Maine - Mining Bureau

STATE OF MAINE

THE MAINE MINING LAW

for

STATE-OWNED LANDS

MAINE MINING BUREAU
1969

Appropriation 4225

STATE OF MAINE

The Maine Mining Law for State-Owned Lands

Title 10, Chapter 401
Revised Statutes, 1964,
As amended by Public Laws of 1965, 1967 and 1969.

October, 1969

THE MAINE MINING BUREAU

1969

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THIRD EDITION

FOREWORD

This booklet has been prepared to assist prospectors, mining organizations, and oil and gas operators to understand the procedures whereby certain State-owned lands, and offshore territory, may be acquired and developed for mineral production under the authority of the Maine Mining Bureau. It is concerned with Title 10, Chapter 401, Revised Statutes 1964, as amended by Public Laws of 1965, 1967 and 1969, and does not discuss other statutes which may bear on the general subject of mining. For specific questions or problems, interested persons should contact the State Geologist.

THE MAINE MINING BUREAU

General Description

1. INTRODUCTION

The Maine Mining Bureau has administrative jurisdiction over prospecting and mineral development on lands owned or held in trust by the State of Maine. The Bureau is made up of seven members from administrative departments of State government including one representative each from the Departments of Agriculture, Forestry, Sea and Shore Fisheries, Economic Development, Inland Fisheries and Game, and the Environmental Improvement Commission, plus the State Geologist. The jurisdiction of the Mining Bureau does not extend to mineral activities on private or Federal lands, and persons interested in conducting exploration on such private or Federal lands should seek permission directly from the land owner or appropriate management agent. Not all of the lands which the State owns or holds in trust are open for mineral exploration, since the title, trust, or use status of these lands restrict these lands for specific purposes not consistent with mineral development. Any person wishing to enter State lands for commercial mineral prospecting purposes should inquire at the office of the State Geologist, Augusta, Maine, to determine whether the lands of his interest are open to prospecting.

It is generally held by the Mining Bureau that "rockhounds," or persons interested in casual mineral collecting for hobby, educational, or recreational purposes only, need not acquire Mining Bureau permissions to pursue their activities on State lands, so long as they observe normal standards of consideration for safety, and do not create significant damage to the areas visited.

2. OWNERSHIP OF MINERALS

Over 97% of the dry-land mineral rights in Maine are privately owned. Usually minerals and other land rights are in the same ownership. These rights were originally obtained through grants or sales from the English Crown, the Commonwealth of Massachusetts, and the State of Maine. In the case of private lands, permission to prospect and mine must be obtained from the owner.

The State holds in trust small, scattered public (school) lots that are available for prospecting through the Mining Bureau. In most instances the timber and grass rights for these public lots are in private ownership. There are about 180,000 acres of located public lots, varying in size from 120 to 1000 acres. There are in addition 1053 acres of public domain which are open to prospecting through the Mining

Bureau. The locations of these public lots and public domain land areas are shown by appropriate colors on a map folded inside the back cover of this booklet. Information on exact locations of these lands may be obtained in the office of the Forest Commissioner, Room 614, State Office Building, Augusta.

The State owns the fish and fowl in Great Ponds, that is, ponds over 10 acres in area. State ownership of mineral and land rights under these ponds is dependent upon how the lands around the ponds were granted or sold, flowage rights, and other factors. Prospectors should bear in mind that the primary interest of the State in Great Ponds is to keep them in proper condition to grow fish, and that any exploitation of minerals will have to avoid conflict with this purpose.

Game protection area, institutional lands, and military lands are held for special purposes and are open for prospecting only when it does not interefere with their special uses.

Exploration and development of minerals underlying ocean waters from the mean low tide line seaward for 3 miles are considered by the Mining Bureau to fall within its jurisdiction.

Certain other State lands, such as lands acquired by gift or donation for public park purposes, are owned for special purposes which prohibit mineral development.

3. PROSPECTING AND DEVELOPMENT PROCEDURE ON STATE LANDS

The following brief descriptions outline the procedure to be followed in prospecting or development. Diagrams are presented to assist in understanding procedure.

There are four classes of rights under the State Mining Law.

A. **Prospector's Permit**

B. **Claim**

C. **License to Mine**

D. **Mining Lease**

A. Prospector's Permit—Any person over 18 years of age and any corporation may prospect on available State lands upon receipt of a Prospector's Permit, for which there is a fee of $5. Application for the Permit should be made to the State Geologist, Augusta, Maine. The permit is effective from date of issue until the following Deecmber 31st, when it may be renewed for the next year upon payment of the $5 fee.

B. Claim—Any holder of a Prospector's Permit may stake claims on available State lands. There is no limit to the number of claims which such prospector may stake, whether in the organized towns or unorganized townships. The maximum dimensions of any claim are 600 feet wide by 1,500 feet long. Posts must be securely fixed at each

of the four corners of a claim, and they must stand at least four feet high and be at least four inches in diameter. Each corner post must be marked with the name of the persons who staked the claim, and if that person staked the claim for another person, that person's name must also be placed on each post. (See Diagram 1, Plate 1.) In addition, each post must be numbered, and on post No. 1 the person staking the claim must mark his name, the number of his Prospector's Permit, the date the staking was accomplished, and if he staked for another person, the name and Permit number of the other person. (See Diagram 2, Plate 1.) Along the boundary lines of the claim, trees must be marked with paint and underbrush trimmed, in order to outline the boundaries plainly. If there are no trees, piles of stones or pickets must be placed at intervals along the boundaries, so that the boundaries may be clearly designated.

In staking claims on ponds or other bodies of water buoy markers may be secured in the water at over-water corner locations, or posts may be placed on shore with a description of the location of the over-water corner written on the post (see Diagram 3, Plate 1). The prospector should exercise special care, in areas where private lands adjoin bodies of water, to place his posts below the normal shoreline for fresh water ponds, and below low-tide line for tidal areas, in order to avoid trespass on private lands. Care should be taken in staking a claim and marking boundaries or witness posts so that the claim may be readily located by anyone not familiar with the area. In the event of a flurry of prospecting, a clearly marked claim will be safer from infringement or over-staking than one which is not easily identified. It is of direct interest to the prospector to lay out his claim carefully, clearly, and in accordance with the mining law. The diagrams shown in Plate 1 indicate suggested methods of staking and marking claims.

In order to acquire the right of possession of a claimed area, the prospector must record his claim or claims with the Mining Bureau. The State Geologist handles recording and issues standard forms for this purpose free of charge. The fee for recording claims is $10 per claim. At the time of recording, the prospector must submit a map or drawing showing as accurately as possible all features which help to locate his claim or claims, as well as information showing the markings on the corner posts and distances and compass bearings between corners. Plate 2 indicates a typical method of showing this information. At the time of recording, each claim will be assigned a permanent number and aluminum tags will be issued to the prospector bearing the number of his claim. The tags should then be nailed to the four corner posts of the claims for permanent field identification.

A claim will be in effect from the date of recording until the following December 31st, and may be extended from year to year for a total of four such extensions. The Mining Bureau may, upon written application and for good reason, grant an extension of claim title to the claim holder for additional periods of time beyond the original 5 year period up to a maximum of 5 more years. At the end of the five-

year period the claim automatically lapses, unless the person owning the claim has applied for and received a License to Mine or Mining Lease. If a locator allows his claim to lapse, he may relocate after sixty days, if no other person has staked and recorded the area during the sixty day waiting period.

Since all State-owned lands are not available for mineral development, it is advisable after recording a claim to apply to the Mining Bureau for a ruling as to whether mining operations can be undertaken consistent with any prior or proposed other use by the State. Upon such application, the Mining Bureau will study the case and report its findings and rulings to the applicant within ninety days after his application. A ruling favorable to the applicant will be binding and irrevocable.

When a prospector has located and recorded one or more claims, he has at least five years to prove the value of the mineral deposit on his claim. He must work on his claims each year to the minimum extent of 50 man-hours or $100 worth of work per claim, and this work must be conducted for the purpose of revealing the shape, size or mineral content of the deposit. Acceptable work includes such activities as sampling by trenching, test-pitting, boring, drilling; geologic, geophysical, or geochemical mapping or surveying; shaft sinking; mineral dressing or refining studies; and so forth. The time consumed in staking a claim is not acceptable work for the purpose of proving the value of a claim. In order to renew a claim at the end of the year, the prospector must file before December 31 of that year an affidavit stating that the required work has been done, and describing the work.

Where a prospector has a group of two or more contiguous, or connected claims, he may fulfill his work requirement for all the claims by working only on one or more of the group, so long as the work done equals the total of 50 man-hours or $100 multiplied by the number of claims in the group which he wishes to keep. Conversely, he may work a little on each of more than one of the claims and use his total working time or cost to keep any of the claims he wishes, so long as his costs or working time equal at least 50 man-hours or $100 per claim kept.

A claimholder of over water claims may apply to the Mining Bureau for an extension of time to conduct exploration on an ice cover over a claim group. A written request must be made to the Bureau describing the type of work to be done and the approximate dates of that work. The expenditure may be applied to the current or following year. Extension will be granted only until the work is completed or the ice is out.

Any assessment work done which is far in excess of the required $100 per claim may, with the Mining Bureau's approval, be applied all or in part to future years of assessement work up to the authorized 5 years of claim hold. As an example, if a claim holder with a 5 claim group expends $5,000 during the first year of claim hold, he may apply

for "banking" of the $4,500 for the subsequent 4 years. Any or all of this amount may be granted for assessment "banking".

If machinery or explosives are to be used in prospecting on mineral claims, the methods to be employed and the amount of explosives to be allowed must first be approved by the Mining Bureau.

C. License to Mine — Any person or corporation with a recorded claim may apply to the Mining Bureau for a License to Mine. The application must be accompanied by a report from a geologist or mining engineer describing the proposed mining operation; the license fee of $25.00 per claim, not exceeding $500 for coverage of a single mineral deposit held by the licensee, and an accurate survey of the property boundaries. The License to Mine will be in force until the following December 31st, and may be renewed for each successive year for the same fee, not exceeding $500. The Mining Bureau may apply certain conditions on the annual License Renewal.

There is no requirement that work be done on claims held under a License to Mine. There is, however, an annual rental charge on such claims of $5.00 per land acre included in the claims, not exceeding $500 for coverage of a single mineral deposit held by one licensee. If mineral is produced from the claims, a royalty is charged at the rate of 5% of the adjusted fair market value of the mineral produced. If royalty payments exceed the rental due in any one year, the rental charges are eliminated, the only payment then due being the royalty.

D. Mining Lease — Any holder of a License to Mine who has complied with the requirements of the Mining Bureau and of his License may secure a Mining Lease of the mining rights covered by his License. Mining Leases are negotiated individually by the Mining Bureau, taking into consideration the various factors which may influence an effective development program. Rental and royalty payments are the same as those required by the License to Mine. In some cases the Bureau may require one year's operation of a property before granting a Mining Lease.

4. APPLICATIONS AND FORMS

In order to maintain a uniform system of administering activities on State lands, the Mining Bureau provides printed forms to record the various steps taken in development. Forms may be acquired only as needed from the State Geologist, Augusta, Maine.

Form A — Application for Prospector's Permit (to be filled out by the prospector)

Form B — Prospector's Permit(issued upon a payment of a $5 fee)

Form C — Application to Record the Staking out of a Claim (to be filled out by prospector)

Form D — Notice of Transfer of a Claim (to be filled out by prospector)

Form E — Application for Land Use Ruling (to be filled out by prospector)

Form F — Land Use Ruling (issued by the Mining Bureau within 90 days of application)

Form G — Application for Permit to Use Machinery and Explosives (to be filled out by prospector)

Form H — Permit to Use Machinery and Explosives for Prospecting (issued by Mining Bureau)

Form I — Affidavit Affirming Investigatory Work on Claim (to be filled out by prospector)

Form J — Application for License to Mine (to be filled out by prospector)

Form K — License to Mine (issued by Mining Bureau; fee of $25 per claim limited to $500 for a single mineral deposit)

Form L — Annual Report of Claim Holder (to be submitted annually by all claim-holders)

OIL AND GAS

5. The Oil and Gas Development Control Act was prepared by the Maine Mining Bureau during the Spring of 1969. With the advent of increased exploration and drilling on the offshore Continental Shelf off the northeast coast of North America, it became evident that this State should take immediate action to establish oil and gas laws commensurate with modern state and federal statutes. Under the purview of this act, the Maine Mining Bureau has gained the authority to administer and enforce this legislation. As the regulatory agency for this act, the Maine Mining Bureau recommends that all potential oil and gas operators become conversant with this law and all regulations and orders of the Bureau.

TITLE 10 CHAPTER 401 REVISED STATUTES OF 1964

Maine Mining Bureau

HARD MINERALS

Sec.

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2101-B. Definitions.

2102. Authority to prospect.

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SUBCHAPTER I
MINING LAW

Sec. 2101. Establishment. The Maine Mining Bureau, as heretofore established, shall consist of 7 members, one each from the State Departments of Agriculture, Forestry, Economic Development, Inland Fisheries and Game, Sea and Shore Fisheries and the Environmental Improvement Commission, plus the State Geologist. The State Geologist, by virtue of his office, shall be the consultant to said bureau. The State Geologist shall act as administrator and recorder to keep the records of the meetings and activities of the bureau and to maintain all prospecting, development and mining records and data as shall be necessary to the bureau and the mining industry. The jurisdiction of the bureau shall extend to all onshore land and offshore substrata owned or held in trust by the State. The Mining Bureau shall have the power to make such reasonable rules and regulations as it may deem proper with respect to all sections of this subchapter, including safety and resource conservation.

1967, c. 170, § 1; 1969, c. 508, § 1.

Sec. 2101-A. Purpose. It shall be the purpose of the Maine Mining Bureau to administer, regulate and control:

1. Mineral development. Mineral development and mining on state lands, inland waters and offshore territory of the State of Maine;

2. Natural resource conservation. Natural resource conservation as it relates to mineral and oil and gas development.

1969, c. 508, § 2.

Sec. 2101-B. Definitions. As used in this chapter, unless the context otherwise indicates, the following words shall have the following meanings:

1. Development. "Development" shall include all of the methods used in the preparation of a known and presumed economically extractable ore deposit for mining.

2. Exploration. "Exploration" shall include all of the manual, mechanical, electronic or chemical methods of determining the presence, size and unit value of a mineral deposit.

3. Hard minerals. "Hard minerals" shall mean all naturally occuring mineral deposits exclusive of oil and gas, coal and lignite.

4. Machinery and explosives. "Machinery and explosives" shall include:

A. Any equipment or machinery exclusive of vehicles which are used to prospect, explore, develop or mine a mineral deposit;

B. Any explosive materials which are used for the above-named procedures.

5. **Mining.** "Mining" shall include all of the extractive and beneficiative processes necessary to remove and prepare for market a mineral deposit.

6. **Ore.** "Ore" shall mean any hard mineral or an aggregate of hard minerals which from the standpoint of a mining operator can be worked at a profit.

7. **Prospecting.** "Prospecting" shall mean a preliminary examination of an area for the purpose of discovering the possible presence of valuable minerals.

1969, c. 508, § 2.

Sec. 2102. Authority to prospect. Any person over 18 years of age or any corporation may enter upon state-owned land, including lands held in trust, when the trust is such as to be consistent with mineral development, on receipt of a prospector's permit from the Mining Bureau for the purpose of prospecting for valuable hard minerals and metals, except water, sand and gravel, unless otherwise indicated in this subchapter. A prospector's permit shall be issued upon payment of a fee of $5 and shall apply to state lands owned or held in trust within the jurisdiction of the bureau. A prospector's permit shall bear a number and be dated on the date of issue thereof and shall expire at midnight on the 31st day of December then next ensuing. The holder of a permit is entitled to a renewal of his permit upon expiration thereof, upon making application to the Mining Bureau on or before December 31st including payment of the prescribed fee, which renewal shall take effect on January 1st and bear the same number as the expired permit.

If machinery or explosives are to be used for prospecting in areas under state jurisdiction, the methods to be employed and the amount of explosives to be allowed must first be approved by the Mining Bureau.

1969, c, 508, § 3.

Sec. 2103. Location of claim and maintenance of right of possession. Any person or corporation who has secured a prospector's permit may locate one or more claims by defining the boundary lines of the claim or claims. No claim shall be greater than 1,500 feet in length by 600 feet in width. The location or record of any claim shall be construed to include all surface found within the surface boundary lines thereof and all ledges throughout their entire vertical depth, but shall not include any portion of such ledges beyond the end and side lines of such claim, or timber and grass on such claim. As nearly as circumstances will permit, a claim shall be staked out in the following manner, namely:

1. **Posts and monuments.** By erecting a post or other reasonably permanent monument at each of the 4 corners of the claim and num-

bering the posts or monuments consecutively, one through four, beginning in the most northeasterly corner and proceeding about the claim in a clockwise direction. Every post or monument shall stand not less than 4 feet above the ground, shall be not less than 4 inches in diameter, and shall bear the following information:

A. Post or monument #1. The name of the locator, the number of his prospecting permit, the date of staking, and, if the claim is staked on behalf of another person, the name of the other person and the number of his prospector's permit.

