STATE OF VINNESOTA

DEPARTMENT OF NATURAL RESOURCES

CENTENNIAL OFFICE BUILDING . ST. PAUL, MINNESOTA . 55155

OFFICE OF THE COMMISSIONER (612) 296-2549

August 23, 1977

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Gentlemen:

Enclosed herewith are the Department of Natural Resources amended permits for Reserve Mining Company's Mile Post 7 on-land tailings disposal system and related facilities including work on the tailings delta in Lake Superior.

The amended permits reflect mutually agreed upon changes in the language of the DNR permits issued on July 27, 1977. The amended permits of course supersede the permits issued on July 27, and reflect the outcome of discussions which have taken place during the past month between representatives of Reserve and representatives of the DNR.

I believe the amended permits are reasonable, consistent with all applicable court orders, and fully carry out the responsibilities vested by law in the Department of Natural Resources.

Gene Hollenstein, Director of the DNR Reserve Project Permit Team, will continue to be the primary contact within the DNR for matters relating to the Reserve permits.

Sincerely,

WILLIAM B. NYE Commissioner

WBN: me

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STATE OF MINNESOTA

DEPARTMENT OF NATURAL RESOURCES

In the Matter of the Application By Reserve Mining Company for Permits for the Mile Post 7 On-Land Tailings Disposal Plan at Silver Bay, Minnesota

AMENDED PERMIT

August 23, 1977

Reserve Mining Company, Armco Steel Corporation and Republic Steel Corporation (hereinafter referred to collectively as "Permittee"), are hereby granted certain permits by the Minnesota Department of Natural Resources (hereinafter referred to as "DNR") for the construction and operation of a Mile Post 7 taconite tailings disposal system, upon the terms and conditions hereinafter stated.

SCOPE

This permit specifically incorporates the following permits (attached hereto) which have been issued heretofore:

| Permit Nos. | 76-2045 | 76-2063 |
|-------------|---------|---------|
| | 76-2046 | 76-2065 |
| | 76-2047 | 76-2067 |
| | 76-2060 | 77-2314 |
| | 76-2062 | 77-2315 |

Additionally, this permit encompasses and grants approval to the following permit applications made by Permittee:

| 76-2031 | 76-2064 | 77-2300 | 77-2305 | 77-2310 |
|---------|---------|---------|---------|---------|
| 76-2050 | 76-2066 | 77-2301 | 77-2306 | 77-2311 |
| 76-2051 | 76-2068 | 77-2302 | 77-2307 | 77-2312 |
| 76-2052 | 77-2298 | 77-2303 | 77-2308 | 77-2313 |
| 76-2061 | 77-2299 | 77-2304 | 77-2309 | 77-2316 |

INTRODUCTION

This permit is granted upon the applications of Permittee made initially November 21, 1974, and formally revised and refiled April 5, 1977. Public hearings were held jointly with the Minnesota Pollution Control Agency (hereinafter referred to as MPCA) on the applications. Testimony was taken by a hearing officer from June 23, 1975, to June 23, 1976. An Environmental Impact Statement was approved as adequate by the Minnesota Environmental Quality Council June 21, 1976. Upon the recommendation of the hearing officer, the Commissioner of Natural Resources (hereinafter referred to as "Commissioner") denied permits July 1, 1976. Upon appeal by the permit applicants of the denial, the Commissioner was directed to grant permits for the Mile Post 7 disposal system by order of the Minnesota District Court of Lake County on January 28, 1977. The order directing issuance of permits was upheld by the Minnesota Supreme Court by order dated April 8, 1977, followed by an opinion filed on May 27, 1977. This permit is granted pursuant to and is intended to be consistant with the above court orders and opinions, and the laws of the State of Minnesota.

DESCRIPTION OF PROJECT

The proposed project of the Permittee is an on-land tailings disposal system at Mile Post 7 near Silver Bay. The disposal system is a closed circuit operation to dispose of approximately 21,000,000 long tons of tailings per year for a 40 year period, the projected life of the mining operation. The Mile Post 7 Tailings Disposal Basin will encompass an area of approximately 6 square miles in Sections 4, 5, 6, 9, Range 8 West, Township 55 North, and Sections 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33, 34, Range 8 West, Township

56 North, and Section 24, Range 9 West, Township 56 North, Lake County, Minnesota. The tailings and waste water generated from the processing of taconite ore shall be disposed of or stored in this basin.

Project features proposed by the Permittee and hereby permitted as to overall project concept, include but are not limited to:

- 1. Five main tailings containment dams, known as Dams Nos. 1, 2-3, 4, and 5, with associated starter dams, and Dam No. 6.
- 2. Five seepage recovery dams downstream from Dams Nos. 1, 2-3 and 4, and the combined dike and seepage recovery system at dam 5, with associated pumping and pipeline facilities.
- 3. Four surface runoff diversion dikes, known as Dikes Nos. 1A, 1B, 2 and 3.
- 4. Diversion dike, spoil berm and channel downstream from Dam No. 2-3.
 - 5. Bear Lake diversions.
 - 6. Dam No. 1 stream diversion facility.
 - 7. Splitter dikes within the basin.
 - 8. Tailings transport system.
- 9. Reclaim water facilities, including pumping features.
- 10. Eleven stream crossings by roads, railroads and pipelines.
- 11. Miscellaneous other facilities and systems, including protection of the tailings delta.

