, any ore mined can be hoisted, and through which electrical cables can be run to the mine. Lastly, it serves as a means of ventilation for the mine. At various intervals from the shaft, horizontal workings are driven toward the vein or ore-shoot. These may be separated vertically by distances of 100 to 200 feet, and are called "mine levels." The working from the shaft toward the vein is called a "cross-cut." After the vein is intersected, the horizontal working that follows the vein whichever way it might go is called a "drift." The workings over the drift to exploit the ore-shoot is called a "stope."

Our staff mining engineer reviews the mining registration statement with the same view as others on the staff, that is, he seeks to bring about adequate and fair disclosure. Guides in his review are numerous: the accepted principles of mining engineering practice, the Commission's formal opinions, which, too, reflect such practice, consultation where necessary with other mining engineers, and at times the results of his examination of the mining property itself.

Different mining and geological conditions preclude a prescribed set of specifications in considering such things as ore reserves. I should say at this point that when the diamond drill, or any other means of testing of an ore-shoot, has sufficiently outlined a material of a commercial grade, and tonnages and grade can be computed, then such estimations result in what we call "ore reserves." It is a measure of what ore the company knows exists within its mine at a particular time. If the testing is done quite closely and there is no doubt at all, or very little

doubt, as to the existence of ore between the drill holes, the ore can be called "proven ore." If the drill spacing or testing is somewhat further separated and yet leaves reasonable basis for assuming that the ore continues between the holes, a second category not as certain as the other applies and it is called "probable ore." Proven and probable ore are ore reserves.

Speaking about our review of ore reserves, I said there were no rigid specifications, and the lack of rigid specifications makes judgment a matter of importance. I might add that no errors are permitted. A prime essential in our consideration of a mining registration statement or offering circular is to obtain clear, accurate disclosure as to the status of the development of the property. Where it is in the exploratory stage, that is, without any known bodies of commercial ores, must be clearly shown. If it is more advanced, the material facts must be clearly shown. For example, if there are ore reserves, the major task would be to see that the claimed ore reserves are in line with the data on hand.

A common difficulty arises from direct or implied statements to the effect that the venture is more advanced than actually is the case. It is our policy, in all questionable cases, to inquire as to the factual justification for such statements and to bring about any needed changes in them.

In its opinion regarding Gold Dust Mining and Milling Company, 3 S.E.C. 55, the Commission held as follows:

"Because the basic value of mining investments rests on the existence of ore, the Commission has the obligation to scrutinize representations of ore tonnage and value with particular care."

Not infrequently controversy arises as to the extent of ore reserves. We have consistently taken the position that where ore test data are inadequate, or where procedures in the testing of mineral deposits are not consistent with accepted practices, resulting ore reserve estimates are misleading. In the Commission's opinion to which I just referred such a conclusion was drawn.

At this point I should like to tell you of a number of specific cases involving direct or implied overstatements concerning developments of mining property. Fenimore Iron Mines Ltd. is a company that for some time had unsuccessfully attempted to develop a low-grade iron ore property in Labrador. In a prospectus filed here in April, 1953, voluminous data were given as to the results of drilling. There were complex discussions of geology. References were made to milling and other data. But the significance of all these data was not told. At one point they made reference to 550,000,000 probable tons. Here was an attempt to imply that there were 550,000,000 tons of probable ore.

In our letter to the company after our review of that registration statement, we wrote a deficiency such as this:

"The detailed drill data on pages 10, 11, 14, 15 and 16 appear largely meaningless without accompanying maps and a statement of the significance thereof. Such data should be replaced or supplemented by a statement of the pertinent facts. In

this connection, if the drilling in any particular area gave results of interest, and the drilling has been sufficiently close to permit estimates of indicated ore and thickness of mineralization, consideration should be given to showing as to such area, location, its lateral extent, the average depth of overburden in this area and information as to its nature, the indicated average depth of mineralization, and the indicated average grade. In this case, too, it should be made clear that the depth and grade figures are merely indicated.”

“Indicated ore” is not one of the ore reserve categories, and is always so explained when referred to in an effective prospectus.