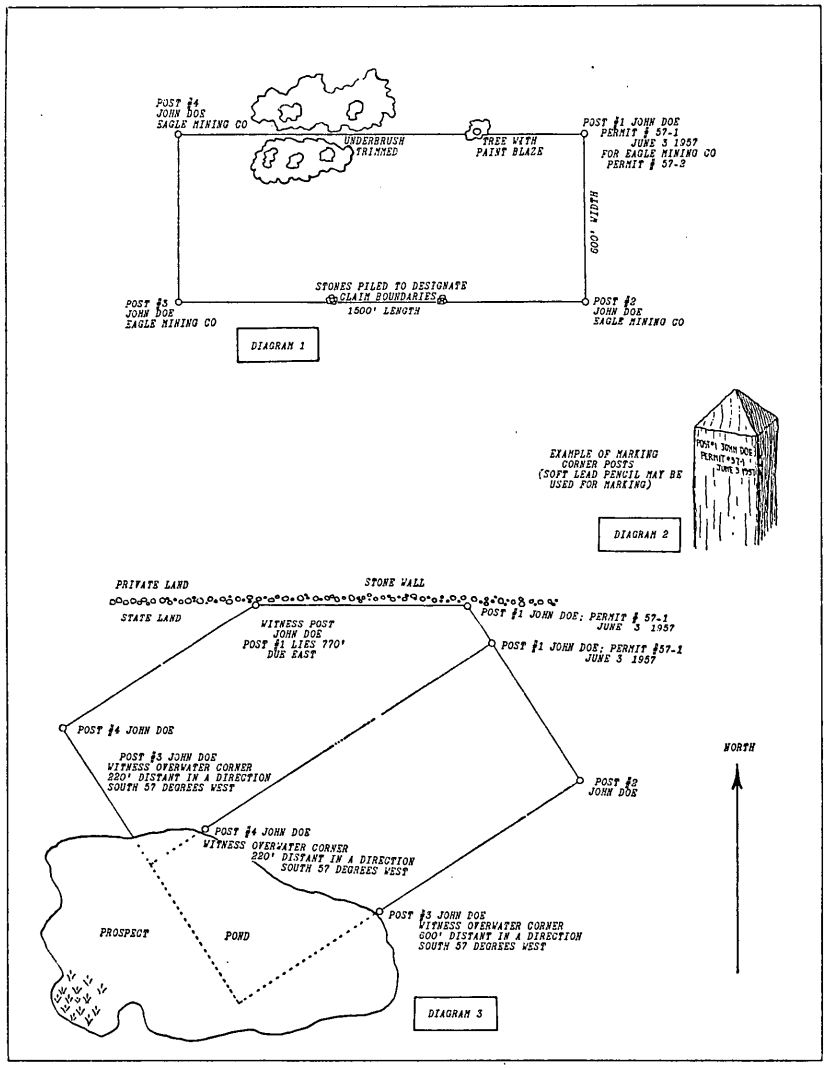

Plate 1 — Suggested methods of staking and marking claims

B. Posts or monuments #2, #3 and #4. The name of the locator, and if the claim is staked for another person, his name.

2. Trees or underbrush. By plainly marking the trees with paint and by trimming the underbrush along the boundary lines of the claim to indicate clearly the outlines of the claim; where there are no trees or underbrush, by piling stones or placing pickets at reasonable intervals along the boundary lines of the claim.

3. Post or buoy markers. By establishing post or buoy markers to witness claim corners which fall in a body of water, by placing posts on dry land and marking thereon exact distances and directions to overwater claim corners, or by such other method as the bureau may by regulation establish.

Any person or corporation who has located and recorded any claim or claims shall, subject to this subchapter, have the right of possession of the premises covered by said claim or claims, for the purpose of conducting thereon mining operations and shall own any hard minerals or metals found therein, and shall have the right to remove the same, and shall have the right to use such water, sand and gravel found on said premises for mining and processing operations. Such rights of possession and such ownership shall be alienable in the same manner as real estate. No alienation or transfer of the rights of possession or ownership conferred by a located and recorded claim shall be effective against the bureau until the transferor shall have notified the bureau of such transfer and shall have received an acknowledgment by the bureau of receipt of such notification. The claim shall in no way interfere with harvesting timber or leasing campsite lots until actual mining operations are being carried on.

1969, c. 508, § 4.

Sec. 2104. Recording of claim. No person or corporation shall have the right of possession of any claim or claims until such claim or claims shall have been recorded with the Mining Bureau. The prospector who first records with the bureau a validly staked claim or claims in any area shall be deemed the claimholder of record for purposes of this subchapter. This record shall contain:

1. Name. The name of the locator.

2. Description of minerals. A general description of the minerals or metals sought;

3. Location. The date of the location and description of the location of said claim, with reference to such natural object or permanent monument as will identify the claim;

4. Locations of each corner and markings. The locations and description of each corner, with the markings thereon;

5. Plan of claim. An outline sketch or plan of the claim showing with reasonable accuracy claim corners, witness points and prom-

inent natural objects or permanent structural features, so that the claim may be located on the ground by members of the Mining Bureau or their representatives;

6. Fees. The fee for recording, renewing or transferring a claim shall be $10;

1969, c. 508, § 6.

7. Expiration date. A claim shall be in effect until December 31st following the date of recording, and shall be extended for further 12-month periods, not exceeding 4 in number, upon application to the Mining Bureau on or before December 31st and upon payment of a like fee as paid when the claim was recorded, and upon filing an affidavit that during the period about to expire investigatory work has been performed on the claim to the extent of not less than 50 manhours or $100 worth of work. The Mining Bureau may, upon petition of the claimholder, allow all or part of any such excess expenditure to be credited to assessment requirements in the following years, as long as the claims are held during the 5-year claim period defined in subsection 9. Where the holder of the claim has 2 or more contiguous claims, the required amount of work for all the claims may be performed on one or more of said contiguous claims, or the required amount of work for one or more said contiguous claims may be fulfilled by work done on all or any of the contiguous claims. The work done shall be described in the affidavit and shall include only work which tends to reveal such characteristics of the material sought as length, width, depth, thickness, tonnage and mineral or metal content. If the date of recording a claim is after the 30th day of September in any year, the bureau shall extend such claim until the 31st day of December of the next ensuing year without requiring such affidavit, upon payment by the locator of the required renewal fee. If the normal exploration plans on overwater claims or a claim group include drilling or geophysical work which requires an ice cover, the Mining Bureau may allow the exploration expenditure to be applied either to a present year or the subsequent year, if requested by the claimholder. Extension will be granted only to those claims which are of record 3 months prior to December 31st of the year in which the request is made.

1969, c. 508, § 7.

8. Forfeiture; appeal. The failure to comply with any of the requirements for renewing claims under subsection 7 shall operate as a forfeiture of said claim or claims. Written notice of such forfeiture shall be sent by registered or certified mail to claimant's last known address. Any claimant who is aggrieved may file a written petition for a hearing before the Maine Mining Bureau within 14 days after notice of forfeiture has been given. If the petition for a hearing is filed with the bureau within said 14-day period, the bureau shall within 30 days grant a hearing on the forfeiture and give the claimant 10 days' notice of the time and place thereof. For good cause, the bureau may extend the time for filing such petition.

If any claimant is aggrieved by the decision of the bureau resulting from the hearing, he may within 30 days thereafter appeal to the Superior Court, by filing a complaint therefor. The court shall fix a time and place for hearing and cause notice thereof to be given to the Maine Mining Bureau; and after hearing, the court may affirm or reverse the decision of the bureau and the decision of the court shall be final. During the pendency of all proceedings under this section no person or corporation shall lay claim to the area in dispute.

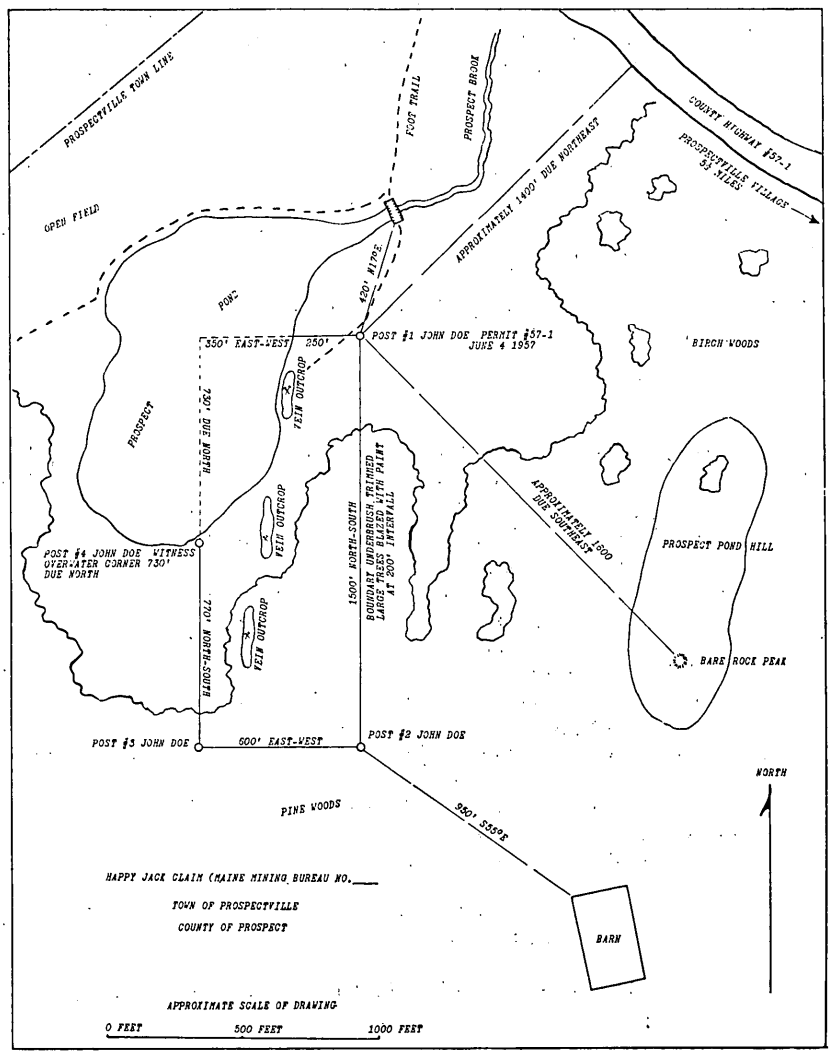

Plate 2 — Typical method for describing claim for recording purposes

9. Time claim may be held. No claim may be held through authority of the prospector's permit for a period of more than 5 years from the initial date of recording, unless such occurs prior to August 28, 1957, in which case date of recording is construed to mean August 28, 1957. By the end of the 5-year period, any title to the claim will lapse unless the right to the claim has been established under the terms of section 2105. The Mining Bureau may, upon application and for good reason, grant an extension for an additional period not to exceed 5 years. Upon lapse or upon filing of notice of abandonment of a claim, no person or corporation holding the claim immediately prior to date of lapse or abandonment or his representative, partner, or leasing associate may relocate on the same area for a period of 60 days.

1969, c. 508, § 8.

10. Ruling from Mining Bureau. Any person or corporation with a recorded claim or contiguous claims may make application to the Mining Bureau for a ruling as to whether operations can be carried on consistent with any prior or proposed other use by the State or any agency or instrumentality thereof. Such ruling shall be made within 90 days of the date of such application and when obtained shall be binding and irrevocable.

1969, c. 508, §§ 5-8.

Sec. 2105. License to mine; fees. Any person or corporation with a recorded claim or contiguous claims in accordance with section 2104 may make application to the Mining Bureau for a license to mine, accompanied by a report from a geologist or mining engineer in good standing, describing proposed operations, together with the required license fee, plus an accurate survey of the property boundaries certified by a qualified surveyor. If said applicant has previously received a ruling from the Mining Bureau under section 2104, subsection 10, that the proposed mining operations will not conflict with any prior or proposed state uses, a license to mine in the area specified shall be granted under such terms and conditions as the bureau may require. If no such ruling has previously been given, then no license to mine shall be granted until the bureau is satisfied that no such conflict exists. The license to mine shall expire on December 31st of each year. The annual fee shall be $25 per claim included in the license to mine, not exceeding $500 for coverage of a single mineral deposit held by one licensee. The license to mine shall be renewed on expiration providing the licensee satisfied the bureau that he has complied with the terms and conditions imposed by the Mining Bureau in his license.

The holder of a license to mine shall make royalty and rental payment as follows:

1. Rental. Property within the terms of a license to mine is subject to an annual rental of $5 per acre, payable in advance, except as

provided by section 2109, not exceeding $500 for coverage of a single mineral deposit held by one licensee.

1967, c. 120, § 2.

2. Royalty. Royalty payment of 5% of the adjusted fair market value of the minerals or metals removed from the ground is charged on an annual basis, and shall be applied to defray rental charges up to the maximum rental chargeable in any one year. All royalty payments in excess of the maximum rental charges shall be paid annually. Each mining license or lease may contain a provision for a minimum royalty applicable to all mining operations on or under state-owned lands. Minimum royalties shall be applied against actual royalties set forth herein. A minimum royalty shall be based on each ton of material removed from state-owned land. The amount shall be negotiated by the Maine Mining Bureau and the lessee to provide an equitable return to the State for removal of the natural resources and shall not be an unnecessary burden to the development of mining operations in the State.

A. The adjusted fair market value shall be:

(1) For such products as have a posted field or market price at the mine head, the posted field or market price at the time of removal from the ground after deductions of those expenses of mining, hoisting, crushing, and loading necessary to place the severed products in marketable form and at a marketable place; or

(2) For such severed products as must be processed or beneficiated before they reach a marketable form, the fair value of such severed products in their first marketable form as ore concentrate at point of concentration, after deduction of expenses of mining, hoisting, crushing, loading, transportation, processing, benefication including the capital costs of a concentrator and mining equipment, amortized or depreciated over periods of years agreed upon by the Maine Mining Bureau and the lessee, and local administrative costs, or

(3) In case said severed products have no market value at the mine or as a concentrate, the adjusted fair market value shall be the value of such severed products when they first reach a marketable form, after deduction of expenses of mining, hoisting, crushing, loading, transportation, processing, beneficiation and smelting, including the capital costs of a concentrator and mining equipment, amortized or depreciated over periods of years agreed upon by the Maine Mining Bureau and the lessee, and administrative costs and after deduction of the value of any other materials or articles which are combined with, mixed with, absorbed in, or absorbed by said severed products in the process of turning said severed products into their first marketable form. There shall be deducted

the expenses of such combining, mixing or absorbing processes.

In the event the lessee mines or concentrates ore from land owned other than by the State only that percentage of capital costs of the concentrator, mining equipment and administrative costs directly attributable to the material removed from state-owned lands and processed through the concentrator shall be deducted in determining the royalties due the State.

All fee, rental and royalty moneys accruing from operations under prospectors' permits the license to mine or mining lease shall be paid into the Maine Mining Bureau for administration and control of all prospecting, development or mine activity conducted in areas administered by the bureau. Such fund shall be nonlapsing. The State Geologist, acting as administrator and consultant to the bureau, shall be paid from this dedicated, nonlapsing fund such an annual sum for his work on these duties as the bureau, with the approval of the Governor and Council, may designate. The bureau may, with the approval of the Governor and Council, assign such sums as it deems proper to other state agencies for preservation, development or replacement of natural resources.

1967, c. 120, §§ 1, 2; c. 170, § 2.

Sec. 2106. Mining lease. Any holder of a license to mine who has compiled with the requirements of the bureau and of his license may secure a mining lease of the mining rights covered by his license to mine for such term and under such conditions as the Mining Bureau shall establish. The following additional preliminary requirements must be complied with:

1. **Rental in advance.** That he has deposited with his application the required rental in advance of the first year's tenure;

2. **Tract surveyed.** That the tract to be taken under lease is accurately surveyed;

3. **Previous activities caused no damage.** That the applicant's previous prospecting or mining activities in this State have caused no unreasonable damage to adjacent properties;

4. **Bond or financial responsibility.** That the applicant is bonded against any damage he may cause to the adjacent areas, or upon the substitution and acceptance by the bureau of other adequate proof of financial responsibility to satisfy judgments for damage claims.

The Mining Bureau may require that the applicant for a lease conduct bona fide mining operations under said mining license for not more than one year prior to the granting of a lease.

The mining lease is to be negotiated by the Mining Bureau and shall provide for the payment of the same rental for the property and the payment of the same royalty fees as provided under the terms of the license to mine.

Sec. 2107. Repealed by P.L. 1969, c. 508, § 9.

Sec. 2108. Rights of way. Any person who has located a claim and has been issued a license to mine or mining lease in accordance with sections 2105 or 2106 shall have the right of access to any lands owned or controlled by the State to and from said location, and the right to take from public reserved lots all wood and timber necessary to be used in the operation of the mine, by paying to the State or to the owner of the right to cut timber and grass, a fair and just price for the same. The bureau may issue a permit to the holder of a license to mine or mining lease giving him authority to open, construct, put in, maintain and use ditches, tunnels, pipes, conduits, flumes and other works through, over and upon said land for drainage and passage of water, together with the right to construct dams, provided same flows on no land of others, in connection with the working of his mine to bring thereto water necessary or convenient for its operation with such conditions and restrictions as the bureau may impose.

1969, c. 508, § 10.

Sec. 2109. Mining underwater. The same royalty as provided in section 2105 shall be paid to the State on all hard mineral or metal commodities under the territorial sea, produced from mineral deposits situate beneath bodies of water, where the title to the land beneath the water is in the State. No license shall be granted to mine or remove deposits of sand or gravel located under the territorial sea except in dredging operations in aid of navigation. Where any mineral is situate under or in the bed of a stream or lake and for the efficient working of the mineral it is necessary to divert the water of such stream, within the boundaries of public land, or drain any lake, the Mining Bureau may permit the same to be done, subject to such regulations or alternative provisions for the benefit of any persons or corporations who are entitled to the use of the water of such stream or lake in its natural state, as to the bureau may seem just and expedient.

1969, c. 508, § 11.

Sec. 2110. Annual reports. Any person or corporation with a recorded claim, license to mine, or mining lease engaged in exploration, mine development, or mining under this subchapter shall file an annual report with the Mining Bureau and pay all applicable fees, rentals and royalties in the month of January following the year such operation was carried on setting forth:

1. Location of operation. Location of the operation;

2. **Quantity and grade of products.** Quantity and grade of mineral products or metals produced;

3. **Rental.** The amount of rental which has accrued on property;

4. **Royalty.** The amount of royalty which has accrued on material extracted:

5. **Number of employees.** The number of persons ordinarily employed at operation below ground and above ground;

6. **Other information.** Other information as required by the bureau.

1969, c. 508, § 12.

Sec. 2111. Forfeiture. In the event that any prospector, claimant, licensee or lessee violates any of the provisions of this chapter or any rule or regulation of the Mining Bureau, the bureau shall notify such prospector, claimant, licensee or lessee, as the case may be, of such alleged violation and of the nature of such alleged violation, by sending such notice by registered or certified mail to him at his last known address. If such violation is not remedied within 30 days after the date of mailing such notice, the permit, claim, license or lease of such violator in existence at the time of such violation shall be liable to forfeiture. For cause, the bureau may extend such further time for compliance as it may determine. No forfeiture shall be vaild until a second notice in writing shall have been served upon the person, firm or corporation holding the prospector's permit, claim, mining lease or license to mine, setting forth the alleged violations of law or rules and regulations, or both, 30 days prior to the date set for hearing. The hearing shall be held before the Administrative Hearing Commissioner as designated in Title 5, chapters 301 to 307. If the forfeiture relates to a claim or mining lease, an appropriate entry shall be made on the records of the State Land Agent, after the time for appeal has expired or the appeal finally determined.