TERMS AND CONDITIONS

This permit is subject to the following terms and conditions:

I. INTRODUCTION

The Permittee and its Consultants have developed a plan for on-land disposal of tailings and wastewater generated from the processing of taconite ore at its E. W. Davis Works near Silver Bay, Minnesota. Operational concepts, conceptual designs, final designs, construction plans, and construction specifications have been developed by the Permittee and its Consultants. Detailed designs, plans and construction specifications for some project features, along with appropriate documentation, have been submitted. For other project features, designs with necessary documentation have yet to be completed and submitted in sufficient detail to permit detailed review and final approval of construction.

An overall project permit is hereby granted pursuant to court orders, subject to the approval by the Commissioner, prior to construction, of the final plans and specifications for each of the permanent project features described herein, and subject to the other terms and conditions set forth in this permit. The Commissioner's approvals shall be based on and comply with the provisions of Minnesota Statutes Chapters 105 and 116D and good engineering and environmental practices.

II. PERMITTEE

Reserve Mining Company, Armco Steel Corporation and Republic Steel Corporation shall be the Permittee under this permit, and shall each assume all responsibilities and legal risks and liabilities arising from the terms of this permit and the implementation of the Mile Post 7 on-land disposal system.

III. GENERAL PROVISIONS FOR ALL PERMITS

A. Term of Permit

This permit shall become effective on the date of issuance by the Commissioner. This permit shall expire August 2, 1982. The permit may be renewed by the Commissioner for five-year intervals upon written request by the Permittee made not later than 180 days prior to the date of expiration.

Renewal shall be pursuant to the provisions of Minnesota Statutes Chapter 105. This permit allows the construction and operation of a taconite tailings disposal system, and permits the deposition of taconite tailings, generated by the processing of taconite ore by Reserve Mining Company at its E. W. Davis Works near Silver Bay, Minnesota, within the Mile Post 7 tailings disposal system.

B. Construction Period

The Permittee shall complete the structures and facilities authorized by this permit to the extent necessary to effect total termination of taconite discharges into Lake Superior on or before April 15, 1980, or in accordance with any future order of the United States District Court. The Permittee shall submit to the Commissioner monthly construction progress reports and file quarterly construction progress reports beginning July 1, 1977. Each quarterly report shall reflect what proportion of the total construction has been effected during that period and what proportion of the total construction has been effected to date.

The Permittee shall submit to the Commissioner construction schedules for the activities authorized by this permit, and shall promptly report to the Commissioner any significant modifications of the schedules.

C. Liability of Permittee

The Permittee shall assume all legal risks and liabilities, including without limitation those for damages or any injury to persons or property, arising from the construction, operation, maintenance or closure of the tailings disposal system and other activities authorized under this permit.

D. Limited State Liabilities

The granting of this permit shall not impose any liability upon the State of Minnesota, its officers, employees, agents or consultants, for any damage or injury to any persons or property resulting from the activities of the Permittee under the permit. The permit shall be permissive only, and shall not be construed as estopping or limiting any legal claims of persons other than the State against the Permittee, its agents or contractors, for any damage or any injury to any persons or property, or to any public water supply resulting from such operations, or as estopping or limiting any legal claims of the State against the Permittee for violation of any of the terms or conditions of the permit.

E. Inspections

The Permittee shall allow the Commissioner or his authorized agents prompt access to and inspection of all records, plants, structures, facilities and operations under this permit at all reasonable times as may be necessary to monitor compliance with the terms of the permit and to insure protection of the public health, safety and welfare. Entry for the purposes indicated is subject to reasonable compliance with the Permittee's safety rules and avoidance of unreasonable impairment of or interference with construction and operation of the disposal system.

F. Compliance With Other Laws

The Permittee shall comply with all federal laws and regulations relating to any structures, facilities, or operations under this permit, and shall obtain such permits from federal authorities as may be required therefor. The Permittee shall comply with all state laws and regulations in effect now or adopted hereafter relating to such structures, facilities and operations, including but not limited to any laws and rules regarding mineland reclamation subject to the provisions of this permit.

G. Other Permits and Approvals

Although it is the intent of the Commissioner to maintain consistency with the permits of other agencies, nothing in this permit shall waive or abrogate any other state or federal approvals or permits which may be necessary for the Permittee's tailings disposal system. The permit conditions contained herein shall not waive or abrogate any conditions, whether similar or more stringent, which may appear in any other permit or approval.

H. Acquisition of Property

In all cases where the activities authorized by this permit shall involve the taking, using or damaging of any property, rights or interests of any other person or persons, or of any publicly owned lands or improvements thereon or interests therein, the Permittee, before proceeding, shall acquire all necessary property, rights, interests, or permissions. In case the authorized activities shall include the alteration, relocation, or replacement of any public highway or other publicly owned facility, the Permittee shall pay the cost thereof as may be required by the appropriate public authority.

I. Assignment

This permit shall be subject to assignment in whole or in part but no assignment shall be effective until written notice thereof is filed in the office of the Commissioner and the Commissioner approves the assignment in writing.

J. Successors

Provisions of this permit shall extend to and bind the successors in authority of the Commissioner and the successors in interest of the Permittee.