As a result of our letter, disclosure was brought about in the prospectus as follows:

“The properties of the company are in the exploratory stage. To date, approximately \$1,488,639 have been expended in exploration. The primary objective of finding bodies of shipping-grade ore has not been realized. Several large bodies of iron-bearing rock indicated by the drillings would be too low in iron and too high silica to be merchantable in crude form have been discovered. Any eventual exploitation of these bodies would involve costly mills and other installation. The quality of the ore indicated by the present work is substantially poorer than that generally milled elsewhere. In view of this, and the apparent necessity of milling the ore to produce a merchantable product, it remains to be resolved whether commercial operations can be conducted here unless better ores are found.”

Pan-American Gold was another case, File 2-7603, in which the company had properties in South Dakota adjacent to the Homestake Mine, which is the outstanding gold property in the United States. They also had a mining property in Colombia, South America. As to the latter property, the registrant represented that they had 5,000,000 cubic yards of commercial gold-bearing gravel. According to the registration statement they planned to equip that property for the production of gold from the deposit. That case was subjected to stop-order proceedings. In a resulting opinion the Commission said in regard to this alleged 5,000,000 cubic yards of commercial gold-bearing gravel:

“The amount of gold-bearing gravel said to be available for mining was estimated at a minimum of 5,000,000 cubic yards and the registrant stated it believed operations on the property should enable it to obtain steady earning power. It may be noted that the registrant now states that it has made no investigation of the property, had no representative inspect the property, has no factual information about the presence, extent, or character of gravel deposits on the property.”

The Lone Star Sulphur Corporation, with property in Louisiana, represented in the original registration statement that the property consisted of 308 acres, of which about 26 acres had been tested and that on the 26 acres, there was something over 1,000,000 long tons of recoverable sulphur. It was stated, also,

“The officers hope and believe that substantial deposits of sulphur underlie most of the remaining portion of the tract.”

After our review of the registration statement, a letter was sent to the company which, among other things, dealt with the justification of the engineer's estimate of sulphur in light of the procedures employed by them. Subsequently amendments were filed wherein it was stated that the drilling done had indicated there were 115,000 tons of sulphur in the explored part of the property. Information was given also that, at this stage, the company was unable to say that there is more than 115,000 tons on the property. In this regard it was also stated:

“The plant which is now under construction cannot be financially successful if no more than 115,000 tons of sulphur are found.”

I can add to that that this never became a successful operation. In fact, they failed to bring up any sulphur. The limited tonnage of sulphur was there, but fracturing and other geological conditions precluded a successful mining operation.

The Dominion Asbestos Company filed a Form 10 here to list on one of the larger securities exchanges. The company had successfully raised some millions of dollars before they filed its Form 10 through financing in Canada. That financing, I might say, was abetted by the use of two engineering reports, one by a professor of geology from one of the polytechnical schools there, the other by a man long connected with one of the asbestos companies. In these reports it was claimed that there were 23,000,000 commercial tons of asbestos ore, and it was estimated that this would produce a profit of \$3.25 per ton, or something approaching \$80,000,000. Presumably in light of such report the price of the stock rose rapidly to \$4.75 when the Form 10 was filed. Our review showed many fallacies in the engineer's assumption as to ore reserves. As a matter of fact, there was a conference here at the request of the registrant, the result, of which was that the Form 10 was withdrawn. As a follow-up, it is interesting to note that with the money that the company raised in Canada they constructed a mill which operated for two or three months, operations then ceased and the company became bankrupt. The stock price dropped to 17¢ per share.

Mexican Gulf Sulphur is another company that had intended to mine sulphur on Mexican Gulf Sulphur is another company that had intended to mine production was obtained on a loan basis in the amount of some \$4,500,000, this financing having nothing to do with this Commission. A registration statement was filed here in which the engineer's report, which was also used in connection with that loan, contained an estimated reserve of 2,837,625 tons of sulphur. As a matter of fact, the data did not in any way support that estimate. When the registration statement became effective it showed instead that the company had 40,000 tons of sulphur. This too was a case where subsequent operations proved to be a failure. After the effective date, the company continued to mine for several years and produced on the order of 60,000 tons of sulphur, and then operations terminated because there was no more sulphur to extract. I might point out that in these cases had the Commission been derelict and permitted the larger ore reserve figures to go to the public, there would be some explaining to do to or by the Commission, possibly elsewhere then internally.

We have now before us a case called National Lithium Corporation in which it is represented there are 142,000,000 tons of high-grade lithium ore. On the basis of that representation and other representations in the registration statement the Commission recently authorized a stop order proceeding.

In considering ore reserves, a critical factor is whether or not the material is of sufficient grade (i. e. quality) to be considered commercial.