The fees of witnesses required to attend any hearing shall be the same as those allowed to witnesses appearing in the Superior Court.

SUBCHAPTER IV

OIL AND GAS CONSERVATION AND DEVELOPMENT CONTROL ACT

Sec. 2151. Short title. This subchapter may be cited as the "Oil and Gas Conservation and Development Control Act."

1969, c, 301.

Sec. 2152. Purpose. The prevention of waste of oil and gas, the protection of correlative rights and public natural resources are de-

clared to be in the public interest. The purpose of this Act is to prevent such waste and to protect all correlative rights.

1969, c. 301.

Sec. 2153. Definitions. Unless the context otherwise requires, the terms defined in this section shall have the following meaning when used in this Act:

1. **Bureau.** "Bureau" means the Maine Mining Bureau.

2. **Certificate of clearance.** "Certificate of clearance" means a permit prescribed by the bureau for the transportation or the delivery of oil or gas or product under, in or on the offshore territorial waters of this State.

3. **Certificate of compliance.** "Certificate of compliance" means a certificate issued by the bureau to the owner or operator of a well or refinery indicating that the owner or operator has complied with the oil or gas conservation laws of the State and conservation rules, regulations and orders of the bureau.

4. **Condensate.** "Condensate" means liquid hydrocarbons that were originally in the gaseous phase in the reservoir.

5. **Developed area.** "Developed area" means a spacing unit on which a well has been completed that is capable of producing oil or gas, or the acreage that is otherwise attributed to a well by the bureau for allowable purposes.

6. **Field.** "Field" means the general area underlaid by one or more pools.

7. **Gas.** "Gas" means all natural gas and all other fluid hydrocarbons not defined as oil originating from any well in the State, including condensate, as it originally was in the gaseous phase in the reservoir.

8. **Illegal gas.** "Illegal gas" means that gas which has been produced from any well within the State in excess of the quantity permitted by any rule, regulation or order of the bureau.

9. **Illegal oil.** "Illegal oil" means oil that has been produced from any well within the State in excess of the quantity permitted by any rule, regulation or order of the bureau.

10. **Illegal product.** "Illegal product" means any product derived in whole or in part from illegal oil or illegal gas.

11. **Just and equitable share of the production.** "Just and equitable share of the production" means, as to each person, that part of the authorized production from the pool that is substantially in the proportion that the amount of recoverable oil or gas or both in the developed area of his tract or tracts in the pool bears to the recoverable oil or gas or both in the total of the developed areas in the pool.

12. **Oil.** "Oil" means crude petroleum oil and all other hydrocarbons, regardless of gravity, that are produced in liquid form by ordinary production methods, originating from any well in the State, but does not include liquid hydrocarbons that were originally in a gaseous phase in the reservoir.

13. **Oil and gas.** "Oil and gas" means oil or gas, or both.

14. **Owner.** "Owner" means the person who has the right to drill into and produce from a pool and to appropriate the oil or gas that he produces therefrom, either for himself or for himself and others.

15. **Person.** "Person" means any natural person, corporation, association, partnership, receiver, trustee, executor, administrator, guardian, fiduciary or other representatives of any kind, and includes any government or any political subdivision or any agency thereof. The masculine gender, in referring to a person, includes the feminine and the neuter genders.

16. **Pollution.** "Pollution" means the contamination of the environment by any activities utilized for the development, production or refining of oil and gas.

17. **Pool.** "Pool" means an underground reservoir containing a common accumulation of oil or gas or both. Each zone of a structure that is completely separated from any other zone in the same structure is a pool.

18. **Producer.** "Producer" means the owner of a well or wells capable of producing oil or gas or both.

19. **Product.** "Product" means any commodity made from oil or gas, and includes refined crude oil, crude tops, topped crude, processed crude, processed crude petroleum, cracking stock, uncracked fuel oil, fuel oil, treated crude oil, residuum, gas oil, casinghead gasoline, natural-gas gasoline, kerosene, benzine, wash oil, waste oil, blended gasoline, lubricating oil, blends or mixtures of two or more liquid products or byproducts derived from oil or gas, whether herein enumerated or not.

20. **Protect correlative rights.** "Protect correlative rights" means that the action or regulation by the bureau should afford a reasonable opportunity to each person entitled thereto to recover or receive the oil or gas in his tract or tracts or the equivalent thereof, without being required to drill unnecessary wells or to incur other unnecessary expenses to recover or receive such oil or gas or its equivalent.

21. **Reasonable market demand.** "Reasonable market demand" means the amount of oil reasonably needed for current consumption, use, storage or working stocks, within and without the State, or the amount of gas of any type reasonably needed for current consumption, use or storage, within and without the State.

22. State. The words "in the State", "within the State", "in this State" or "within this State" mean in the State of Maine or under, in or on the offshore territorial waters of the State of Maine, wherever the context permits.

23. Waste. "Waste" means and includes:

A. All uncontrolled discharge of oil and gas, hydrocarbon products, and those materials, equipment and chemicals coincident to production, beneficiation and transportation of oil and gas;

B. The inefficient, excessive or improper use, or the unnecessary dissipation of, reservoir energy;

C. The inefficient storing of oil and gas;

D. The locating, drilling, equipping, operating or producing of any oil or gas well in a manner that causes, or tends to cause, reduction in the quantity of oil or gas ultimately recoverable from a pool under prudent and proper operations, or that causes or tends to cause unnecessary or excessive surface loss or destruction of oil or gas;

E. The production of oil or gas in excess of reasonable market demand; the amount reasonably required to be produced in the proper drilling, completing or testing of the well from which it is produced; or oil or gas otherwise usefully utilized; except gas produced from an oil well or condensate well pending the time when with reasonable diligence the gas can be sold or otherwise usefully utilized on terms and conditions that are just and reasonable;

F. Underground or above ground waste in the production or storage of oil, gas or condensate, however caused, and whether or not defined in other subdivisions hereof.

1969, c. 301.

Sec. 2154. Waste prohibited. The waste of oil and gas is prohibited.

1969, c. 301.

Sec. 2155. Authority of the bureau. This Act shall apply to all lands located in the State, however owned, including submerged lands on the continental shelf within the territorial seaward boundary of this State, and any lands owned or administered by any government or any agency or political subdivision thereof, over which the State, under its police power, has jurisdiction.

The bureau is authorized and it is its duty to prevent waste of oil and gas and related materials to protect correlative rights, and to prevent pollution, and otherwise to administer and enforce this Act. It has jurisdiction over all persons and property necessary for that purpose.

Without limiting its general authority, the bureau shall have the specific authority:

1. **Require.** To require:

A. Identification of ownership of oil or gas wells, producing leases, tanks, plants, structures and facilities for the transportation or refining of oil and gas;

B. The making and filing of electrical or nuclear well logs, or both, directional surveys, and reports on well location, drilling and production, provided that the log of an exploratory or wildcat well need not be filed before 6 months after the completion of the well;

C. The drilling, casing, operation and plugging of wells in such manner as to prevent the escape of oil or gas out of one pool into another, the detrimental intrusion of water into an oil or gas pool that is avoidable by efficient operations, the pollution of fresh water and ocean water by oil, gas or salt water, and blow-outs, cavings, seepages and fires;

D. The taking of tests of oil or gas wells;

E. That every person who produces, stores, transports or refines crude or untreated oil and gas which originates from within the territorial jurisdiction of the State shall furnish a performance bond with good and sufficient surety, as required by the Mining Bureau for each facility, conditioned for the duty to plug each dry or abandoned well, to remove all obstructions to commercial fishing operation, and to repair each well causing pollution or waste; and shall furnish evidence of liability insurance to indemnify commercial fishermen, riparian owners, owners of boats and shore installations or state resources agencies for damage caused by pollution or waste;

F. That the production from wells be separated into gaseous and liquid hydrocarbons, and that each be measured by means and upon standards that may be prescribed by the bureau;

G. That wells not be operated with inefficient gas-oil or water-oil ratios, and to fix these ratios and to limit production from wells with inefficient gas-oil or water-oil ratios;

H. Metering or other measuring of oil, gas or product;

I. That every person who produces, sells, purchases, acquires, stores, transports, refines or processes oil or gas derived from within or offshore this State keep and maintain complete and accurate records of the quantities thereof, which records shall be available for examination by the bureau or its agents at all reasonable times;

J. The filing of such reports or plans with the bureau as it may prescribe;

K. Certificates of clearance in connection with the transportation or delivery of oil, gas or product; under, in or on the offshore territorial waters of this State;

L. Owners or operators of oil or gas wells or refineries producing or operating within or offshore this State, before connecting with any oil or gas pipeline, to secure from the bureau a certificate showing compliance with the oil or gas conservation laws of the State and conservation rules, regulations and orders of the bureau. No operator of a pipeline or other carrier shall connect with any oil or gas well or refinery until the owner or operator of such well or refinery shall furnish a certificate from the bureau that such conservation laws and such rules, regulations and orders have been complied with; provided, this section shall not prevent a temporary connection with any well solely for the purpose of taking care of production and preventing waste, provided that in the event of such temporary connection, the operator of such well shall forthwith make application for such certificate.

2. **Cancel.** To cancel:

A. Any certificate of compliance issued under this subchapter when it appears that the owner or operator of a well or refinery covered by this subchapter has violated or is violating, in connection with the operation of said well or refinery or the production of oil or gas therefrom, any of the oil or gas conservation laws of the State or any of the rules, regulations or orders of the bureau promulgated thereunder;

B. Any certificate of clearance issued under this subchapter when it appears that the owner or operator who in the course of transporting or delivering oil, gas or product under, in or on the offshore territorial waters of this State has violated or is violating any of the oil and gas conservation laws, regulations or orders of the bureau promulgated thereunder.

3. **Regulate.** To regulate:

A. The drilling, producing and plugging of wells, and all other operations for the production or refining of oil or gas;

B. The shooting and treatment of wells;

C. The spacing or locating of wells;

D. Operations to increase ultimate recovery, such as cycling of gas, the maintenance of pressure and the introduction of gas, water or other substances into a producing formation;

E. The operation, abandonment and proper plugging of wells to prevent the pollution of the streams and public bodies of surface water of the State;

F. The location and routing of submerged pipelines for the transportation of oil or gas or product to minimize the unnecessary pro-

liferation of pipelines, conflicts between individual producers and fishing interests;

G. The transportation or the delivery of oil, gas or product under, in or on the offshore territorial waters of this State.

4. **Limitations.** To limit the production of oil, gas or condensate from any field, pool, area, lease or well, and to allocate production.

5. **Classification.** To classify and reclassify pools as oil, gas or condensate pools, or wells as oil, gas or condensate wells.

6. **Regulations.** To adopt, amend, repeal and enforce regulations necessary to prevent and measure waste and pollution, protect correlative rights, and to administer this Act. In adopting, amending or repealing regulations, the bureau shall follow the procedure prescribed by Title 5, sections 2351 and 2352 for the adoption, amendment and repeal of rules of practice before it.

1969, c. 301.

Sec. 2156. Allocation of production. Whenever the bureau limits the amount of oil that may be produced in the State, the bureau shall allocate the allowable production among the pools on such basis as it deems reasonable.

Whenever the bureau limits the total amount of oil, gas or condensate that may be produced in any pool to an amount less than the amount that the pool could produce if no limitation were imposed, the bureau shall, subject to the reasonable necessities for the prevention of waste, allocate the allowable production among the several wells or producing properties in the pool so that each person entitled thereto will have a reasonable opportunity to produce or to receive his just and equitable share of the production.

In fixing oil allowables based on reasonable market demand, the bureau shall not be required to determine the reasonable market demand applicable to any single pool or group of pools, except in relation to all other pools and in relation to the reasonable market demand applicable to the State. In allocating oil allowables to pools, the bureau may consider, but shall not be bound by, nominations or purchases to purchase from particular pools or groups of pools. The bureau shall allocate the oil allowable for the State in such manner as will prevent undue discrimination among pools that would result from selective buying or nomination by purchasers.

1969, c. 301.

Sec. 2157. Well spacing. The bureau shall promptly establish spacing units for each pool.

An order establishing spacing units shall specify the size and shape of the units which shall be such as will, in the opinion of the bureau,

result in the efficient and economical development of the pool as a whole. The size of the spacing units shall not be smaller than the maximum area that can be efficiently and economically drained by one well. If, at the time of a hearing to establish spacing units, there is not sufficient evidence from which to determine the area that can be efficiently and economically drained by one well, the bureau may make an order establishing temporary spacing units for the orderly development of the pool pending the obtaining of the information required to determine what the ultimate spacing should be.

Except where circumstances reasonably require, spacing units shall be of approximately uniform size and shape for the entire pool. The bureau may establish spacing units of different sizes or shapes for different parts of a pool or may grant exceptions to the size or shape of any spacing unit or units or may change the size or shape of one or more existing spacing units. Where spacing units of different sizes or shapes exist in a pool, the bureau shall, if necessary, make such adjustment of the allowable production from the well or wells drilled thereon so that each person entitled thereto in each spacing unit will have a reasonable opportunity to produce or receive his just and equitable share of the production.

An order establishing spacing units shall specify the location for the drilling of a well thereon, in accordance with a reasonably uniform spacing pattern, with necessary exceptions for wells drilled or drilling at the time of the filing of the application. If the bureau finds that a well drilled at the prescribed location would not be likely to produce in paying quantities, or that surface conditions would substantially add to the burden or hazard of drilling such well, or for other good cause shown, the bureau is authorized to make an order permitting the well to be drilled at a location other than that prescribed by such spacing order. In so doing, the bureau shall, if necessary, make such an adjustment of the allowable production from the well drilled thereon so that each person entitled thereto in such spacing unit shall not produce or receive more than his just and equitable share of the production.

An order establishing spacing units for a pool shall cover all lands determined or believed to be underlaid by such pool, and may be modified by the bureau from time to time to include additional lands determined to be underlaid by such pool or to exclude lands determined not to be underlaid by such pool.

An order establishing spacing units may be modified by the bureau to change the size or shape of one or more spacing units, or to permit the drilling of additional wells on a reasonably uniform pattern.

After the date of the notice for a hearing called to establish spacing units, no additional well shall be commenced for production from the pool until the order establishing spacing units has been made, unless the commencement of the well is authorized by order of the bureau.

1969, c. 301.

Sec. 2158. Integration of interests in spacing units. When 2 or more separately owned tracts are embraced within a spacing unit, or when there are separately owned interests in all or a part of a spacing unit, the interested persons may integrate their tracts or interests for the development and operation of the spacing unit. In the absence of voluntary integration, the bureau, upon the application of any interested person, shall make an order integrating all tracts or interests in the spacing unit for the development and operation thereof and for the sharing of production therefrom. The bureau, as a part of the order establishing a spacing unit or units, may prescribe the terms and conditions upon which the royalty interests in the unit or units shall, in the absence of voluntary agreement, be deemed to be integrated without the necessity of a subsequent separate order integrating the royalty interests. Each such integration order shall be upon terms and conditions that are just and reasonable.

1969, c. 301.

Sec. 2159. Unit operations.

1. Hearing. The bureau upon its own motion may, and upon application of any interested person shall, hold a hearing to consider the need for the operation as a unit of one or more pools or parts thereof in a field.

2. Order. The bureau shall make an order providing for the unit operation of a pool or part thereof if it finds that:

A. Such operation is reasonably necessary to increase substantially the ultimate recovery of oil or gas; and

B. The value of the estimated additional recovery of oil or gas exceeds the estimated additional cost incident to conducting such operations.

3. Terms. The order shall be upon terms and conditions that are just and reasonable and shall prescribe a plan for unit operations that shall include:

A. A description of the pool or pools or parts thereof to be so operated, termed the unit area;

B. A statement of the nature of the operations contemplated:

C. An allocation to the separately owned tracts in the unit area of all the oil and gas that is produced from the unit area and is saved, being the production that is not used in the conduct of operations on the unit area or not unavoidably lost. The allocation shall be in accord with the agreement, if any of the interested parties. If there is no such agreement, the bureau shall determine the relative value, from evidence introduced at the hearing, of the separately owned tracts in the unit area, exclusive of physical equipment, for development of oil and gas by unit operations, and

the production allocated to each tract shall be the proportion that the relative value of each tract so determined bears to the relative value of all tracts in the unit area;

D. The time when the unit operations shall commence, and the manner in which, and the circumstances under which, the unit operations shall terminate; and

E. Such additional provisions that are found to be appropriate for carrying on the unit operations, and for the protection of correlative rights.

4. Effective. No order of the bureau providing for unit operations shall become effective unless and until the plan for unit operations prescribed by the bureau has been approved in writing by those persons who, under the bureau's order, will be required to pay at least 85% of the costs of the unit operation, and by the owners of at least 65% of the production or proceeds thereof that will be credited to interests which are free of cost, such as royalties, overriding royalties and production payments, and the bureau has made a finding, either in the order providing for unit operations or in a supplemental order, that the plan for unit operations has been so approved. If the plan for unit operations has not been so approved at the time the order providing for unit operations is made, the bureau shall upon application and notice hold such supplemental hearings as may be required to determine if and when the plan for unit operations has been so approved. If the persons owning required percentage of interest in the unit area do not approve the plan for unit operations within a period of 6 months from the date on which the order providing for unit operations is made, such order shall be ineffective, and shall be revoked by the bureau unless for good cause shown the bureau extends said time.

5. Provisions. An order may provide for unit operations on less than the whole of a pool where the unit area is of such size and shape as may be reasonably required for that purpose and the conduct thereof will have no adverse effect upon other portions of the pool.

6. Property and income. The portion of the unit production allocated to any tract, and the proceeds from the sale thereof, shall be the property and income of the several persons to whom, or to whose credit, the same are allocated or payable under the order providing for unit operations.

1969, c. 301.

Sec. 2160. Approval of unit agreements. An agreement for the unit or cooperative development or operation of a field, pool, or part thereof, may be submitted to the bureau for approval as being in the public interest or reasonably necessary to prevent waste or protect correlative rights. Such approval shall constitute a complete defense to any action charging violation of any statute of the State relating to trusts and monopolies on account thereof or on account of operations con-

ducted pursuant thereto. The failure to submit such an agreement to the bureau for approval shall not for that reason imply or constitute evidence that the agreement or operations conducted pursuant thereto are in violation of laws relating to trusts and monopolies.