K. Reimbursement of Expenses

The Permittee shall pay to the Commissioner all of the reasonable actual costs incurred by the Department of Natural Resources including the costs of consultants, for the following activities, in accordance with the terms of this permit, court orders and DNR rules:

- 1. Consultants' review, analysis and evaluation of Permittee's designs, plans, data, reports, construction, operations and progress with regard to all project features permitted hereunder.
- 2. Monitoring (including review, analysis and evaluation of) the construction, operation and perpetual maintenance of project features.
- 3. Monitoring (including review, analysis and evaluation of) the air and water for any potentially hazardous conditions which may relate to the standards and requirements of DNR and which do not duplicate the efforts of any other state agency.
- 4. Monitoring (including review, analysis and evaluation of) flows in all streams affected by activities authorized by this permit.
- 5. Field inspections of any of the activities, operations or facilities permitted hereunder.
- 6. Any other activity for which reimbursement is authorized.

The Commissioner shall submit documented monthly bills to the Permittee for all reimbursable costs incurred by the Department of Natural Resources. The Permittee shall pay to the Commissioner the full amount of each bill within 30 days of the time the bill is received by the Permittee. The Permittee shall be furnished a reasonable opportunity for separate independent analysis of a representative portion of any samples obtained by or on behalf of the DNR pursuant to any monitoring or investigation described above.

The DNR monitoring program and associated costs referred to in this permit shall be reasonable and based on the degree and reliability of the Permittee's approved monitoring plan. The Commissioner and Permittee shall develop a schedule of monitoring, with estimated costs, within 180 days of the issuance of this permit.

L. Descriptions

All descriptions of proposed activities appearing in this permit are general explanations only of the activities proposed by the Permittee as they appear in the permit applications or supporting data. The descriptions are not intended to be inclusive of all aspects of the proposed facilities. The descriptions shall in no instance be construed as granting approval for the proposals or activities described; however, no additional permits are required for the project features described herein.

M. Approvals

In order to meet the permitted and court-ordered construction schedule, detailed and specific Commissioner approvals shall be timely and consistent with the terms of this permit. The Permittee shall be responsible for furnishing, identifying and discussing with the Commissioner all pertinent data and requirements to allow prompt approvals.

The Commissioner, upon submission of adequate required data and his agreement therewith, shall promptly approve the final plans and specifications for the project features to the end that there be no undue delay in planning, engineering, construction and completion of the project. As part of his approval, the Commissioner may impose additional conditions consistent with the overall permitted and authorized project subject to the provisions of Minnesota Statutes Chapters 105 and 116D.

N. Extensions

Extensions of any time schedules provided for in this permit may be granted in writing by the Commissioner for good cause shown.

IV. ALL DAMS AND DIKES -- GENERAL PROVISIONS

(Permit Nos. 76-2061; 77-2304; 77-2305; 77-2306; 77-2307; 77-2313; 77-2314; 77-2316; 77-2299; 77-2301; 77-2308; 77-2309; 77-2310)

A. Required Data

The Permittee shall submit to the Commissioner detailed plans and specifications for each facility covered under this section, along with such supporting data and documentation as the Commissioner deems necessary. No construction of any facility covered under this section may commence until the appropriate data have been submitted and until, unless otherwise provided herein, the Commissioner in writing approves the plans and specifications of the Permittee.

Data, including interpretations thereof, which the Commissioner may require includes but is not limited to: drawings and topographic maps showing the location, type, size, height, and details of the various proposed features; data concerning subsoil and foundation conditions and materials pertaining to the construction of the dams and related features; investigations of, and reports on, subsurface conditions, involving such matters as exploratory pits, trenches and adits, earth and rock borings, geophysical surveys, tests to determine leakage rates, and physical tests or instrumentation readings to measure in place the properties and behavior of foundation materials at the sites of the dams, tailings pond and related features; investigations of, and reports on, the geology and seismicity of the sites and their vicinity, possible geologic hazards, availability and quality of construction materials; laboratory test procedures and results of laboratory tests; data concerning the drainage basin tributary to the impoundment site, and surface water and ground water hydrology; criteria and supporting information used as the basis for design of the various project features, including loading criteria and operational conditions analyzed; proposed grouting and seepage control measures;

engineering analyses, including criteria, parameters and calculations and summaries of results; proposed construction schedule; construction plans and specifications; proposed construction monitoring procedures; hydraulic and structural evaluations; proposed operation plans; any other data or information required for proper evaluation of the safety and adequacy of the Permittee's proposed activities.

B. Detailed Approvals

Upon submission to the Commissioner by the Permittee of the data and documentation required under this permit, the DNR shall review the submissions for their completeness and adequacy. The Commissioner shall advise the Permittee whether the data submitted are adequate or, if not, what additional information or correction of deficiencies is required for detailed approval of a particular project feature. Thereafter, the Commissioner may approve the plans and specifications as submitted by the Permittee or may impose further conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D.

C. Construction of Facilities

Following receipt from the Commissioner of written approval of the detailed plans and specifications of a particular facility, the Permittee may proceed in accordance with the provisions contained in the specific approval and herein. All construction shall be carried out in accordance with the approved plans and specifications. No significant alteration, modification or addition to the approved plans and specifications shall be undertaken by the Permittee without prior written approval of the Commissioner.