In that connection, it becomes necessary to consider what the market situation is, what competition is. In some of the minerals the market is not a factor. If, for example, you are mining gold or uranium, or, in fact, copper, lead or zinc, there are custom smelters or Governmental sources that will take all you mine and there is no marketing problem. On the other hand, when you come to cases such as National Lithium, dealing with an unusual product or an industrial mineral, such as mica, kyanite, the crux of the situation might be the market. A company in these fields may have plenty of raw materials on hand, but may be **unable** to market it. A material that bears the same name, such as mica, may from one property be wholly acceptable to industry, yet slight changes in chemical characteristics in mica from another property may make it wholly unacceptable.

In the registration statement filed by Mica and Mineral Corporation of America, 2-12583, a statement was brought about in the prospectus somewhat along the following lines:

“If the mill is to be operated at its planned capacity, it will be essential that the company obtain as a market outlet a large part of the total domestic roofing industry. There is no basis for assuming that this can be accompanied or that any substantial sales can be made. It is pointed out in this connection that scrap micas from different sources have varying physical characteristics which characteristics are of importance in use, and until such time as samples of the company’s ground scrap mica can be sent to and tested by the potential buyer, there is no way of knowing whether the ground scrap mica will meet specifications, or whether a potential buyer will have sufficient interest in the preferred product to replace present purchases of ground scrap mica having known physical characteristics with the company’s product.”

We see many strange things, as you do in non-mining registration statements. One is the use of false and misleading assays. In American Diamond Mining Corporation, a New York filing under Regulation A, File 24 NY-3523, assays were shown as to the diamond mining property located in Arkansas. These assays varied from \$156 in diamonds per ton of ore to \$3,561 per ton, and to get the picture of the significance of these assays, it was estimated that the cost of producing and treating a ton of ore was \$1. In this case it was so obvious that something was wrong that the counsel for the issuer was contacted, and eventually duplicates of the material assayed were sent here to Washington. At the same time a description of assay processes was requested. A review of that description indicated that the assay firm, which was an established firm, might have erred in its assay procedures. The material furnished to us, supposedly consisting of diamonds, was sent to the U. S. Bureau of Mines where it was examined by

microscope to test it for diamonds by its index of refraction. That showed that none of the material consisted of diamonds; instead it was some worthless product that had been weighed up by the assay firm and considered as diamonds.

Western Tin Mining Company, under examination by the Washington Regional Office, showed upon investigation that a high assay report in the sales literature resulted from an assay of a sample taken from someone else's property.

In Fission Mines Ltd., one of the first of the uranium cases, an assay was given as to the uranium content of a uranium crystal, and that figured about \$9500 per ton. The matter of interest in mining is not what a crystal assays, but what the ore assays because you cannot mine the crystal alone but must mine the entire ore. This mine never became a producing mine.

As to estimates of profit and valuations in mining, the general staff position is taken that they are objectionable because they are predictions of things to come and may be more misleading than informative. In the same diamond mining case mentioned above, valuation of property was set forth in the amount of \$6,500,000. That supposedly was based upon an estimated earnings reduced to present worth. Such earnings were estimated in the amount of \$2,150,825 per year. But after the supporting ore reserve data was called for, it became plain that the company had no ore reserves whatsoever. They were not assured of mining any ore and accordingly not assured of any profit. Without assured profit there was no basis for valuation.

Sometimes historical information becomes important. Carnegie Mines Ltd., 2-7960, intended to operate an old lead-zinc mine in British Columbia which had been shut down since 1926. They gave some information concerning the history, but it was vague and not to the point. As a result of our memorandum of comment, the prospectus was amended to contain this statement:

“Although the principal cause of the shut-down in 1926 is not known to the company, explorations after that time did not develop sufficient commercial ore to warrant resumption of production. The fact that principal ore-shoots as shown by the maps on development work shorten substantially on the lowest level and indicate that ore depositions were confined to a vertical zone of rather limited depth, appear to indicate that a principal cause of the shut-down was the lack of sufficient commercial ore.”

At times we see companies in the exploratory stage attempting to capitalize upon their location with respect to some well-known property. This relationship that is spoken of in the prospectus or a map showing the relative locations is at times used. Usually no geological relationship of importance has been established between the two properties and a disclosure is brought about to that effect.