1969, c. 301.

Sec. 2161. Orders; hearings.

1. Generally. Except as otherwise provided, all orders of the bureau shall issue only after notice to and hearing with the persons upon whom such order will operate.

2. Notice. Hearings required to be held pursuant to this Act shall be called by the bureau on its initiative or upon application therefor by any interested person. Notice of such hearing shall be given to all persons whose interests, in the judgment of the bureau, will be affected by the outcome thereof, at least 20 days before the date upon which such hearing is to be held. The notice shall be signed by the chairman or secretary of the bureau, shall contain the date, time and place of the hearing and the matters to be discussed thereat. Service of such notice shall be made in the manner provided by law for the service of civil process within this State.

3. Hearings. A quorum of the bureau for the purposes of conducting hearings shall be 3 members. All witnesses shall be sworn by the bureau member presiding, and all testimony shall be recorded and transcribed by a stenographer.

4. Orders. Within 30 days after the close of a hearing, the bureau shall make findings of fact and, if it finds that an order should issue, issue an order. A copy of any order issued shall be served, in the manner provided for service of notices of hearings under this Act, upon all persons upon whom such order will operate.

5. Powers of bureau. Any member of the bureau shall have the power to summon witnesses, to administer oaths and to require the production of records, books and documents for examination, at any hearing before the bureau.

6. Emergency orders. If in the judgment of the bureau an emergency exists requiring immediate action, the bureau may make an emergency order which shall be effective when served. No emergency order shall be effective for more than 15 days.

1969, c. 301.

Sec. 2162. Oil and Gas Fund. A fund shall be established to be known as the Oil and Gas Fund. Money from this fund shall be expended under the direction of the bureau for administration of this Act. Those funds shall not lapse. All fees, fines and penalties collected under this Act shall accrue to the Oil and Gas Fund.

1969, c. 301.

Sec. 2163. Penal offenses.

1. Illegality. It shall be unlawful, subject to punishment by a fine of not less than $100 nor more than $500 or by imprisonment for not more than 6 months, or by both, for any person:

A. To violate any provision of this Act, or any rule, regulation or order of the bureau. Each day of such violation shall constitute a separate offense;

B. To commence operations for the drilling of a well for oil or gas without first giving to the bureau notice of intention to drill, or without first obtaining a permit from the bureau, under such rules and regulaions as may be prescribed by the bureau;

C. To do any of the following for the purpose of evading or violating this Act, or any rule, regulation or order of the bureau; make any false entry or statement in a report required by this Act or by any rule, regulation or order of the bureau; make or cause to be made any false entry in any record, account or memorandum required by this Act, or by any such rule, regulation or order; omit, or cause to be omitted, from any such record, account or memorandum, full, true and correct entries as required by this Act or by any such rule, regulation or order; or remove from this State or destroy, mutilate, alter or falsify any such record, account or memorandum.

1969, c. 301.

Sec. 2164. Illegal oil, gas and products. The sale, purchase, acquisition, transportation, refining, processing, or handling of illegal oil, illegal gas or illegal product is prohibited. No penalty by way of fine shall be imposed upon a person who sells, purchases, acquires, transports, refines, processes or handles illegal oil, illegal gas or illegal product unless such person knows, or is put on notice of, facts indicating that illegal oil, illegal gas or illegal product is involved, or such person fails to follow any other method prescribed by an order of the bureau for the identification of such oil, gas or product.

Illegal oil, illegal gas and illegal product bought, sold, carried, transported or found in possession of any person shall be contraband and shall be forfeited to the State. Whenever the bureau finds any illegal oil, illegal gas or illegal product, it may seize the same without warrant and keep it for a reasonable time. The bureau shall with a reasonable time after such seizure file with a judge a libel against such illegal oil, illegal gas or illegal product setting forth the seizure thereof, describing the same, and that it was bought, sold, carried, transported or found in possession in violation of this Act and pray for a decree of forfeiture thereof. Such judge shall thereupon fix a time for the hearing of such libel, and shall issue his monition and notice of the same to all persons interested, citing them to appear at the time and place appointed and show cause why such illegal oil, illegal gas or illegal product should not be declared forfeited, by causing a true and attested copy of said libel

and monition to be posted in 2 conspicuous and public places in the municipality where such illegal oil, illegal gas or illegal product was seized, or in such place or places as the judge may order, 10 days at least before the day to which such libel is returnable. Copies shall be served on common carriers.

If no claimant appears on the day fixed for hearing, the judge shall, upon proof of notice, decree that such illegal oil, illegal gas or illegal product is forefeited to the State, and shall further order the sale thereof by the bureau in the same manner and upon the same notice of sale as is provided by law for the sale of personal property on execution of judgment entered in a civil action. Upon such sale, title to the oil, gas or product sold shall vest in the purchaser free of the claims of any and all persons having any title thereto or interest therein at or prior to the seizure thereof. All proceeds derived from such sale shall be paid to the Treasurer of State for the use of the bureau.

If any person appears and claims such oil, gas or product, or any part thereof, as having a right to the possession thereof at the time when the same were seized, he shall file with the judge such claim in writing, stating specifically the right so claimed and the foundation thereof, the items so claimed, the time and place of the seizure and the name of the bureau official by whom the same were seized, and must declare that the same were not had in possession in violation of this Act, with his knowledge or consent, and state his business and place of residence and shall sign and make oath to the same before said judge. If any person so makes claim, he shall be permitted to intervene in the cause, and the judge shall proceed to determine the truth of the allegations in said claim and libel. If the judge is, upon the hearing, satisfied that said oil, gas or product was not had in possession in violation of this Act, and that the claimant is entitled to the custody of any part thereof, he shall give an order in writing directed to the official having the same in custody commanding him to deliver to said claimant the oil, gas or product to which he has been found to be entitled, within 48 hours after demand. If the judge finds the claimant entitled to no part of the oil, gas or product seized, he shall, in addition to the decree required to be made, render judgment against such claimant for costs, to be taxed as in civil cases before such judge, and issue execution thereon. The claimant may appeal and shall recognize with sureties as on appeals in civil causes from a judge.

The forms set forth in Title 12, section 3101, with such changes as adapt them for use in the proceedings described in this section, are sufficient in law for all cases arising under the foreging provisions. The costs to be taxed and allowed for libel shall be the same as provided in Title 12, section 3101.

1969, c. 301.

Sec. 2165. Injunctions against violation. Whenever it appears than any person is violating or threatening to violate any provision of

this Act, or any rule, regulation or order of the bureau, the bureau may seek an injunction against such person in the Superior Court of the county in which the office of the bureau is located or of any county where the violation occurs or is threatened, or in the county in which the defendant resides or in which any defendant resides if there is more than one defendant, to restrain such person from continuing such violation or from carrying out the threat of violation. In any such action, the court shall have jurisdiction to grant to the bureau, without bond or other undertaking, such prohibitory or mandatory injunctions as the facts may warrant, including temporary restraining orders and preliminary injunctions.

1969, c. 301.

Sec. 2166. Judicial review. Any person aggrieved by any order or decision of the bureau acting under this Act may, within 30 days after notice of such order or decision, appeal therefrom to the Superior Court. Notice of the appeal shall be ordered by the court without a jury in the manner and with the rights provided by law in other civil actions so heard. The court shall receive in evidence in any proceedings hereunder a transcript of the proceedings before the bureau and a copy of the bureau's order or decision and shall receive such further evidence as the court in its discretion deems proper. The court shall have jurisdiction to enter such judgment, and orders enforcing such judgment, as the public interest and the equities of the case may require.

1969, c. 301.

6-95 (Revised)
(April 1955)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

REFERENCE SLIP

Route to:	Name	Room
1.	Harold Kirkemo	4461
2.		
3.		
4.		
5.		

For:

..... Action	..... Record of .....
..... Approval	..... Referring to .....
..... Comment	..... Reply for signature of .....
..... Conference	..... Rewriting
..... Consideration	..... See or call me
..... Filing	..... Signature
..... Initials	..... Suggestions
..... Instructions	..... Surname
..... Investigation	....X..... Your information
..... Mailing	
..... Note and return	
..... Previous correspondence	
..... Recommendation	

Remarks:

From *(Name)*
Robert W. Holliday Date Jul 28

Division—Office—Address
USBM Liaison Office--Maine Ext: Room:

U. S. GOVERNMENT PRINTING OFFICE : 1957—O-416832 869-682

The Ellsworth American, July 6, 1972 MAINE

Schrock
Kirkma
Raw.
HK

Torcan Ltd. To Drill On Blue Hill Property

Torcan, Ltd., originally known as Coastal Mining, Ltd., expects to resume diamond drilling on land it has rights to in Bluehill. The property contains a very deep continuation of the orebody at the Black Hawk mine now being exploited by Kerramerican.

News of the exploration program was announced in the company's latest report to stockholders. The report reads as follows:

"In November of 1971 your company received funds from a financing agreement that permitted the company to pay its obligations and further provided funds for additional exploration.

"The company has called for tenders for a diamond drilling contract for the express purpose of wedging an existing drill hole on the property known as the Harriman Bluehill Property situated in the State of Maine, USA.

"The purpose of the wedging program is to secure further geological information concerning the property and, it is anticipated, will also produce further intersections of the mineralized zones cut in the former drilling program thereby extending the known zones and possibly permitting the inference of a potential orebody.

"Shareholders are reminded that this property is contiguous to, and apparently on strike of, the Black Hawk property which is currently being readied for production at a rate of 1000 tons per day by a subsidiary of Kerr Addison Mines."

Tickma

The Ellsworth American, July 6, 1972 MAINE

6669

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COPY
O. M. E.
RECEIVED
JUL 13 1972

INITIALS	CODE
Cdl	120
~~Owen~~	
HK	120

Rec'd

DRAFT 5/10/72
RAWeeks/gla

Fold

Torcan Exploration Limited (NPL)
Suite 2 - 111 Jarvis Street
Toronto 1, Ontario, Canada

Re: OME-6869 (Copper-Silver)
Torcan Explorations Limited (NPL)
Harriman Ground
Hancock County, Maine

Gentlemen:

Careful study of your application for financial assistance in exploring the subject property, together with the information available to us suggests ~~indicates~~ that the principal ~~a~~ significant part of the metal values in the proposed exploration target will be ~~are apt to be~~ in zinc and lead, neither of which is ~~are~~ eligible for assistance under the OME program. In addition, the amount of information likely to be obtained by the proposed exploration program could ~~you proposed would~~ not be expected to add enough additional information to ~~beyond~~ what is already known about the deposit ~~to~~ to warrant Government participation. ~~arrive at a final decision on the development of your property.~~

Within our limited budget, we could not assist significantly in a more extensive program. Accordingly, we regret to inform you that your application is denied, but without prejudice to the property.

We wish to thank you for your interest in the minerals exploration program, for your cooperation in supplying additional information, and success with your plans to explore the property.

Sincerely yours,

Harold Kirkemo
Chief, Office of
Minerals Exploration

(Usual distribution)

DRAFT 5/10/72 RWeeks/cac

Memorandum

To: The Files

From: Robert A. Weeks

Subject: OME-6869 (Copper-Silver)
Torcan Exploration Limited (NPL)
Harriman Ground
Hancock County, Maine

Justification for Denial of Application

The subject application for exploration assistance in the total amount of $40,000 would provide for reoccupying a previously drilled deep exploration hole, placing a wedge, and drilling an offset diamond drill ~~intersec~~ intersection of the copper and zinc mineralized horizons intersected in both the original hole and a second deep exploration hole. The ore-zone is a possible down-dip extension of mineralized horizons that are now being brought into production at an adjacent mine, the Bluehill property of Black Hawk Mining, Ltd.

The following facts and conclusions support a recommendation to deny the application.

The ore material being sought may be more valuable for the non-eligible metals, zinc ~~Lead~~ and lead ~~zinc~~ than eligible ~~ones~~ copper and silver. Exploration and pre-production development at the adjacent Bluehill mine has identified reserves that are described as zinc-copper ores. Grades and tonnage figures given in the annual report of that company show that copper accounts for only 26.65 percent of the value while zinc comprises over 73 percent of the value in the 1,160,000 tons of "proven and probable" ore reserves. These figures as published have been used to compute the relative value of contained metals ~~as~~ shown ~~below~~ in table 1.

Table I

Tons of reserve	Reported grade, % Zn	Reported grade, % Cu	Gross Market value per ton Zn	Gross Market value per ton Cu	Gross Market value per ton Total	Relative Cu value in percent	Gross Value	Cu Value
630,000	15.2	0.6	$54.72	$6.30	$61.02	10.3	$38,442,600	$3,969,000
380,000	5.8	2.0	20.88	21.00	41.80	50.2	15,914,400	7,980,000
150,000	-	2.2	-	23.10	23.10	100.0	3,465,000	3,465,000
						Total	$57,822,000	$15,414,000

Copper value as percent of total gross - 26.65

Table II

Hole H-I Depth, ft.	Width, ft.	Cu %	Cu Value at 52.5¢/lb	Zn %	Zn Value at 18¢/lb	Pb %	Pb Value at 15.5¢/lb	Ag oz.	Ag Value at $1.46/oz	Total Value
2135	6.2	1.98	$20.59	-	-	-	-	0.85	$1.24	$25.83
2290	9.0	2.25	23.62	-	-	-	-	0.34	0.49	24.11
2465	2.5	1.13	11.87	0.85	$3.06	-	-	0.16	0.23	15.16
2585	6.6	0.98	10.29	-	-	-	-	-	-	10.29
Hole H-2										
2028	0.6	0.08	$0.84	0.85	3.06	$10.92	$33.85	21.98	32.09	69.84
2885	2.0	1.59	16.70	-	-	-	-	-	-	16.70
2950	6.2	0.30	3.15	26.13	94.07	6.26	19.41	3.53	5.15	121.78
2975	4.9	1.13	11.87	-	-	-	-	-	-	11.87

The several ore horizons intersected by the applicant in hole H-2 ~~one of their two deep holes~~ show similar high contents of the non eligible materials zinc and lead, which together comprise about 53 and 93 percent of the contained metal values in ~~the much higher grade~~ two of the four analyses ~~from hole H-2.~~ Zinc and lead assays are not reported for 3 of the ore horizons in hole H-1. The comparative metal grades and value in these ore horizons are shown in Table 2.

The depth to the ore horizons is more than 2100 ft. in hole H-1, and 2885 to 2975 ft. in hole H-2, precluding the simple and less expensive exploration techniques that may be used with near surface mineralized targets. The proposed program of wedging and drilling from ~~offset multiple completions of the~~ existing drill holes, while a logical choice from the standpoint of increasing the ratio of footage drilled in horizons of potential interest to total footage drilled, has an associated disadvantage in clustering the locations of the data obtained. To some degree, this kind of drilling program approaches development rather than exploration type work. One quite plausible strategy for the ultimate exploitation of this deposit, in view of its depth and adjacency to a developing mine, and possible continuity of ore horizons, is to demonstrate that continuity by ~~such~~ the suggested drilling, and then ~~make arrangements~~ to exploit the deposit from ~~by extending~~ the adjacent workings. Unless that continuity is shown, the metal values reported in the applicant's hole H-1 do not appear to be sufficiently high-grade to warrant deep development. The values obtained in hole H-2 are attractive, but mainly for their lead and zinc content.

The small increment of knowledge about the mineralized horizons likely to be obtained by the proposed exploration would not be commensurate with the cost of the program, and if successful, would probably still not be definitive enough to determine the viability of an independent mining operation. Further exploration at considerably higher costs would be needed to demonstrate broad

limits of the extent, continuity, and grade of the ore occurrences followed by expensive development to demonstrate minability of the ore occurrences.

For the reasons stated above, that is, the probably large content of the non eligible materials, ~~lead~~ zinc and ~~zinc~~ lead, in the reported ore occurrences in this region, the depth to the ore horizons, the small increment of knowledge that would be obtained by the proposed exploration, and the clustered location of data points that would arise from the kind of exploration proposed, I recommend denial of this application, but without prejudice to ~~this~~ the property. As suggested above, the ore occurrences have geologic potential that should be explored, but for the reasons cited plus the limited funds available within OME's overall budget preclude the kind of extensive exploration program that is needed ~~by~~ to explore this property.

OFFICIAL
COPY
O. M. E.
RECEIVED
MAY 3 1972

INITIALS	CODE
	120

MME Form 40
(Revised Nov. 68)

Budget Bureau No. 42-R1368
Approval expires Dec. 1971

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR FINANCIAL ASSISTANCE IN MINERALS EXPLORATION

Pursuant to Public Law 85—701 (72 Stat. 700; 30 U.S.C. 641)

NAME OF APPLICANT *(Full legal name and mailing address as they should appear on contract if one is executed.)*	APPLICANT DO NOT USE THIS BLOCK
TORCAN EXPLORATIONS LIMITED (NPL) SUITE 2 111 JARVIS STREET TORONTO, CANADA	DOCKET NUMBER DATE RECEIVED REGION DIVISION CODE

BUSINESS ORGANIZATION *(Check one)*	LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE — NAME, ADDRESS	TITLE
INDIVIDUAL [ ]	PATRICK J. SULLIVAN, 105 TREVERTON DRIVE, SCARBOROUGH, ONTARIO	PRESIDENT
CORPORATION [X]	WILLIAM D. MACLEAN, 290 RIVERSIDE DRIVE, OAKVILLE, ONTARIO	VICE-PRES.
PARTNERSHIP [ ]	O. E. SMITH, 5 ELM AVENUE, TORONTO, ONTARIO	SECRETARY-TREASURER
OTHER *(Specify)* [ ]		
STATE IN WHICH FIRM IS ORGANIZED: QUEBEC COMPANY		

MINERAL(S) FOR WHICH YOU WISH TO EXPLORE	PROPERTY NAME	LOCATION COUNTY	STATE
COPPER AND SILVER	HARRIMAN GROUND,	BLUEHILL,	MAINE, U.S.A.
ESTIMATED COST OF PROJECT: $40,000			

GENERAL INSTRUCTIONS

Before filling out this application, please read the *OME Regulations for Obtaining Federal Assistance in Financing Explorations for Mineral Reserves* (30 CFR Chap. II). To assure prompt action, your application must provide all applicable material and information specified on the back of this application form. Avoid unnecessary correspondence and delays by submitting complete and accurate information. *Please submit two copies of this application and all accompanying papers* except as otherwise noted. Place your name and address on each sheet. Each item of information, maps, and reports required as a part of this application is described on the back of this form. Identify each attached statement by the item number to which it applies. If an item does not apply to your application, show the item number on your statement and after it write "not applicable." Maps or sketches should be used to supplement narrative descriptions of the property location and boundaries in item 2, existing mine workings and geology in item 3, and the proposed exploration work in item 5. When this information is not too complex, all of it may be shown on one map or sketch. All documents and other attachments submitted as a part of this application, except those in item 3(g) which you mark to be returned, become the property of the Government and will not be returned to the applicant. Send true copies, *not originals*, of leases, contracts, and other documents which are an essential part of your business records. *File this application with the Department of the Interior, U.S. Geological Survey, Office of Minerals Exploration, Washington, D. C., 20242, or with the nearest OME Field Office.*

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief, and that he would not ordinarily undertake the proposed exploration under current conditions and circumstances at his sole expense.