If the Permittee finds at any time during construction or operation that, in order to adequately protect the environment or public health, safety or welfare, significant alterations to the approved plans and specifications are required, the Permittee shall promptly notify the Commissioner of such requirements, and shall revise the plans and specifications and submit the revisions to the Commissioner for approval. Emergency short term revisions may be made by the Permittee followed by prompt notice to the Commissioner. If such short term revisions are to remain as permanent project features, they shall be subject to approval by the Commissioner.

D. <u>Unforeseen Conditions</u>

The Permittee shall immediately notify the Commissioner of any significant conditions relating to

structural suitability or air and water impacts discovered during construction or operations which differ from those identified in the approved plans and specifications. If such conditions require modification of the approved plans and specifications, the Permittee shall prepare such modification and submit them to the Commissioner for his approval.

E. Responsibility for Control

The Permittee, in cooperation with its designer, shall be responsible for providing adequate controls on construction and operation activities, and for verifying design, construction and operation assumptions. Verification, as used in this permit, means the development of data in the ordinary course of the construction and operation of the project.

F. Construction Observation and Control

Within 180 days after issuance of this permit, the Permittee shall submit to the Commissioner proposed plans for observation, quality control, and reporting to assure that construction proceeds in accordance with the approved designs and construction plans and specifications. The proposed plan and reporting system shall include, but not be limited to consideration of such items as proposed type and frequency of construction quality control tests; maintenance of records and summaries of actual tests of foundation and embankment materials, concrete, etc.; maintenance of grouting records; instrumentation installation and maintenance of instrumentation records; geologic mapping of exposed foundations; preparation of logs of drill holes and other exploration features completed during construction; frequency of submittal of reports to DNR; procedures and frequency for review and evaluation of disclosed field conditions by the designers; and any other items which may be pertinent to a construction quality assurance program.

Within 45 days after issuance of this permit, the Permittee shall submit to the Commissioner preliminary plans outlining a proposed program for observation, quality control and reporting for the first 180 days of construction.

Upon approval of the plans by the Commissioner, the Permittee shall conduct its construction observation, quality control and reporting program in accordance with the approved plan.

G. Construction Bench Marks

Permanent markers for vertical and horizontal control shall be established in the natural ground by the Permittee at each abutment of all dam structures. The permanent markers for vertical control must be based upon sea level datum and the degree of accuracy shall be third order control as specified by the Federal Geodetic Control Committee. The accuracy of at least one marker at each end of every dam shall be certified by the designer. Each marker shall be located so as to be accessible and protected against disturbance throughout the projected life of the facilities. The Permittee shall within 90 days of the issuance of this permit submit to the Commissioner the locations of these permanent markers, plotted on standard U. S. Geological Survey topographic maps.

V. TAILINGS CONTAINMENT DAMS

(Permit Nos. 77-2304, 77-2305, 77-2306, 77-2307, 77-2313)

A. Description

1. Dams 1 and 2-3

These dams will be constructed to ultimate crest elevation 1315 mean sea level, over a period of years, according to a predetermined construction schedule. The starter dam for Dam No. 1 will be constructed of compacted sands and gravels with an upstream impervious zone of compacted glacial till. The starter dam for Dam No. 2-3 will be constructed of compacted glacial till. Dams Nos. 1 and 2-3, will be constructed principally of compacted coarse tailings with an upstream impervious zone of compacted glacial till and riprap slope protection on the upstream faces. Appropriate filter zones will be included between the several types of embankment materials. Filter and drain zones are proposed to be installed between the embankments and foundations.

2. Dams 4, 5 and 6

Dams 4, 5 and 6 are proposed to be constructed to ultimate crest elevation 1315 mean sea level, over a period of years. Starter Dams for Dams 4 and 5 are proposed to be of compacted glacial till. Permittee's plans show the

location of a seepage recovery dam downstream of Dam No. 4. There is no application for this structure. The Permittee shall provide detailed plans and specifications for the seepage recovery structure as part of the requirements for Dam No. 4. No starter dam is proposed for Dam 6 in the conceptual plans. Dams 4 and 5 are proposed to be constructed principally of compacted coarse tailings with an upstream impervious zone of compacted glacial till and riprap slope protection on the upstream faces. Appropriate filter and drain zones will be included as for Dams 1 and 2-3. Dam No. 6 is proposed to be of compacted glacial till with a downstream zone of sand and gravel and riprap protection on the upstream slope. A filter zone will be included beneath the riprap.

No foundation exploration data for Dams 4, 5 and 6 have been provided. As required by the terms of this permit, the Permittee shall provide all necessary foundation exploration and design studies to enable the Commissioner to evaluate the suitability and final design of these dams.

B. Requirements

Commissioner all available relevant information listed under the Required Data section of Part IV herein and any further relevant facts as may be reasonably required by the Commissioner before commencement of the dam construction. The information provided to the Commissioner in addition to any other requirements of this permit shall be sufficient to allow the Commissioner to evaluate surface and subsurface conditions along the length of dams and along the eastern ridge of the tailings basin. Such information shall include an evaluation of seepage and structural aspects of the impoundment.