Very often excessive use is made of detailed geological information that, in fact, is mostly unessential. At times this is used to divert attention from the material facts concerning the property. Such a case was Tomrock Copper Mines Ltd., 2-12262, where the geology description was excessive and largely not pertinent.

We cited this deficiency, which brought results:

“The geological information given in the second paragraph, Page 6, appears confusing and largely uninformative. It is suggested that it be reviewed with the view to excluding unessential information and confining it largely to the factors having a bearing on ore deposition. As to this, we assume that ore deposition in the area is believed to have been dependent on a number of factors, some unknown, but including one known factor, that is the presence of faults. This should be made evident and clear disclosure given to show, if true, that the work done to date has not established the presence of any faults on the registrant’s property.”

I think one of the outstanding cases of use of false geology was in the case of Pan American Gold Mining Ltd. In the prospectus filed the registrant showed the location of its South Dakota property adjacent to that of the famous Homestake Gold property. There was also a map used showing such relative locations which had on it two parallel lines extending through the Homestake property to an through the Pan American property with this legend: “Trend of Ore Bodies as Defined by the U. S. Geologic Atlas Folio 219”. That was false. The Geologic Survey had made no such representation in any of its publications and the indicated trend was false. In its opinion the Commission, speaking of that ore structure of the Homestake property, said:

“If the Homestake ore structure extended into the Registrant’s property, it would at a depth of about 10,000 feet at the point where it entered, and would become progressively deeper in any further extension southeasterly through the property. There have been no mining operations of such depth in North America. Wright* testified that mining at a depth of as much as 10,000 feet would be adversely affected by operating difficulties and increased costs. Wright further testified that the structure tended to dip toward the East as it plunged downward, so that there was a strong possibility that in the event that it did reach and extend beyond the southeasterly limits of the Homestake property, it would by-pass the Registrant’s property altogether.”

* Lawrence Wright, the witness, was formerly chief geologist for Homestake Mining Company.

In a case filed last summer, Minerals Inc., 2-12606, some disclosure was given that the ore situation at the registrant’s mining property deteriorated on the bottom level of the mine, but it was not adequate disclosure. In fact the vein which had been the principal vein of interest on the property, had turned completely into non-commercial material on the bottom level, which **augured** badly for the future of the mine. That registration statement was withdrawn.

Sometimes you see representations that border on the ridiculous. The so-called use of doodle-bugs to locate ore bodies is in point.

In another case, which was subject to the Commission's opinion, Gilpin Eureka Consolidated Mines, Inc., 1 S. E. C. 752, it was stated in the registration statement that the engineer who wrote the report had been an engineer for the Austrian Government for four years. As a result of the proceedings it was shown that he was an engineer for the Austrian Government, but an engineer for overhauling and driving locomotives.

(In answer to question, Mr. Adelstein stated that ore reserves are what you know. You may have x million tons of ore in a property and know of about 10,000 tons at a particular time. The ore reserves are 10,000 tons in this case and not what ultimately comes out of a mine.)

(In answer to a question, Mr. Adelstein stated that an ore reserve **estimate** is based on conditions extant at the times **it** is made. If there are drastic changes afterwards, that ore reserve estimate may not fit the changed conditions.)

MR. ADELSTEIN. We had one recently from a large company, Duval Sulphur, which had opened up copper property in Arizona, and the report by an eminent geologist was made some months before the price of copper had dropped substantially since he made the report, so we asked and obtained from him a letter as to whether or not that change in price affected his ore estimates in anyway. But in that case however he had so much margin above costs that the drop in the price did not affect his tonnage estimate.

MR. BLACKSTONE. It is interesting that we do think that putting a valuation figure on reserves is misleading. A valuation in dollar amounts, if it has any meaning at all, means what the company projects its capability of earning over the years to be in mining the ore. It takes into account the present market value of the ore, and then projects its cost of mining the ore, and then they get what they conclude to be a profit each year until the ore would be exhausted, and then discount it back to get the present net worth of all of the future earnings. That figure is just a projection of earnings, and we have taken the view about every company that we do not permit them to project their earnings in dollar amounts. I don't know that there is any Commission decision that has come out that flatly and put the problem the way I have stated it. But on the administrative level, that is the view we take. There are too many unknowns in projecting your profits to make the projection of earnings a fair statement, so we try to get companies to give only the tonnage figures of their reserves (and the grade of the ore.) That, of course, implies that they will make some profit out of it.

Adjourned.