FEBRUARY 22, 1972
DATED

TORCAN EXPLORATIONS LIMITED (NPL)
Patrick J. Sullivan
BY *(Signature)*

PRESIDENT
TITLE

A wilfully false statement or certification to any Department or Agency of the United States Government is a criminal offense.
U. S. Code, Title 18, Sec. 1001.

TORCAN EXPLORATIONS LTD.

BASE METAL PROSPECT

HANCOCK COUNTY, MAINE, U.S.A.

INTRODUCTION

This is a report on a mining property located in Hancock County, State of Maine, U.S.A. and owned by Torcan Explorations Ltd. The purpose of this report is to summarize the exploration work completed on this property and to recommend a program for its further development.

This report is based on the following sources of information.

1. Company reports by E.A. Hart, Registered Engineer, Province of Manitoba, including diamond drill logs and assay results.

2. I have not made a personal inspection of this property. I have examined the adjoining property of Black Hawk Mining Ltd. and engaged in the exploration of the Cape Rosier Mine, the only producer in the immediate area.

PROPERTY & LOCATION

The Torcan property includes the Harriman ground and First Pond. Torcan owns the mineral rights under the Harriman ground and holds 10 claims under First Pond under Prospector's Permit 71-15. The claims are numbered 65, 68, 85 to 88 inclusive, 1186, 1187 and 1172.

The Torcan property is located to the south and east of that belonging to Black Hawk Mining Ltd. and adjoins that of Roman Corporation. It is located near Blue Hill, Hancock County, State of Maine.

ACCESS & FACILITIES

The property is readily accessible by car. It is reached by a branch road from the Grindle Road which leads south from Highway 176 near the town of Blue Hill.

Facilities on the property of note and of use are two deep drill holes (2815 ft. and 3253 ft. deep) which can be wedged to obtain further intersections of the known deep-seated mineralization.

There is no mining equipment on the property.

HISTORY & DEVELOPMENT

Sulphide mineralization has been known in the Blue Hill area of Maine for about 100 years. About the time of the first world war some outcroppings of copper ore were mined from the Black Hawk Property about 1/2 mile northwest of the Torcan property. Commencing about 1954 and sparked by C.H.E. Stewart, P.Eng. and the A.W. White interests, Canadian exploration companies became active in the State of Maine. The chief results of this activity was the placing into production at 500 tons per day the Cape Rosier Mine on Penobscot Bay which was the center of the A.W. White interests' activities; the development of a considerable tonnage of marginal grade ore by Black Hawk Mining Ltd., and the discovery of potentially valuable mineralized zones of which the Torcan property is an example.

The most recent activity in the area is the optioning of the Black Hawk and Roman Corporation properties by Keradamex, Inc., the wholly owned American exploration arm of Kerr Addison

Mines Ltd. This property adjoins that of Torcan on the north-west and Torcan owns the down dip extensions of the sulphide bearing geological horizon.

GENERAL GEOLOGY

The general geology of the mining areas of Maine have not been deciphered to the same degree as the mining camps of Canada.

Within the Penobscot-Blue Hill area of Maine, the rock types include volcanics, sediments and intrusives of either very late preCambrian or very early Cambrian age.

On the Black Hawk and Torcan properties the major formations are a series of sediments predominantly quartzites with minor beds of argillite, arkose and conglomerate which have been intruded by sill-like bodies of granite. The occasional lamprophyre dike is encountered.

At a certain horizon in the sediments surface exposures of sulphide mineralization have been known for years on what is now the Black Hawk property. This horizon dips onto the Torcan property at an angle of about 30 degrees, reaching the Torcan property at a depth of about 1900 ft.

ECONOMIC GEOLOGY

The Black Hawk property has been developed and explored by a 698 foot shaft, 5 levels at 100 ft. intervals and by extensive surface and underground diamond drilling. Several sulphide zones have been developed and a summary of these follows:

According to the Northern Miner, May 27, 1971, "proven and probable ore reserves before dilution are estimated at 412,000 tons grading 20% zinc and 0.5% copper and 209,000 tons grading 2.3% copper. There are possibly 650,000 tons of high grade zinc mineralization and 900,000 tons of copper mineralization in extensions of the proven and probable zones".

Torcan has completed two drill holes, approximately 1400 ft. apart on the Harriman ground. The north hole, which is nearest the Keradamex option, was drilled to a depth of 2815 ft., the south hole to a depth of 3253 ft. The following intersections were obtained.

DEPTH	WIDTH	% CU.	% ZN.	% PB.	OZS. AG.
Hole No. H-1					
1425	15.6	-	-	-	0.10
2020	15.0	0.14	-	-	0.35
2135	6.2	1.98	-	-	0.85
2290	9.0	2.25	-	-	0.34
2465	2.5	1.13	0.85	-	0.16
2585	6.6	0.98	-	-	-
Hole No. H-2					
2028	0.6	0.08	0.85	10.92	21.98
2885	2.0	1.59	-	-	-
2950	6.2	0.30	26.13	6.26	3.53
2975	4.9	1.13	-	-	-

Hole No. H-1 is located about 2700 feet southeast of the Black Hawk shaft and Hole H-2 is located a further 1400 feet southeast. The drill results clearly indicate the excellent exploration potential of the Torcan ground and, in addition, certain geologica conditions indicate a further potential.

The following geological facts need consideration when exploring the Torcan property:

1. Ore shoots occur below the bottom of the Black Hawk shaft.

2. The last occurrence of valuable mineral in Hole H-1 is 55 ft. above the bottom of the hole.

3. The last occurrence of valuable mineral in Hole H-2 is 100 ft. above the bottom of the hole.

Since no clearly defined "basement rock" has been encountered in either drill hole and since the several horizons of mineralization extend over a vertical height of several hundreds of feet, there is a reasonable possibility that more zones of mineralization lie beneath the bottom of Holes H-1 and H-2.

There is a further geological consideration which enhances the potential of the Torcan property. The better zones of mineralization indicated on the Black Hawk property and in the Torcan drill holes line up reasonably well considering the distance between them. This suggests that the Torcan drill holes have intersected the horizons favourable for mineralization on the Black Hawk property. However there are differences in the rock sequences. This might be an indication that the Torcan sulphide horizons are still stratigraphically above the sulphide horizons on the Black Hawk Property. In either event the course of action is clear, - a greater knowledge of the Black Hawk and Torcan stratigraphies is necessary.

CONCLUSIONS & RECOMMENDATIONS

1. Two deep drill holes on the Torcan property, 1400 feet apart, have intersected copper, lead, zinc and silver values which approach mineable grades across mineable vertical heights. The size of the mineralized zones is unknown.

2. Torcan should place wedges in its drill holes to deflect the line of the holes so as to gain further intersections

of the known mineralization at a low cost. This type of exploration does not allow the accurate calculation of ore reserves but it provides information which allows a crude estimate of tonnage and a better estimate of grade.

3. Torcan should take all possible steps to acquire stratigraphic information on the Black Hawk property and should correlate this information with its own; for it seems likely that the ultimate development of the Torcan property will be through mine workings on the Black Hawk property.

COST ESTIMATES

It is very difficult to estimate the cost of wedging diamond drill holes, for the placing of wedges is seldom done on a contract, but rather on a cost-plus basis. Therefore the cost of placing 2 or 3 wedges in drill hole H-1 is likely to be around $10,000.00.

My report is respectfully submitted.

H. G. Harper.

Willowdale, Ont.
August 25, 1971

H. Grant Harper, F.G.A.C., P.Eng.
Economic Geologist

CERTIFICATE

I, HUGH GRANT HARPER, of Metropolitan Toronto, in the Province of Ontario, certify as follows with respect to my Report entitled Torcan Explorations Ltd., Base Metal Prospect, Hancock County, Maine, U.S.A., dated August 25, 1971:

1. For over ten years I have been practising as an independent economic geologist, carrying on business as

   H. Grant Harper, P.Eng.
   314 Hendon Avenue
   Willowdale, Ontario.

2. I graduated from the University of Toronto with the degree of B.A.Sc., 1950 and M.A.Sc., 1951 and have been engaged in my profession since that time. I am a Fellow of the Geological Association of Canada, a Member of the Ontario Association of Professional Engineers registered in the Mining Branch, a Member of the Canadian Institute of Mining and Metallurgy, and a Member of the Board of Trade of Metropolitan Toronto.

3. I have no interest, nor do I expect to receive any, either direct or indirect, in either the property or securities of Torcan Explorations Ltd.

4. I have not made a personal examination of this property. My report is based on the sources of information outlined in the body of the report and on my experience in exploring for mineral in the State of Maine.

H. G. Harper

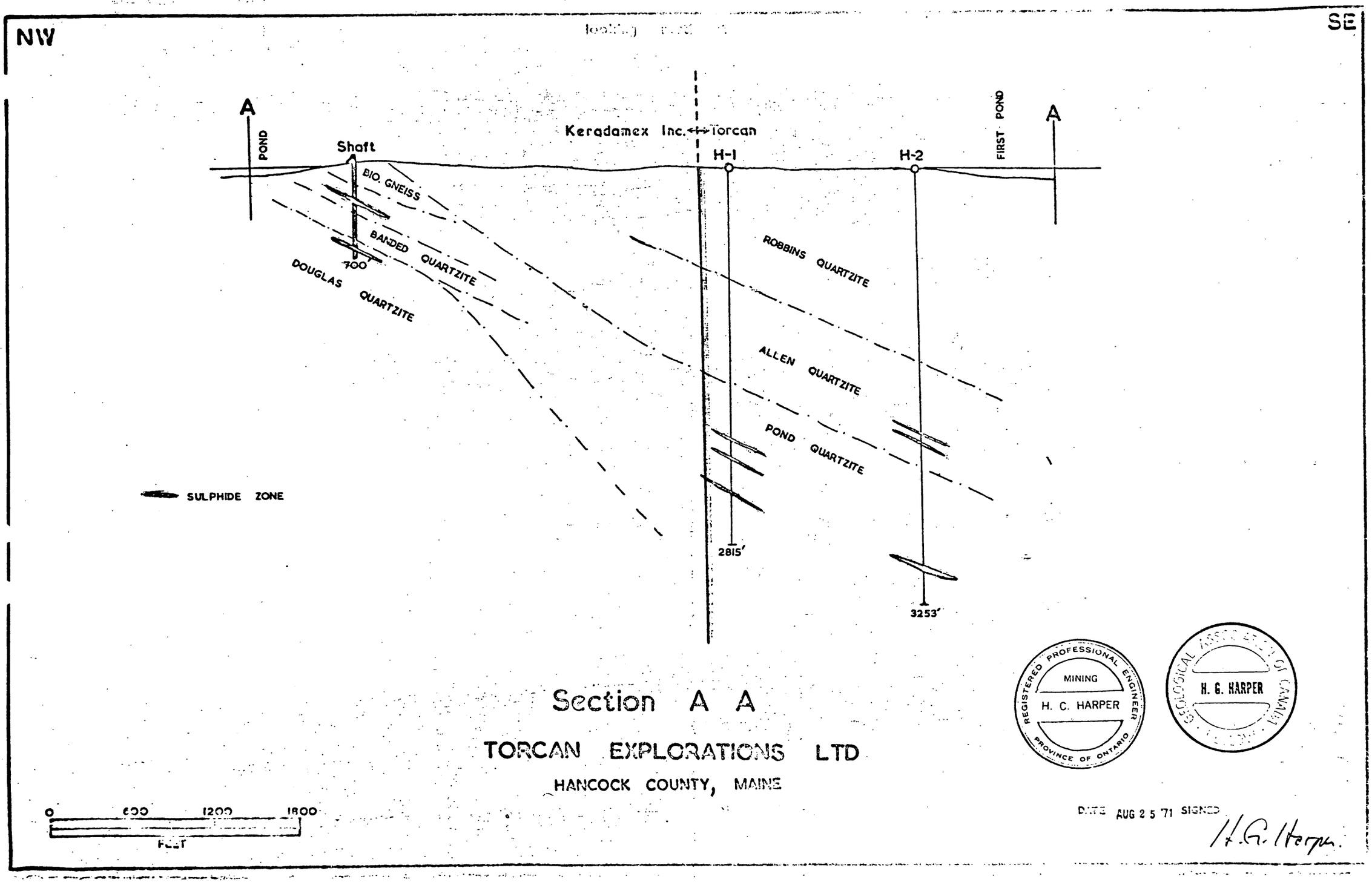
Willowdale, Ontario
August 25, 1971

H. Grant Harper, F.G.A.C., P.Eng.
Economic Geologist

Torcan Explorations Ltd.
First Pond Claims, Hancock County
Maine.

Source: data supplied by R.G. Doyle,
Administrator, Maine Mining
Bureau, Oct 22 1971.

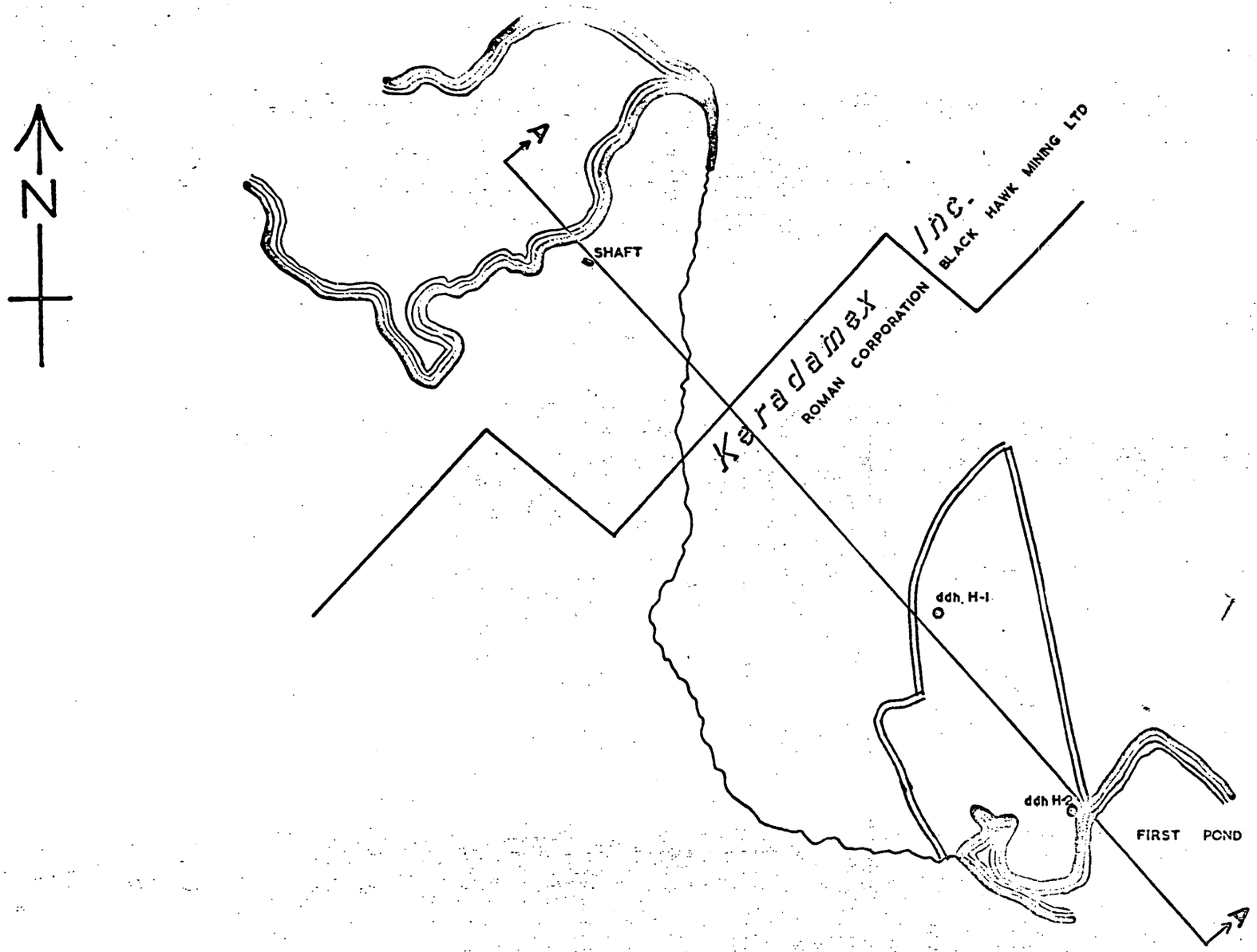
H. G. Harper.



Section A A

TORCAN EXPLORATIONS LTD

HANCOCK COUNTY, MAINE



0 600 1200 1800
FEET

TORCAN EXPLORATIONS LTD
HANCOCK COUNTY, MAINE

H. G. HARPER

REGISTERED PROFESSIONAL ENGINEER
MINING
H. C. HARPER
PROVINCE OF ONTARIO

DATE AUG 2 5 71 SIGNED H.G. Harper.