2. Special Data Requirements for Dam No. 1 Only

The Permittee shall submit to the Commissioner the test results and any other data the Commissioner may require relating to the test fill procedures to be carried out on the Dam No. 1 site prior to commencement of the starter dam. The Permittee shall verify its design assumptions relating to foundation performance, and shall detail and verify its determination of construction procedures for the commencement of the starter dam.

- 3. The Commissioner or his representative shall observe and approve foundation preparation and approve fill placement on a continuing basis when field conditions dictate. The Commissioner shall be notified at least three days in advance of commencement of fill placement.
- 4. No impoundment shall be commenced until the Permittee has submitted to the Commissioner such information as he may require regarding structural and seepage control aspects of the dams and until the Commissioner has approved in writing commencement of impoundment. The Commissioner may include in any such approval terms and conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D.
- 5. The Permittee shall provide data as required by the Commissioner to verify that the construction of the dams and condition of the foundation conform to the terms of approval by the Commissioner.

VI. MAIN TAILINGS CONTAINMENT FACILITY

(Permit No. 77-2311)

A. <u>Description</u>

The impoundment area will occupy approximately 6 square miles of land and will store eventually 733,000,000 long tons of fine and coarse tailings. An additional amount of coarse tailings, approximately 90,000,000 long tons will be utilized for the construction of the main tailings containment dams.

B. Requirements

1. The Permittee shall submit to the Commissioner such detailed information as the Commissioner may require on the surface and subsurface conditions of the tailings containment area. Such information shall include an evaluation of seepage and structural aspects of the impoundment.

- 2. No tailings shall be deposited in the basin until approved in writing by the Commissioner.
- 3. The Permittee shall submit to the Commissioner for his approval detailed plans, specifications and supporting data relating to the construction of splitter dikes. The Commissioner shall review the plans and specifications and may approve them as submitted or may include further conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D. No splitter dikes may be constructed prior to approval by the Commissioner.
- VII. DIVERSION DIKES AND CHANNELS; SEEPAGE RECOVERY DAMS
- A. Surface Water Diversion Facility, Including Coffer Dam, For Dam No. 1 (Permit Nos. 77-2314 and 77-2315)

1. Description

This diversion facility will temporarily route surface runoff through the site of Dam No. 1 and around the site of Seepage Recovery Dam No. 1A. It will consist of an excavated channel and a coffer dam upstream of Starter Dam No. 1.

2. Requirements

- a. The Permittee shall comply with all provisions of Permit No. 77-2315 which was issued separately on June 17, 1977, and which is attached hereto.
- b. The diversion channel shall be taken out of use prior to the construction of the main tailings containment Dam No. 1.
- c. When the diversion channel is taken out of use, appropriate measures shall be taken to preclude seepage of tailings contaminated water from leaving the impoundment area.
- d. The Permittee shall submit to the Commissioner for his approval detailed plans and specifications for the diversion facility. The Commissioner shall advise the Permittee whether the data submitted are adequate or, if not, what additional information or correction of deficiencies is required for detailed approval. Thereafter, the Commissioner may approve the plans and specifications as submitted by the Permittee or may impose further conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D.

B. Surface Water Diversion Dikes 1A, 1B, 2 and 3 (Permit Nos. 77-2299, 77-2312, 77-2301, 77-2316)

1. <u>Description</u>

These dikes will help divert surface runoff around the basin. Dike 1A will be constructed principally of compacted glacial till and contain a horizontal drain blanket of compacted clean sand and gravel placed against the downstream 1/3 of the dike's base width. Dike No. 2, which will eventually be a basin containment structure, will also be constructed principally of compacted glacial till, and will include an upstream zone of compacted sand and gravel overlain by a filter layer and an outer layer of riprap slope protection. The downstream slope of the diversion Dike No. 2, which will eventually be in contact with impounded tailings, will be protected by a layer of riprap underlain by a layer of filter bedding placed on the glacial till. A horizontal drain blanket of clean sand and gravel is proposed beneath the downstream 1/3 of the dike's base width. Dikes 1B and 3 will be constructed entirely of compacted glacial till.

2. Requirements

a. Prior to any commencement of construction, the Permittee shall submit to the Commissioner for his approval detailed plans and specifications, and all relevant information required by the Required Data section of Part IV of this permit, including such information as is required to adequately evaluate surface and subsurface conditions. The Permittee shall provide data as required by the Commissioner to verify that the construction of the dikes and condition of the foundation conform to the terms of approval by the Commissioner. The Permittee shall submit its calculations relating to the flows to be contained.

b. Upon submission to the Commissioner by the Permittee of the data and documentation required under this section, the DNR shall review the submissions for their completeness and adequacy. The Commissioner shall advise the Permittee whether the data submitted are adequate or, if not, what additional information or correction of deficiencies is required for detailed approval. Thereafter, the Commissioner may approve the plans and specifications as submitted by the Permittee or may impose further conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D.

C. Surface Water Diversion Facility Adjacent To
Dam 2-3 and Seepage Recovery Dam 2-3
(Permit Nos. 77-2303 and 77-2310)

1. Description

This diversion is required to divert an unnamed creek tributary to the East Branch of the Beaver River, from entering the tailings basin. The diversion is approximately 2,900 feet long and includes an appurtenant dike and a spoil berm along its course to insure that high flows will remain in the channel to prevent them from entering the seepage recovery dam catchment area. The dike is intended to be constructed of compacted impervious fill. The design of the diversion is tentative, the location and design to be finalized after topographic survey and subsurface exploration is done.

2. Requirements

a. Prior to commencement of construction, the Permittee shall submit to the Commissioner for his approval detailed plans and specifications, and all relevant information required by the Required Data section of Part IV of this permit, including such information as is required to adequately evaluate surface and subsurface conditions and stream flow characteristics. The Permittee shall provide data as required by the Commissioner to verify that the construction of the dams and condition of the foundation conform to the terms of approval by the Commissioner.

b. Upon submission to the Commissioner by the Permittee of the data and documentation required under this section, the DNR shall review the submissions for their completeness and adequacy. The Commissioner shall advise the Permittee whether the data submitted are adequate or, if not, what additional information or correction of deficiencies is required for detailed approval. Thereafter, the Commissioner may approve the plans and specifications as submitted by the Permittee or may impose further conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D.

D. Surface Water Diversion Channels 1 and 2

(Permit Nos. 77-2298 and 77-2300)

1. Description

These diversions are for the purpose of preventing surface runoff and flows from entering the tailings basin. The diversions are intended to pass the runoff from the probable maximum precipitation.

Diversion 1 will include a low flow diversion channel necessary to support fish habitat in the portion of Little Thirtynine Creek between Diversion Dike 1A and the western edge of the tailings basin. The low flow diversion will join Big Thirtynine Creek in the Dike No. 2.

Diversion 2 will have an approximate length of 2,300 feet.

2. Requirements

a. Prior to any commencement of construction the Permittee shall submit to the Commissioner for his approval detailed plans and specifications, and all relevant information required by the Required Data section of Part IV of this permit, including such information as is required to adequately evaluate surface conditions and stream flow characteristics. All design assumptions shall be verified. The Permittee shall submit its calculations relating to the flows to be contained.

b. The Permittee shall comply with all special provisions of PA 77-2298 and PA 77-2300, issued separately on July 15, 1977, and shall furnish all calculations, assumptions and supporting data in regard to special provisions VIII through XV, XX and XXIII of PA 77-2298 and special provisions VIII thru XV, XVII, XXII and XXIII of PA 77-2300.

by the Permittee of the data and documentation required under this section, the DNR shall review the submissions for their completeness and adequacy. The Commissioner shall advise the Permittee whether the data submitted are adequate or, if not, what additional information or correction of deficiencies is required for detailed approval. Thereafter, the Commissioner may approve the plans and specifications as submitted by the Permittee or may impose further conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D.

E. Surface Water Diversions and Dam Adjacent to Dam No. 5; Bear Lake Diversions (Permit Nos. 76-2061 and 77-2302)

1. Description

Initial and Final Bear Lake Diversion structures will route Bear Lake outflows into and away from, respectively, the tailings disposal basin.

Decisions on the future lake level and the outlet channel locations have been deferred for the present pending clarification of property matters.

2. Requirements

- a. The Permittee shall provide the Commissioner detailed plans and specifications and all relevant information listed under the Required Data section of Part IV of this permit and any further relevant facts as may be required by the Commissioner before commencement of construction. The information provided to the Commissioner in addition to any other requirements of this permit shall be sufficient to allow the Commissioner to reasonably evaluate surface and subsurface conditions. The level of Bear Lake shall not be altered without the written approval of the Commissioner.
- b. Upon submission to the Commissioner by the Permittee of the data and documentation required under this section, the DNR shall review the submissions for their completeness and adequacy. The Commissioner shall advise the Permittee whether the data submitted are adequate or, if not, what additional information or correction of deficiencies is required for detailed approval. Thereafter, the Commissioner may approve the plans and specifications as submitted by the Permittee or may impose further conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D.
- c. The Commissioner or his representative shall observe and approve foundation preparation and approve fill placement on a continuing basis when field conditions dictate. The Commissioner shall be notified at least three days in advance of commencement of fill placement.
- d. The Permittee shall provide data as required by the Commissioner to verify that the construction of the facilities and condition of the foundation conforms to the terms of approval by the Commissioner.

e. No impoundment shall be commenced until the Permittee has submitted to the Commissioner such information as he may require regarding structural and seepage control aspects of the dam and until the Commissioner has approved in writing commencement of impoundment. The Commissioner may include in any such approval terms and conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D.

F. Seepage Recovery Dams 1A, 1B and 2-3

(Permit Nos. 77-2308, 77-2309, 77-2310)

1. Description

These dams will be constructed principally of compacted glacial till, with a downstream zone of compacted sand and gravel and an upstream layer of sand and gravel slope protection.

2. Requirements

- a. The Permittee shall provide the Commissioner detailed plans and specifications and all relevant information listed under the Required Data section of Part IV of this permit and any further relevant facts as may be required by the Commissioner before commencement of construction.
- b. Upon submission to the Commissioner by the Permittee of the data and documentation required under this section, the DNR shall review the submissions for their completeness and adequacy. The Commissioner shall advise the Permittee whether the data submitted are adequate or, if not, what additional information or correction of deficiencies is required for detailed approval. Thereafter, the Commissioner may approve the plans and specifications as submitted by the Permittee or may impose further conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D.
- c. The Commissioner or his representative shall observe and approve foundation preparation and approve fill placement on a continuing basis when field conditions dictate. The Commissioner shall be notified at least three days in advance of commencement of fill placement.

d. The Permittee shall provide data required by the Commissioner to verify that the construction of the facilities and condition of the foundation conform to the terms of approval by the Commissioner.

e. No impoundment shall be commenced until the Permittee has submitted to the Commissioner such information as he may require regarding structural and seepage control aspects of the dams and until the Commissioner has approved in writing commencement of impoundment. The Commissioner may include in any such approval terms and conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D.