MME Form 40
(Revised Nov. 68)

Budget Bureau No. 42-R1368
Approval expires Dec. 1971

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR FINANCIAL ASSISTANCE IN MINERALS EXPLORATION

Pursuant to Public Law 85—701 (72 Stat. 700; 30 U.S.C. 641)

NAME OF APPLICANT *(Full legal name and mailing address as they should appear on contract if one is executed.)*

TORCAN EXPLORATIONS LIMITED (NPL)
SUITE 2
111 JARVIS STREET
TORONTO, CANADA

APPLICANT DO NOT USE THIS BLOCK

DOCKET NUMBER

DATE RECEIVED

REGION

DIVISION CODE

BUSINESS ORGANIZATION *(Check one)*

- INDIVIDUAL [ ]
- CORPORATION [X]
- PARTNERSHIP [ ]
- OTHER *(Specify)* [ ]

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

NAME	ADDRESS	TITLE
PATRICK J. SULLIVAN	105 TREVERTON DRIVE, SCARBOROUGH, ONTARIO	PRESIDENT
WILLIAM D. MACLEAN	290 RIVERSIDE DRIVE, OAKVILLE, ONTARIO	VICE-PRES.
O. E. SMITH	5 ELM AVENUE, TORONTO, ONTARIO	SECRETARY-TREASURER

STATE IN WHICH FIRM IS ORGANIZED
QUEBEC COMPANY

MINERAL(S) FOR WHICH YOU WISH TO EXPLORE
COPPER AND SILVER

ESTIMATED COST OF PROJECT
$40,000

PROPERTY NAME / LOCATION COUNTY / STATE
HARRIMAN GROUND, BLUEHILL, MAINE, U.S.A.

GENERAL INSTRUCTIONS

Before filling out this application, please read the *OME Regulations for Obtaining Federal Assistance in Financing Explorations for Mineral Reserves* (30 CFR Chap. II). To assure prompt action, your application must provide all applicable material and information specified on the back of this application form. Avoid unnecessary correspondence and delays by submitting complete and accurate information. *Please submit two copies of this application and all accompanying papers* except as otherwise noted. Place your name and address on each sheet. Each item of information, maps, and reports required as a part of this application is described on the back of this form. Identify each attached statement by the item number to which it applies. If an item does not apply to your application, show the item number on your statement and after it write "not applicable." Maps or sketches should be used to supplement narrative descriptions of the property location and boundaries in item 2, existing mine workings and geology in item 3, and the proposed exploration work in item 5. When this information is not too complex, all of it may be shown on one map or sketch. All documents and other attachments submitted as a part of this application, except those in item 3(g) which you mark to be returned, become the property of the Government and will not be returned to the applicant. Send true copies, *not originals*, of leases, contracts, and other documents which are an essential part of your business records. *File this application with the Department of the Interior, U.S. Geological Survey, Office of Minerals Exploration, Washington, D. C., 20242, or with the nearest OME Field Office.*

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief, and that he would not ordinarily undertake the proposed exploration under current conditions and circumstances at his sole expense.

FEBRUARY 22, 1972
DATED

TORCAN EXPLORATIONS LIMITED (NPL)
Patrick J. Sullivan
BY *(Signature)*
PRESIDENT
TITLE

A wilfully false statement or certification to any Department or Agency of the United States Government is a criminal offense.
U. S. Code, Title 18, Sec. 1001.

Guaranty Trust Company of Canada

Offices and Agencies throughout Canada

In reply refer to

TEL. NO. 863-5093
366 BAY STREET
TORONTO, CANADA
January 11, 1972

Mr. Patrick J. Sullivan
President
Torcan Explorations Limited
111 Jarvis Street
Toronto 1, Ontario

Dear Mr. Sullivan:

In reply to your letter of December 20th wherein you have requested our consideration of loan accommodation in an amount of $20,000.00, we regret to inform you that we are unable to grant such accommodation.

Yours very truly

R. L. Armstrong
General Manager

RLA:mh

DECEMBER 20, 1971

THE MANAGER
GUARANTY TRUST COMPANY OF CANADA
366 BAY STREET
TORONTO, ONTARIO

DEAR SIR:

WE ENCLOSE HEREWITH FINANCIAL STATEMENTS OF OUR COMPANY DATED NOVEMBER 30, 1971.

OUR PLANS ARE TO WEDGE THE TWO DIAMOND DRILL HOLES ON OUR MINING PROPERTIES IN HANCOCK COUNTY, MAINE, AS MORE FULLY DESCRIBED IN THE REPORT OF OUR CONSULTANT, H. GRANT HARPER, A COPY OF WHICH IS ATTACHED.

UPON A CLOSER PERSONAL EXAMINATION OF THE PROPERTIES IT IS ESTIMATED THAT THE TOTAL COST WILL BE APPROXIMATELY $40,000.00.

WE HEREBY REQUEST YOUR CONSIDERATION OF A LOAN IN THE AMOUNT OF $20,000.00 TO PROCEED WITH OUR DRILLING PROGRAM, THE COMPANY BEING PREPARED TO SUPPLY ANY COLLATERAL WITHIN ITS POWER.

YOURS VERY TRULY,

TORCAN EXPLORATIONS LIMITED

PJS:s
ENCS.

PATRICK J. SULLIVAN,
PRESIDENT.

PLEASE ADDRESS REPLY TO
THE MANAGER

BAY AND RICHMOND
375 BAY ST.
TORONTO 105, ONT.

CANADIAN IMPERIAL
BANK OF COMMERCE

February 16, 1972

Torcan Explorations Ltd.,
111 Jarvis Street,
Toronto, Ontario.

Att: Patrick J. Sullivan Esq., President

Dear Sirs

In reply to your letter of December 20, 1971, wherein you have requested our consideration of a loan in the amount of $ 20,000, we regret to inform you that we are unable to grant your request.

Yours very truly,

D. T. Norquay,
Assistant Manager.

DTN/eu

DECEMBER 20, 1971

THE MANAGER
CANADIAN IMPERIAL BANK OF COMMERCE
375 BAY STREET
TORONTO, ONTARIO

DEAR SIR:

WE ENCLOSE HEREWITH FINANCIAL STATEMENTS OF OUR COMPANY DATED NOVEMBER 30, 1971.

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YOURS VERY TRULY,

TORCAN EXPLORATIONS LIMITED

PJS:S
ENCS.

PATRICK J. SULLIVAN,
PRESIDENT.

H. GRANT HARPER, P.Eng.

ECONOMIC GEOLOGIST

314 HENDON AVENUE

WILLOWDALE, ONTARIO

MEMBER: C.I.M.M.
G.A.C.
BOARD OF TRADE

BA. 5-7412

December 2, 1971.

Mr. P. J. Sullivan, President,
Torcan Explorations Ltd.,
111 Jarvis St.,
Toronto, Ontario.

Dear Mr. Sullivan:

As requested by Mr. R. G. Doyle, Geologist for the State of Maine, here are the exploration plans I envisage for developing your Hancock County property during 1972 and 1973.

During 1972 Torcan's work effort will be concentrated on the Harriman ground. Here, the No. 1 drill hole will have about 850 feet of AX casing permanently replaced. The hole will then be non-directionally wedged at about 1900 feet and some 700 to 800 feet will be cored to provide intersections of the 4 horizons which returned base metal values that have commercial potential. This drill hole will then be in excellent shape for future directional wedging which will allow more accurate appraisal of the ore making potential in the vicinity of this hole.

At the present time Phil Douglas of Blue Hill has been engaged to manually probe to see if the collar of Hole No. 2 drilled on the staked claims can be re-located. Douglas worked on this drill hole. If Douglas is successful an attempt will be made in 1972 to re-establish BX casing in this hole in preparation for re-casing with AX to about 1200 feet and wedging this hole in 1973.

If the 1973 program is successful then drill hole No. 2 will be in excellent condition to be used to increase the mining potential of the staked claims.

Yours truly,

H. G. Harper.

HGH:m

H. Grant Harper, P.Eng.,

H. GRANT HARPER, P.Eng.

ECONOMIC GEOLOGIST

314 HENDON AVENUE

WILLOWDALE, ONTARIO

MEMBER: C.I.M.M.
G.A.C.
BOARD OF TRADE

BA. 5-7412

Estimated Contract Cost of wedging Drill Hole No. 1 located on the Harriman Property.

1.- Mobilization & de-mob. of drill equipment	$2616.
2.- Cost of 900 feet of AX casing	2236.
3.- Placing casing in hole (probably high)	1500.
4.- Wedging Drill hole	367.
5.- Drilling 1000 linear feet between 2000 and 3000 foot horizons	16000.
General Supervision & Accomodation	1000.
7.- Logging, sampling, assaying (Cu, Zn, Pb, Au, Ag) core boxes, express etc.	1000.
8.- Travel Expenses	500.
Total	$25219.

Upon completion of this work Drill Hole No. 1 would be in good shape for further directional wedging which is necessary to evaluate the original ore grade intersection.

H. G. Harper

Report on the Drill Hole

H - 1

Harriman Property

COASTAL MINING LIMITED -> New Torcan Expl^n Ltd.

Introduction

The Coastal Mining property located Hancock County, Blue Hill, Maine, includes the Harriman ground and First Pond. The property lies to the south east of Black Hawk property, and can be reached by a branch road from the Grindle road that leads south of highway 176.

During 1965 it was decided to put down a vertical drill hole to intersect the downward extension of the Black Hawk ore zones. There was a reasonable chance that if the same geological conditions prevailed, ore could be found on the Coastal property. Map No. 1 shows the location of properties and the drill hole location.

Hole H-1 was put down vertically for a total length of 2334 feet. Surveys of the hole show that it remained remarkably straight and only deviated about 40 feet from the vertical at the bottom.

Geology

The drill hole sectioned three prominent quartzite formations, two of which are present on the Black Hawk property. The upper or Robbins quartzite, as designated by the writer, is a grey, well banded quartzite with a few indistinct conglomerate members. The bottom of the quartzite has 24 feet of greywacke as an interbed.

Numerous granite dykes are present in this formation. They are all of the coarse grained biotite type of regional granite and appear to be sills, being parallel to the bedding. There is no main body of granite at this location.

A strong fault, steep dipping, was intersected at 836 feet and is similar to the regional faults of the area. The fault cut the granite where it was noted in the drill core.

A small amount of pyrite and biotite development was cut from 416 to 418 and was not worth sampling.

The Allen quartzite, 838 feet thick was intersected below the Robbins Quartzite. It is typical of the formation to the north. Prominent conglomerate horizons interbedded with well banded sections, with a basal conglomerate bed formed the complete cross section. Numerous granite dykes are present throughout.

A pyrite zone 15 feet thick was cut in a greywacke bed, and returned low values in silver. The pyrite was along bedding planes and related fractures. No ore values were expected in this formation.

The third or lowest formation intersected was the Pond quartzite. This is the horizon in which most of the Black Hawk ore is situated. It is a fine grained grey quartzite with one or more thin conglomerate beds, and mineralized sections have biotite concentrations above them.

Three zones of pyrite-chalcopyrite were obtained in the Pond quartzite. The upper zone, 35 feet thick, returned low values in copper. The second zone, 87 feet below the first, and 18 feet thick, returned 1.69% copper and low silver values over 7.0 feet.

The lower zone, 136 feet below the middle zone, returned 2.2% copper and 0.64 oz silver over 9.0 feet. This was the total thickness of the minerization. The hole was stopped in a conglomerate horizon. Map No. 2 shows a section of the drill hole and the geological section. Map No. 3 shows the relationship of the geology of Black Hawk and the drill hole and the potential ore zones.

Conclusions

1. D. D. Hole H-1 has cut most of the favourable pond quartzite formation and three mineralized zones. Two of these contain good values in copper and the lower one may be part of an ore zone. The hole finished close to the underlying banded quartzite which is not known to carry ore values.

2. The average dip of the formations and the mineralized zone is similar to those on Black Hawk property.

3. One or more ore bodies of copper are likely present on the property.

Respectfully submitted,

Toronto, Ont.
February 15 1966.

Edward A. Hart.

DIAMOND DRILL HOLE H - 1

2181 2815'

1100' @ 18° N of point of east boundary of property 6mi Grinnell road.

MAZRILAN PROPERTY - COASTAL MINING LTD.

STARTED: October 7 1965

FINISHED: January 16 1966

LOCATION:

LATITUDE: BEARING:

DEPARTURE: ANGLE DIP: Vertical, at collar LOGGED BY: E. A. Hart.

At 1000' -86°; S 19°W; 2000' -87°, N 86°W, Magnetic

FROM	TO	REMARKS	SAMPLE NO.	SAMPLE LENGTH				
0	3.5	Casing.						
3.5	13.0	Robbins quartzite- massive, grey, weakly-banded and folded, lenses of silica, banding at 70° to CA.						
13.0	204.0	Granite- grey massive, coarse grained, contact @ 70°; biotite type						
204.0	275.0	Robbins quartzite- as above, granulated.						
275.0	338.5	Granite- massive, biotite type.						
338.5	736.0	Robbins quartzite- as above. Section from 416.0-418 with fine pyrite and biotite. Weak fault @ 30° from 427-427.6 with epidote. More intensely folded from 600 to end of section with increase in epidote and chlorite. 691.0-704.0 - med epidote and talc alter. Granite dykes @ 377.0-414.0; 491.5-552.0; 557.0-558.5; 591.0-591.8; 603.0-608.0; 667.0-670.0; 687.0-691.0; 704.0-736.0, all @ 70°- 80°.						
736.0	750.0	Greywacke- black, soft, carbonated, small slips @ 10° to CA. This may be part of the Robbins quartzite.						
750.0	912.0	Granite- fractured, with fault gouge @ 836.0-840.0 @ 10° to CA and also from 853.0-855.0 912.0-918.5 gneiss and granite replacement. 919.0-925.0 " " " "		med seam?				
912.0	1750.0	Allen Quartzite- massive, grey, gneissic, with biotite sections and typical conglomerate beds, also variegated areas. 931.5-955.0 conglomerate, with biotite alteration. 955.0-1030.0 dark grey and light mottled areas.						

DIAMOND DRILL HOLE H-1

LOCATION:

LATITUDE: BEARING:

DEPARTURE: ANGLE DIP:

STARTED:

FINISHED:

LOGGED BY:

FROM	TO	REMARKS	SAMPLE NO	SAMPLE LENGTH	Au	Ag	Cu	Zn
		1030.0-1061.5 granite, massive, coarse grained, lower contact @ 70° to CA.						
		1061.6-1379.0 banded, contorted, silicified section with conglomeritic phases. Banding is regular @ 80° to CA from 1275-1379. Granite dykes as follows:						
		1078-1081.3 1194-1215						
		1083-1084.5 1226-1238						
		1138-1140.0 1313.3-1330						
		1144-1151.5 1341.0-1379						
		Note pyrite and chalcopyrite in fracture 1378-1379.0						
		1379.0-1396.5 conglomerate, pebbles lensed, dense, with weak banding.						
		1396.5-1406.5 granite dyke.						
		1406.5-1410.5 conglomerate as above, with lower contact @ 75° to CA.						
		1410.5-1442.5 greywacke, grey to black, dense, altered by biotite in seams and fractures, Some fine pyrite in and along bedding planes.						
		1415 - 1417	C-1	3.0	Tr	0.10		0.0
		1417 - 1420	C-2	3.0	Tr	0.10		0.0
		1420 - 1423	C-3	3.0	0.02	0.10		Nil
		1423 - 1425	C-4	2.0	Tr	0.10		0.0
		1425 - 1427.5	C-5	2.0	Tr	0.12		0.0
		1427.5-1430.6	C-6	3.1	Tr.	0.10		Nil
		1442.5-1750.0 grey quartzite, dense, massive,						
		1448.5-1453.5 granite.						
		1453.5-1497.0 greywacke, massive.						
		1497.0-1502.0 granite.						
		1502.0-1533.0 greywacke, black, dense.						
		1533.0-1556.5 buff carbonate alteration in areas and spotted, no sulphides.						
		1556.5-1750.0 conglomerate, with light colored lensed pebbles, some folded banding and narrow granite dykes.						
		Chloritic, and biotite, epidote, 1714-1725.						

DIAMOND DRILL HOLE

LOCATION:

LATITUDE: BEARING:

DEPARTURE: ANGLE DIP:

STARTED:

FINISHED:

LOGGED BY:

FROM	TO	REMARKS	SAMPLE NO	SAMPLE LENGTH	Au	Ag	Cu	Zn
1750.0	2334.0	Pond Quartzite - grey, dense, granular texture, distinct quartz grains, no banding, typical section. Fractured at upper contact. Fine pyrite on fractures and bleached in areas. A few clusters of pyrite grains with some sphalerite and chalcopyrite. Fault @ 45° at 1770'.						
		1786.0-1791.0 granite.						
		1791.0-1843.0 possible conglomerate bed, some banding and folding.						
		1843.0-1850 granite.						
		1850.0-1877.0 banded and folded, grey.						
		1877.0-1975.0 biotite zone, grey and brown, some grey lensed pebbles, an altered conglomerate bed. Note increase in biotite from 1945 to 1979.0'						
		1975.0-2010.0 quartzite, grey, dense, some banding. 2005.0-2010.	C-7	5.0			0.03	
		2010.0-2045 quartzite, grey, dense, no banding, with low disseminated pyrite and grains of chalcopyrite from 2011.0-2045.0						
		2010.0-2015.	C-8	5.0	0.02	0.20	0.22	
		2015.0-2020.	C-9	5.0	0.01	0.30	0.10	
		2020.0-2025.	C-10	5.0			0.12	
		2025.0-2030.	C-11	5.0			0.09	
		2030.0-2035.	C-12	5.0			0.08	
		2035.0-2040.	C-13	5.0			0.08	
		2040.0-2045.	C-14	5.0			0.08	
		2045.0-2219.0 quartzite, grey, massive, weakly banded, some patches of biotite.						
		2137.5-2139.0 medium chalcopyrite and pyrite and with low sulphides to 2150.0						
		2045.0-2050	C-16	5.0			0.08	

DIAMOND DRILL HOLE

LOCATION:

LATITUDE: BEARING:

DEPARTURE: ANGLE DIP:

STARTED:

FINISHED:

LOGGED BY:

FROM	TO	REMARKS	SAMPLE NO	SAMPLE LENGTH	Au.	Ag.	Cu.	Zn.
		2132.8-2134.8	C-15	2.0			0.29	
		1.989 Cu 0.85 Ag 62						
		2134.8-2137.5	C-17	2.7	Tr.	0.46	0.87	
		2137.5-2139.0	C-18	1.5	0.01	1.84	4.02	
		2139.0-2141.0	C-19	2.0	Tr.	0.64	1.53	
		2141.0-2143.8	C-20	2.8			0.26	
		2143.8-2145.4	C-21	1.6			2.22	
		2145.4-2147.4	C-22	2.0			0.84	
		2147.4-2150.0	C-23	2.6			0.62	
		2170-2173 low chalcopyrite, associated with soft dark alteration, also pyrite and pyrrhotite.						
		2219-2235 granite dyke.						
		2235-2316.5 grey quartzite, some weakly banded sections; medium chalcopyrite and disseminated pyrite from 2288.8-2292.1. Note the concentration of chalcopyrite at the top of the section.						
		2286.0-2288.8	C-24	2.8	0.01	0.10	0.75	
		2288.8-2292.1	C-25	3.3	0.02	0.74	4.82	
		2292.1-2295.0	C-26	2.9	Tr.	0.12	0.76	
		2316.5-2334.0 banded quartzite, dark grey, altered conglomerate.						
		2334.0 End of hole.						