VIII. OPERATION OF TAILINGS DISPOSAL SYSTEM

Closed System

The Mile Post 7 disposal system shall be a closed-circuit operation. All surface and seepage waters shall be filtered to remove contaminant, or collected and returned to the basin. The excess runoff and transport water ponded over the settled fine tailings shall be reclaimed for reuse in the plant processing operations.

B. Covering of Tailings

The fine tailings in the basin shall at all times be covered by water to the maximum extent possible unless otherwise permitted to be covered by other material approved by the Commissioner. The total area of exposed coarse tailings in the Mile Post 7 site shall at no time exceed that indicated in Appendix A to this permit. All coarse tailings surfaces other than those described in Appendix A shall be vegetated as prescribed in the vegetation section of Part X of this permit, or shall be treated with water and dust suppressing chemicals of a quality and applied at a frequency which will meet the requirements and standards of the MPCA and court orders.

C. Operational Plan

Within one year of the issuance of this Permit, the Permittee shall submit to the Commissioner an operational plan for the handling and disposal of all tailings generated in the processing plant. This plan shall describe the proposed operation of all aspects of the tailings basin and tailings

disposal system, any contingencies which may require a change in operational practices, and those operational changes which may be required by these contingencies. The Commissioner shall review the plan and may approve it as submitted or may include conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D. Until the plan is approved by the Commissioner, no tailings of any type and no waste water from the plant shall be utilized for construction or disposed of at the Mile Post 7 site.

D. Modifications to Operational Plan

No significant alteration, modification or addition to the approved operational plan shall be undertaken by the Permittee without prior written approval by the Commissioner. If at any time during operation of the facility, the Permittee desires to make significant modifications to the approved plan, the Permittee shall submit the proposed modifications to the Commissioner for approval.

E. Unforeseen Operational Conditions

If, at any time, any unusual or unexpected conditions which deviate significantly from those contemplated in the approved plan are discovered during operation of the facility, the Permittee shall promptly notify the Commissioner of the condition and develop corrective action. If the condition does not constitute an imminent hazard to public health, safety or property, corrective action shall be accomplished promptly following discovery of the condition. If public health, safety or property may be endangered by the deviation, the Permittee shall take immediate corrective action and immediately notify the Commissioner of the situation.

F. Monitoring Operations

The Permittee shall monitor and control its operations to insure conformance with the approved operational plan.

G. Daily Records

The Permittee shall maintain daily weight records of all processed crude ore, all concentrate produced and all tailings generated by the Permittee's plant facility during said period together with such other data as may be reasonable and necessary in order to insure quality control of construction materials used in containment dams and in order to insure that all materials are deposited in the approved basin.

H. Maintenance

The facilities authorized by this permit shall be properly maintained in compliance with the terms and conditions of this permit.

I. Temporary Reduction or Cessation of Operations

The Permittee shall immediately notify the Commissioner in the event of any plant or disposal system malfunction or operational change which requires a temporary reduction or cessation of plant or tailings disposal system operations. In no case shall the Permittee discharge tailings or process water to areas other than those approved for the Mile Post 7 site.

IX. PLANS FOR CLOSURE AND PERPETUAL MAINTENANCE.

A. Requirement of Plans

The Permittee shall prepare and submit to the Commissioner plans for closure and perpetual maintenance which will address the Permittee's plans for both an unanticipated or premature closure of operations and for the ultimate intended termination of operations. The plans for closure and perpetual maintenance, at a minimum, shall address the following issues:

- 1. Perpetual maintenance and safety of the tailings disposal system, including adequate monitoring programs. (See Part X B, "Perpetual Maintenance.")
- 2. Disposal and treatment of ponded and channelled waters.
- 3. Monitoring and mitigation of surface water and groundwater pollution.
 - 4. Sedimentation and erosion control.
 - Vegetation and landscaping.

B. Preliminary Plan

A preliminary plan for closure and perpetual maintenance in the event of premature closure shall be submitted to the Commissioner within 180 days of the issuance of this permit. The Commissioner shall review the plan and

may approve it as submitted or may include conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D. Upon approval of the plan by the Commissioner, the Permittee shall not deviate significantly from the plan until a final plan for closure and perpetual maintenance has been submitted to and approved by the Commissioner. The preliminary plan for closure and perpetual maintenance shall be revised and resubmitted to the Commissioner with each application for renewal of this permit. The revised plan shall reflect the results of the on-going monitoring program as well as the then best available technology for closure and perpetual maintenance measures.