PAGE: 5

DATE:

LOCATION:

LOGGED BY F. A. Hart

DIAMOND DRILL HOLE H - 1 - deepened

STARTED: May 26/66

FINISHED: June 10/66

LATITUDE: BEARING:

DEPARTURE: ANGLE DIP:

FROM	TO	REMARKS	SAMPLE NO	SAMPLE LENGTH	Cu%	Zn%	Ag.oz.
2804.0	2815.0	Pond Quartzite- grey to maroon, weak bedding @ 70° to C.A. Some altered arkose sections.					
		2463.2-2467.7 grey replaceced banded quartzite with low chalco.					
		2463.2-2465.7	C-1-27	2.5	1.13	0.85	0.16
		2465.7-2467.7	-28	2.0	0.25		
		2467.7-2724.5- grey banded quartzite, some epidote alteration, with low pyrite and chalcopyrite as films and patches. Some patches of sphalerite.					
		2563.1-2565.9	-29	2.8	0.14		
		2565.9-2568.0	-30	2.1	0.40		
		2568.0-2571.8	-31	3.8	0.20		
		2571.8-2575.8	-32	4.0	0.25		0.32
		2575.8-2579.3	-33	4.0	0.35		
		2579.8-2584.4	-34	4.6	1.20		
		2584.4-2586.4	-35	2.0	0.28		
		2724.5-2745.0 - granite dyke.					
		2760.0-2761.5 - low chalcopyrite in fractures.					
		2745.0-2815.0 - grey quartzite, with coarse banding, grading to fine layered bedding at 60° to C.A. at end of the hole.					
		2815.0 - End of the hole.					

PAGE 1

DATE

LOCATION: See attached map.

LOGGED BY E.A. Hart.

DIAMOND DRILL HOLE H.2

LATITUDE: BEARING:

DEPARTURE: ANGLE DIP: -90

STARTED Jan. 25/66

FINISHED May 20/66

FROM	TO	REMARKS	SAMPLE NO	SAMPLE LENGTH				
0	18.0	Casing						
18.0	396.5	Granite - grey, coarse grained massive, lower contact @ 15° to C.A.						
396.5	399.0	Robbins Quartzite - dark grey, dense contorted - banding, folded.						
399.0	407.0	Granite - as above, contact @ 75° to CA.						
407.0	430.5	Quartzite - massive, gray average bedding @ 80° to CA. Possibly lensed pebbles, chlorite, - folded.						
430.5	580.3	Granite - as above. lower contact @ 35°						
580.3	671.5	Robbins quartzite - grey, massive, micaceous folded - cremulated, some chloritic.						
671.5	809.4	Granite - as above; contact @ 30° to C.A.						
809.4	827.5	Lamprophyre dyke - dark grey, fine grained, fine brown mica contact @ 45° & 50° to C.A.						
827.5	907.0	Robbins Quartzite.						
907.0	958.0	Granite - as above, chilled upper contact @ 90° to C.A.						
958.0	1202.0	Robbins Quartzite - as above fault breccia & gouge 997.5 - 1012.5 Average 35° - 40° to C.A. Increase in alter. by epidote & chlorite from 1030, 1183 - 1189.0 granite @ 40° to C.A.						
1202.0	1268.0	Granite - as above. Upper contact @ 75° to C.A.						
1268.0	1315.0	Robbins Quartzite - grey, massive						
1315.0	1341.5	Granite						
1341.5	1412.5	Robbins Quartzite.						
1412.5	1467.5	Granite.						
1467.5	1525.0	Allen Quartzite - massive, gneissic - biotite areas, banded, variagated.						

ATE:

OCATION:

LOGGED BY: B.A. Fert

DIAMOND DRILL HOLE H-2

LATITUDE: BEARING: STARTED:

DEPARTURE: ANGLE DIP: FINISHED:

FROM	TO	REMARKS	SAMPLE NO	SAMPLE LENGTH	Pb%	Zn%	Ag	Au	Au
		1482.5 - 1489.5 granite @ 50° to C.A.							
		1524.5 - 1527.0 " @ 50° to C.A.							
		1524.5 - 1564.5 " @ 80° to C.A.							
		1577.0 - 1586.0 " @ 90° to C.A.							
1628.0	1707.0	Granite.							
1707.0	1777.5	Feldspar porphyry - massive, black, 1/8 inch feldspars with short sections of quartzite, contacts @ 80° to C.A.							
1777.5	1784.5	Quartzite - contact @ 80°.							
1784.5	1880.0	Granite - lower contact @ 30°							
1880.0	2086.0	Allen Quartzite - grey, massive, conglomerate pebbles.							
		1964.0 - 1965.5 low zinc	H-2-1	1.5	0.10	0.55	0.12		
		1966.5 - 1973.5 granite							
		1979.5 - 1983.5 "							
		1999.0 - 2010.1 " @ 45°							
		2113.5 - 2117.0 "							
		2028.4 - 2029.0 -- pyrite galena stringer @ 45° to C.A.	H-2-2	0.6	10.92	0.55	21.98	.03	
2086.0	2201.0	Granite.							
2201.0	2476.5	Pond Quartzite - massive, grey dense, weak banding, grey to white, biotite patches.							
		2351.0 - 2350.0 granite.							
		2377.0 - 2397.0 granite.							
		2416.0 - 2427.0 brown mica, mottled alteration @ 30° to C.A.							
		2423.0 - pyrite seam @ 30° to C.A.							
		2457.0 - 2475.5 lamprophyre dyke.							

PAGE: 3

DATE:

LOCATION:

LOGGED BY E.A. Rant.

DIAMOND DRILL HOLE H.2

LATITUDE: BEARING:

DEPARTURE: ANGLE DIP:

STARTED:

FINISHED:

FROM	TO	REMARKS	SAMPLE NO	SAMPLE LENGTH				
2476.5	2515.0	Granite - massive, grey						
2515.0	3253.0	Quartzite, dark grey - coarse banding @ 40° to C.A.						
		2594.5 - 2600.2 - low chalcopyrite - pyrite and sphalerite.						
		2605.0 - 2617.0 - dark grey - fine bedding at various angles.						
		2640.0 - 2653.5 - light grey - fine grained bedded quartzite, @ 60° to C.A.						
		2653.5 - 2674.5 - conglomerate - dark grey silicious, 1/4" - 1/2" pebbles - lensed @ 70° to C.A.						
		2674.5 - 2715.0 - grey - fine bedded quartzite or possible flows.						
		2715.0 - 2720.0 - light grey quartzite with low pyrite and some chalcopyrite.						
		(At 2700 feet the hole was measured and was found to be 2690 feet. Thus 10 feet must be deducted from all logging past this point to arrive at a true footage						
		2720.0 - 2750.5 - dark grey, conglomerate type; note a 1" stringer of chalco & sphalerite @ 2733.5						
		2750.5 - 2762.0 - grey quartzite, variable bedding.						
		2762.0 - 2768.0 - graphic granite dyke - light grey fine grained, contacts @ 90° to C.A.						

DIAMOND DRILL HOLE

LOCATION:

LATITUDE:
DEPARTURE:

BEARING:
ANGLE DIP:

STARTED:
FINISHED:
LOGGED BY: E.A. HART

FROM	TO	REMARKS	SAMPLE NO	Cu %	Pb %	Zn %	Ag	Au
		2768.0 - 2875.0 dark grey, coarse quartzite lensed quartzite pebbles coarse banding, variety of quartzites.						
		2875.0 - 2965.0 light grey weakly bedded, granular texture, secondary quartzite stringers.						
		2885.0 - 2887.0 low chalco, low pyrite.	H-2-3	1.59				
		2908.5 - 2910.0 " " " "	H-2-4	0.63				
		2927.5 - 2930.5 " " " "	H-2-5	0.24	0.05			
		2946.4 - 2948.4 low sphalerite & pyr.	H-2-6	0.03	0.10	0.35	Tr.	0.2
		2948.4 - 2952.1 massive dark brown sphalerite, med. grained, contacts @ 80° to C.A.	H-2-7	0.03	10.30	41.70	Tr.	5.6
		2952.1 - 2954.6 silica replacement, low chalco	H-2-8	0.23	0.50	3.07	Tr.	0.3
		2954.6 - 2956.6 " " " " "	H-2-9	0.08	0.19	0.05	Tr.	0.4
		2965.0 - 2970.0 dark and light grey, low chalco.	H-2-10	0.45				
		2970.0 - 2973.4 " " " " "	H-2-11	0.23				
		2973.4 - 2975.0 " " " " "	H-2-12	1.39				
		2975.0 - 2977.0 " " " " "	H-2-13	1.02				
		2977.0 - 2978.3 " " " " "	H-2-14	1.02				
		3000.0 - 3005.0 light grey granular with low pyrite and pyrrhotite with some chalco.	H-215	.0				
		3005.0 - 3010.0 " " " " "	H-216	.28				
		3010.0 - 3015.0 " " " " "	H-217	.54				

PAGE: 5

DATE:

LOCATION:

LOGGED BY E.A. Bert

DIAMOND DRILL HOLE H-2

LATITUDE: BEARING:

DEPARTURE: ANGLE DIP

STARTED:

FINISHED:

FROM	TO	REMARKS	SAMPLE NO	SAMPLE LENGTH			
		3015.0 - 3038.5 banded @ 65° to C.A.					
		3038.5 - 3042.0 granite @ 90° to C.A.					
		3061.0 - 3107.0 " " " "					
		3107.0 - 3253.0 quartzite - dark grey banded and contorted average at 70° to C.A.					
		3155.0 - 3156.0 low pyrite sphalerite					
		3253.0 END OF HOLE					

Torcan Exploration Ltd.

Red Outline - Harriman Property - Mining Rights assigned by Torcan

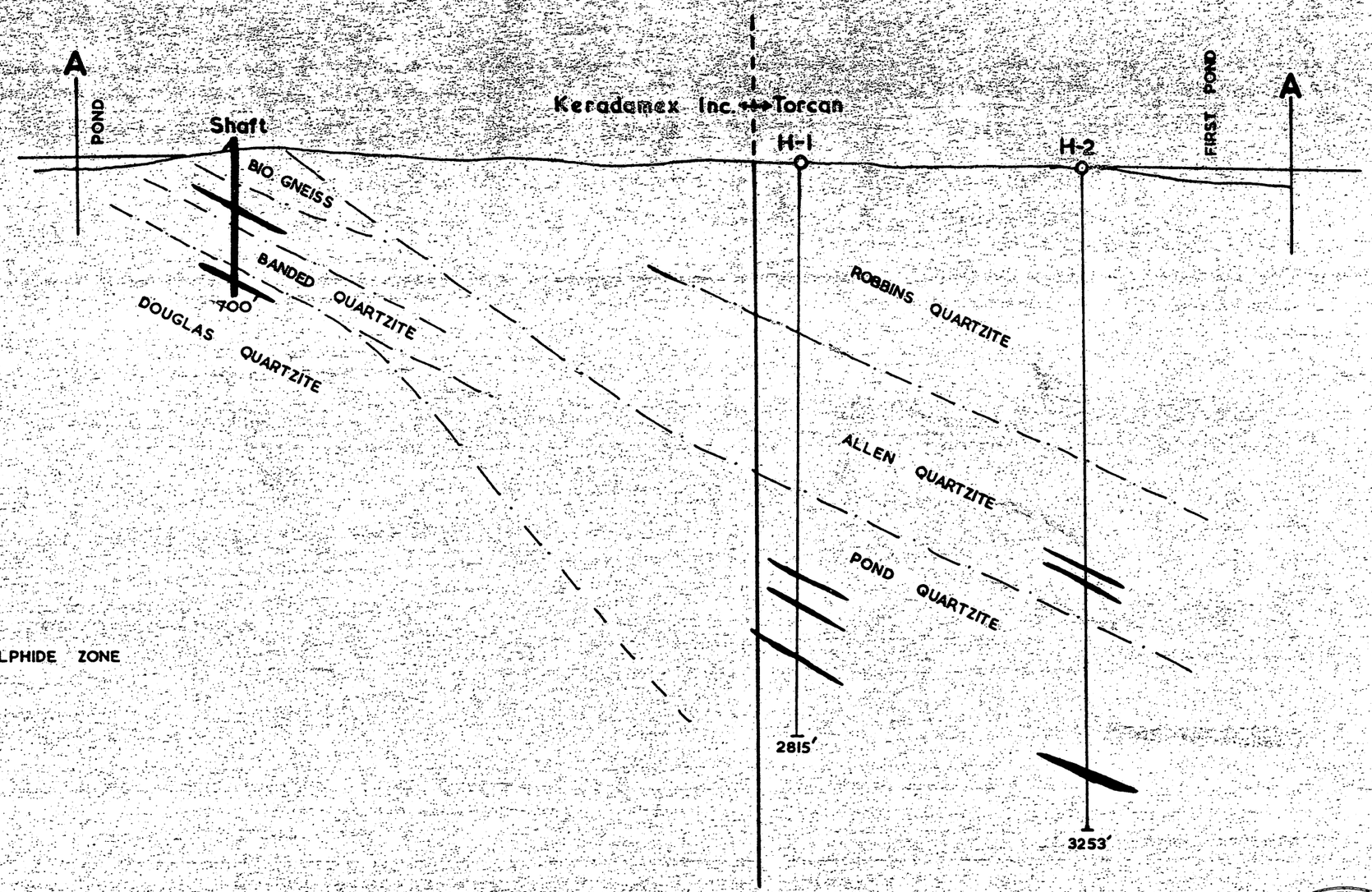
Blue Outline - Staked Claims

Source: R. G. Doyle, Administrator
Maine Mining Bureau.

H. G. Harper

REGISTERED PROFESSIONAL ENGINEER
MINING
H. C. HARPER
PROVINCE OF ONTARIO

GEOLOGICAL ASSOCIATION OF CANADA
H. G. HARPER
FELLOW



Section A A

TORCAN EXPLORATIONS LTD

HANCOCK COUNTY, MAINE

0 600 1200 1800
FEET

REGISTERED PROFESSIONAL ENGINEER
MINING
H. C. HARPER
PROVINCE OF ONTARIO

GEOLOGICAL ASSOCIATION OF CANADA
H. C. HARPER
FELLOW

DATE AUG 2-5 '74

SIGNED H. C. Harper

Values more than 50% in zone in hole not to be penetrated.
Amt of knowledge to be gained not commensurate with cost.
Development type drilling —
Depth of ore horizon
Costs not substantiated by bids.

Funds not available this fiscal year.

Alternate program within cost estimate?

Ltr.

Devel. type drilling
Eligible mineral
Cost estimate not supported by bids
Alternate program to offer?

Holliday 5/5/72
Bangor, Maine.

State Environmental Improvement Commission (EIC) - has veto power on anything over 20 acres under Site Selection Law.

E.P.A.

Corps of Engineers.

James W. Sewall Management type firm. - John Cummings Geologist. 147 Center St. Old Town, Maine

FTS Bangor
(207) 827-4456

Kerr-American - sinking inclined entry way - load haul dump units. 1400' slope distance 300-400' vertical distance.
Keradamex, Inc.
Grants New Mexico
Subsidiary of Kerr-Addison.

Robert Gordon Schmidt 202-7284.

This is in response to your request of April 26, 1972 for comments on ~~the~~ proposed ~~stockpile~~ disposal of materials from the Government stockpile.

We have reviewed the 49 draft disposal plans and have no comments to any but the following:

Mercury — Proposed disposal rate ~~of disposal~~ 1,500 flasks monthly - excess available for sale March 31, 1972 7,711 flasks.
14 domestic market conditions recent closing Domestic mercury producers are in a severe market slump, have formed with the ~~closure~~ of one of our major domestic mercury producers (Idria) as well as a number of other producers.
The ~~cost of other major~~ because of ~~market conditions~~
~~An accelerated~~ Any offering of mercury from the stockpile will not help ~~offering~~ the current conditions. Continued closure of these mines will reduce our domestic production base for domestic production

A. Request financial report on corporation to establish financial need of corporation. 3/3/72

~~Mortgage Agreement~~ ~~Guaranty Trust Co of Canada~~

~~Letter from Torcan to Canadian Imperial Bank of Commerce~~

1. Deed to Mineral Rights from Winfred L Harriman to Coastal Mining Ltd with no documentation of how Torcan Exploration Limited (NPL) has possession. (What is relation of Torcan and Coastal Mining?)

2. Property map is nearly illegible, and at too small a scale to be definitive. It should give the extent of Lots 1 and 2 and show the five areas excluded from Lot 1 and the 2 areas excluded from Lot 2 as itemized in the Deed. It should also ~~show~~ identify the areas covered by Maine Mining Bureau Claims numbers 65, 68, 85, 86, 87, 88, 1185, 1186, 1187 and 1172. The relationship of operator's lands to the adjacent Black Hawk mine should be included.

3. Property subordination agreement for the State of Maine lands is probably not obtainable. In lieu of a subordination agreement, a performance bond will be needed in the ~~the~~ amount of the government's share of the contract. This bond will have to be posted as a part

Metal Values - Torcan

3/3/72

Hole H-1		@ 52.5¢	17¢	15.5¢	$1.46	
Depth	Width	% Cu	% Zn	% Pb	Oz. Ag.	$ Total Value
2135	6.2	1.98			0.85	
		$20.54			1.24	25.83
2290	9.0	2.25			0.34	
		$23.62			.49	24.11
2465	2.5	1.13	0.85		0.16	
		$11.87	2.89		.23	14.99
2585	6.6	0.98				
		$10.29				10.29
H2						
20.28	0.6	0.08	0.85	10.92	21.98	69.67
		$0.84	2.89	33.85	32.09	
2885	2.0	1.59	$ 36.74 = 51.16%			
		$16.70				16.70
2950	6.2	0.30	26.13	6.26	3.53	
		$3.15	88.84 92.87%	19.41	5.15	116.55
2975	4.9	1.13				
		11.87				11.87

(4) As indicated by table above, the metal values contained in the samples of greatest potential interest contain Pb. Zn values exceeding 50% of total value. To support development at depths in excess of 2,000 ft, I suspect the values would need to be near $25/ton.

Black Hawk

412,000 tons — 20% Zinc — 0.5% Cu

400x.17 = 68.00 + 5.25 = 73.25

209,000 tons — 2.3% Cu

46x52.5 = $24.15

3150
2100
24.150

4-27-72

Tobean

1. Are we likely to recommend - see next page ?

2. If not, (my personal opinion is that the target is too deep (a good geologic bet) for a small company to handle on a piece meal exploration basis - which this proposal is) how can we handle a denial most expeditiously?

3. Field referral, for study and recommendations?

Frank Kearney has worked in general area, may know the Blackhawk, and possibly this property, or may know other appropriate Survey geologist to refer it to.

Bob Laurence? - Lane Page? - Boston Office?

4. Detailed cost estimates are very generalized. See page attached. We will need much more, probably including comparative bids, if we decide to approve this program. The details of this should be worked out if someone makes a field examination. I don't think we should write to applicants for this detail unless we mean to approve.

5. Environmental statement? (a detail to remind us that whoever makes field exam should consider this as a requirement.)

Things to do after decisions:

Write applicant - telling him referred to field

" referee -

4-27-72

Torcan

General problems:

(1) Are we likely to recommend this exploration program for investment?

Pro: (a) Adjacent to a developing mine (Blackhawk)

(b) on same mineralized horizon

(c) one good intercept in existing drill hole, with 3 ore and pyrite zones.

15 ft pyrite low grade above pyrite

35 ft pyrite bal pyrite. low grade

16 ft. " " " (1.69% Cu in 7.9 ft, rest low grade)

9 ft " " (2.22% Cu, 0.34 oz silver)

(d) second hole intercepts show mineralization over a 130 ft section at bottom of hole, with two shallower mineralized zones, quite thin.

Anti. (a) ORE horizon is steeply dipping, and so ore intercepts in 1st hole are quite deep - 2,000 - 2600 ft below surface.

(b) 2nd hole - ore intercepts are deeper - 2885 - 3000 ft.

(c) ore intercepts in 2nd hole are 96-7 in ores

(d) exploration by welding, if successful, will prove the tonnage, but may not be definitive. Amount of exploration needed to prove a minable ore body at the indicated depth is considerably more than the 25-40,000 program now contemplated. (I would guess 10 to 100 times that amount will ultimately be needed to demonstrate the ore potential, and before any production.)

(e) Size of target may warrant the 25-40,000 project, but may not be big enough or high grade enough to exploit at depths of 2,000 - 3,000 feet.

(f) Operator is too small to finance full scale exploration program in short time. They anticipate continuing exploration will be needed in next few years. Will be able to do it for more money, if successful.

4-27-72

Estimate of costs - Detail incomplete

Mob. & demob. costs - need bids to substantiate? seems high

Casing - this in effect is rehabilitation, since it envolves reentering a previously drilled hole, with AX casing to be installed in EX hole. Casing is to be left for convenience of operator for stated additional work in 1973.
If allowed, should cost be at a reduced rate of Govt participation?

If allowed, the cost of casing & installation should be on a unit basis job.

Drilling: $16 per foot seems high, but this is a deep hole, so probably nearly correct. Do we need bids for comparison?

General Supervision & Accomodations -
Need more specific breakdown (eg

Supervision — months @ $x/month —
Consultant — days @ $ /day
Rendeen — days @ /day
Travel — trips @ — miles, @ .12¢/mile

Logging, sampling, assaying,

Logging is personal service by supervisor or consultant
Sampling " " " " "

Assaying - x samples, analyzed for Au, Ag, Cu @ $x.

Freight on samples
Sample containers.
Core boxes

Know All Men by These Presents,

That I, Winfred L. Harriman of Blue Hill, Hancock County, State of Maine,

in consideration of one dollar and other valuable considerations,

paid by Coastal Mining Ltd. a Canadian corporation having its principal place of business in Montreal, Province of Quebec, Dominion of Canada,

the receipt whereof I do hereby acknowledge, do hereby remise, release, bargain, sell and convey and forever quit-claim unto the said Coastal Mining Ltd., its successors

~~heirs~~ and assigns forever,

all the metals, ores and minerals of every kind situated in or under the following described premises in the Town of Blue Hill, Hancock County, State of Maine.

FIRST LOT: Being part of Lot Number 57 of the Third Division of lots according to the plan of said Blue Hill bounded and described as follows, to wit:

Beginning at a point on the southeasterly side of the Grindleville Road, so-called, where said road is intersected by the east line of said Lot Number 57; thence South 11° 34' East, true bearing, 2165 feet, more or less, to the shore of First Pond; thence following the shore of said pond in a generally southwesterly direction to the east side of the Grindleville Road at a point where Carlton Stream, so-called, crosses said road; thence following said road northerly and northeasterly to the point of beginning.

Excepting and not hereby conveying the metals, ores and minerals situated in or under the premises described in the following instruments:

1. Lease between Winfred L. Harriman and Blue Hill Fish and Game Association dated June 4, 1958, and recorded in Hancock County, Maine, Registry of Deeds in Book 822, Page 480.

2. Deed from Winfred L. Harriman to Robert G. Henderson et al dated June 26, 1960 and recorded in Hancock County, Maine, Registry of Deeds in Book 867, Page 408.

3. Deed from Winfred L. Harriman to Theodore A. Horton et al dated Sept. 3, 1958 and recorded in Hancock County, Maine, Registry of Deeds in Book 824, Page 109.

4. Deed from Winfred L. Harriman to Theodore A. Horton et al dated Aug. 10, 1959 and recorded in Hancock County, Maine, Registry of Deeds in Book 846, Page 210.

5. Deed from Winfred L. Harriman to Francis Grogan et al dated Nov. 10, 1961 and recorded in Hancock County, Maine, Registry of Deeds in Book 899, Page 102.

SECOND LOT: Being located on the west side of the Grindleville Road and bounded and described as follows:

Being eight (8) rods from the bridge on the road and bounded northerly, westerly and southwesterly by a fence and easterly by the Grindleville Road.

Excepting and not hereby conveying the metals, ores and minerals in or under the premises described in the following instruments:

1. Deed from Winfred L. Harriman to Cecil L. Grindle dated Sept. 6, 1961 and recorded in Hancock County, Maine, Registry of Deeds in Book 899, Page 295.

2. Lease between Leroy Harriman and Harry E. Tyler et al dated Sept. 1, 1961 and recorded in Hancock County, Maine, Registry of Deeds in Book 894, Page 453.

The above described first and second lots are part of the premises described as conveyed in a deed from George M. Allen et al to Florence M. Harriman dated May 4, 1927 and recorded in Hancock County, Maine Registry of Deeds in Book 635, Page 533.

Also being part of the premises described as conveyed in a deed from Florence M. Harriman to Winfred L. Harriman dated March 20, 1956 and recorded in Hancock County, Maine, Registry of Deeds in Book 782, Page 595.

To have and to hold the same, together with all the privileges and appurtenances thereunto belonging, to the said Coastal Mining Ltd. its successors

~~heirs~~ and assigns forever.

And I do covenant with the said Grantee, its successors ~~heirs~~ and assigns, that I will Warrant and Forever Defend the premises to it the said Grantee, its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons claiming by, through or under me.

In Witness Whereof, I, the said Winfred L. Harriman, widower,

~~and~~

~~wife~~ ~~of the said~~

~~joining in this deed as Grantor,~~

~~and relinquishing and conveying rights by descent and all other rights in the above described premises~~, have hereunto set my hand and seal this 23rd day of March in the year of our Lord one thousand nine hundred and sixty-six.

Signed, Sealed and Delivered
in presence of

Kenneth W. Blaisdell — Winfred L. Harriman

State of Maine. Hancock ss. March 23, 1966.

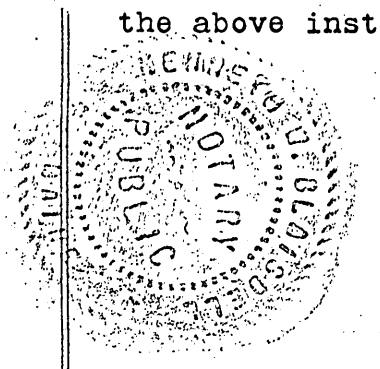
Personally appeared the above named Winfred L. Harriman

and acknowledged the above instrument to be his free act and deed.

Before me,

Kenneth W. Blaisdell

~~Justice of the Peace~~
Notary Public



STATE OF MAINE, HANCOCK COUNTY REGISTRY OF DEEDS.
Rec'd March 23 1966 at 3 h. 30 m. P. M. and recorded in book 1006 Page 46
by Jessie B. Patten Register
by Mary P. Sprague, Deputy

BOOK 1006 PAGE 48

Form B

STATE OF MAINE
MAINE MINING BUREAU

PROSPECTOR'S PERMIT NO. 72— 15

Expires Midnight, December 31, 1972

These presents certify that Torcan Explorations Limited
111 Jarvis Street
Toronto 1, Ontario

is authorized to enter upon lands owned by the State of Maine, including lands held in trust, when the trust is such as to be consistent with mineral development, for the purpose of prospecting for valuable minerals and metals except water, sand and gravel, in accordance with the provisions of the Maine Mining Bureau, M.R.S., Chap. 401, Sec. 2102, as amended. If machinery or explosives are to be used for prospecting on state land, the methods to be employed and the amount of explosives to be allowed must first be approved by the Mining Bureau, and a permit obtained from the Bureau.

Date of Birth ---- Weight -- Height -- First Issue ____

Date December 21, 1971 Renewal x

Authorized Signature
Maine Mining Bureau

Keep this certificate on your person when prospecting on state lands.

DECEMBER 29, 1971

AUSTIN H. WILKINS, ESQ.
CHAIRMAN
MAINE MINING BUREAU
STATE HOUSE
AUGUSTA, MAINE 04330

DEAR MR. WILKINS:

MINING CLAIMS 65, 68, 85, 86, 87, 88,
1185, 1186, 1187, 1172, FIRST POND,
BLUE HILL, HANCOCK COUNTY, MAINE

THANK YOU FOR YOUR LETTER OF DECEMBER 22, 1971 AND OUR PROSPECTOR'S PERMIT NO. 72-15 COVERING RENEWAL OF THE ABOVE CLAIMS FOR THE PERIOD JANUARY 1, 1972 TO DECEMBER 31, 1972.

WE WISH TO ADVISE THAT WE AGREE TO THE RENEWAL TERMS CALLING FOR THE EXPENDITURE OF A MINIMUM OF $15,000.00 ON OUR PROPERTIES IN MAINE. THE DRILLING WILL BE DONE ON THE HARRIMAN GROUND IN 1972.

YOURS VERY TRULY,

TORCAN EXPLORATIONS LIMITED

PJS:s

PATRICK J. SULLIVAN,
PRESIDENT.

cc: H. GRANT HARPER

State of Maine
MAINE MINING BUREAU
Augusta, Maine 04330
TEL. 207-289-2801

AUSTIN H. WILKINS
CHAIRMAN

ROBERT G. DOYLE
ADMINISTRATOR

December 22, 1971

Mr. Patrick J. Sullivan, President
Torcan Explorations Limited
111 Harvis Street
Toronto 1, Ontario
CANADA

Dear Mr. Sullivan:

The Maine Mining Bureau has, by recent vote, approved your application for renewal of the ten claim block covering the overwater area of parts of First Pond, Blue Hill, Hancock County, Maine. These claims are Maine Mining Bureau numbers 65, 68, 85, 86, 87, 88, 1185, 1186, 1187, 1172.

This renewal is for the period from January 1, 1972 to December 31, 1972. Control of the claim block by Torcan Explorations, Ltd. beyond that time is subject to review and approval by the Bureau.

Approval of the 1972 renewal is predicated on your letter of October 28, 1971, indicating your firm intention to expend $15,000 minimum on the Torcan properties. A letter from your consultant, H.G. Harper, dated December 2, 1971, describes the detailed plan for expenditure of this money. The Bureau further accepts that the work will be done on Hole No. I in the Harriman Property north of First Pond.

Your assessment balance on the First Pond claim block is $14,121.13. The assessment for 1971 of $1,000 is subtracted from the total amount leaving you a balance of $13,121.13.

Mr. Doyle acknowledges receipt of your check No. 0557245 in the amount of $105 (U.S.F.) to cover the renewal fees for your claims and Prospector's Permit.

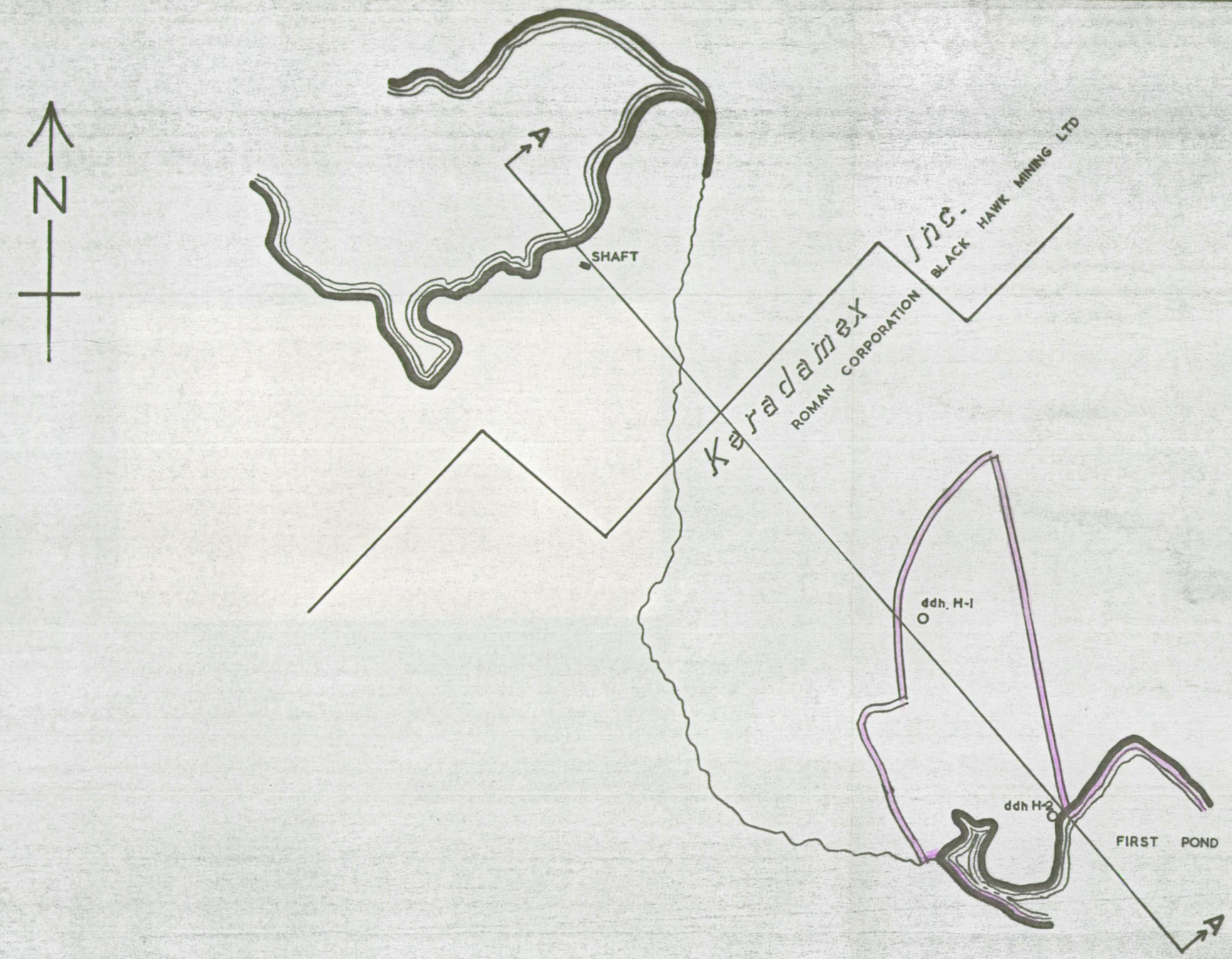
Would you please advise me if the conditions for renewal are in agreement with your plans. Upon receipt of such letter from your office, the claims are renewed for 1972.

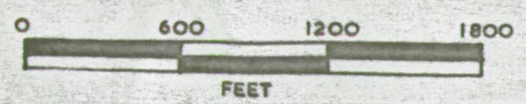
Very truly yours,

Austin H. Wilkins

AUSTIN H. WILKINS
Chairman

AHW:as





TORCAN EXPLORATIONS LTD

HANCOCK COUNTY, MAINE

REGISTERED PROFESSIONAL ENGINEER
MINING
H. C. HARPER
PROVINCE OF ONTARIO

GEOLOGICAL ASSOCIATION OF CANADA
H. G. HARPER
FELLOW

DATE AUG 25 '71 SIGNED H G Harper

Block Haute reserves

630,000 tons	15.2 Zn @ 18		54.72	
	0.6 Cu @ 52.5		6.30	= $38,442,600
			61.02	
380,000 tons	5.8 Zn	–	20.88	
	2.0 Cu		21.00	= 15,914,400
			41.88	
150,000 tons	2.2 Cu	–	23.10	3,465,000
				57,821,600

3,969,000
7,980,000 / 15,414,000
3,465,000

26.65 % Cu. (value in)

ASSOCIATION OF CANADA
JACIGOLOGICAL
H. C. HARPER
FELLOW

REGISTERED PROFESSIONAL ENGINEER
MINING
H. C. HARPER
PROVINCE OF ONTARIO

AUG 25 '71