C. Final Plan

A final plan for closure and perpetual maintenance shall be submitted to the Commissioner at least two years prior to the date upon which the Permittee proposes to initiate final tailings disposal system closure. All issues relating to the permanent cessation of operations, including but not limited to continued monitoring, perpetual maintenance and environmental protection, shall be addressed in detail in the final plan for closure and perpetual maintenance. The Commissioner shall review the plan and may approve it as submitted or may include conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D. Upon approval of the plan by the Commissioner, the Permittee shall not deviate significantly from the plan without written approval from the Commissioner.

D. Release of Water

At closure and thereafter, there shall be no spilling or release of ponded or runoff water from the tailings basin or the seepage recovery basins, until the quality of the water meets MPCA standards and permit requirements.

X. SPECIAL CONDITIONS

A. Use of Tailings

All tailings shall be disposed of in the Mile Post 7 basin except for containerized or totally covered indoor stockpiles which are permitted outside the Mile Post 7 Basin. Tailings presently in the delta may, with the approval of the Commissioner, be excavated and used in the present plant area in a bonded condition or used for back filling when suitably covered by artificial or natural barriers.

The Permittee shall not use or allow any other person or governmental entity to use tailings for any other purpose.

B. Perpetual Maintenance

- 1. The Permittee shall perpetually maintain the tailings basin and all parts of the tailings disposal system so as to insure the integrity of all basin structures and to prevent the deposited tailings from re-entering the air and water of the state.
- 2. The Commissioner may impose such requirements as may be necessary, prior to the ultimate termination of the Permittee's operations, to insure that the Permittee will remain financially responsible for carrying out the activities required for perpetual maintenance, and that adequate funding will exist therefor.

C. Vegetation of Tailings Surfaces

- l. All tailings surfaces or portions thereof shall be vegetated by the Permittee at the earliest practicable time. Tailings surfaces which will not be used on a regular basis by vehicular traffic or which will not in the future be substantially disturbed or covered by tailings shall be vegetated at the earliest practicable time.
- 2. The Permittee shall continue to conduct research to assist in the determination of appropriate species selection, fertilizer, and mulch application rates, and any other limiting factors relating to vegetation of taconite tailings. The Permittee shall conduct research and experimentation relating to the growth of trees on taconite tailings surfaces. The Permittee shall also conduct testing relating to the vegetation of such tailings mixtures as will be used in the Mile Post 7 tailings disposal system. The results and conclusions of the vegetation test plot research program shall be submitted at least annually to the Commissioner.
- 3. Surfaces being vegetated shall be covered with a solid mat of vegetation at the earliest practicable time, and shall be maintained at that level thereafter, except where extraordinary conditions prevent such cover, in which case vegetation shall be established to the maximum extent practicable.

- 4. If sufficient natural invasion of trees has not occurred, trees shall be introduced as part of the vegetation program no later than five years after vegetation efforts on a particular tailings surface have been initiated. Thereafter, species indigenous to the surrounding area shall be introduced.
- 5. The Commissioner may require the reasonable use of certain vegetation measures and species if it is determined that such measures and species will enhance vegetation efforts.
- 6. The Permittee shall submit to the Commissioner on an annual basis a report describing the vegetation activities conducted within the previous year, the success of such activities, vegetation activities which the Permittee expects to conduct in the forthcoming year, and any other data which the Commissioner may reasonably request.

Mitigation of Surface and Groundwater Pollution

- 1. The Permittee shall comply with all standards and regulations of the MPCA relating to surface and groundwater pollution.
- 2. The Permittee shall conduct tests, based on the best available technology, to evaluate the permeability and overall filtering capability of the tailings pond foundation and embankment materials in order to determine the ability of those materials to retain or pass solid mineral particles of various sizes, textures, nature, and characteristics. A report with all supporting information and conclusions shall be submitted to the Commissioner as soon as practicable, but in no case later than one year after issuance of this permit.
- 3. The Permittee shall submit to the Commissioner within one year a plan addressing the practices which will be followed in order to mitigate any adverse effects to surface or groundwater which may result from the construction or operation of the facilities authorized by this permit. The Commissioner shall review the plan and may approve it as submitted or may include conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D. Upon approval of the plan by the Commissioner, the Permittee shall not deviate significantly from the plan without the written approval of the Commissioner.

E. Monitoring of Surface and Groundwater Quantity and Quality

- 1. The Permittee shall comply with all standards and requirements of the MPCA relating to monitoring of surface and groundwater.
- 2. The Permittee shall submit to the Commissioner within 180 days of the issuance of this permit a plan detailing a program for monitoring the quality and the parameters necessary to reasonably determine the quantity of:
- a. Surface waters including Big Thirtynine Creek, Little Thirtynine Creek, Beaver River, E. Branch Beaver River, and those other tributaries of the Beaver River which will be directly or indirectly affected by construction and operation activities of the tailings disposal system.
- b. Ground water, including representative monitoring wells located near all tailings containment dams, seepage recovery dams and diversion dike 2.
- c. The seepage of waters from all natural and man-made containment facilities surrounding the tailings basin. Such plans must include provisions for adequate seepage flownet analyses, and other analyses as may be required by the Commissioner.
- 3. The Permittee shall also submit a ground water flownet analysis based on construction of monitoring wells to determine the magnitude and direction of ground water flows around the perimeter of the tailings disposal area.
- 4. The Commissioner shall review the plan and may approve it as submitted or may include conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D. Upon approval of the plan by the Commissioner, the Permittee shall not deviate significantly from the plan without the written approval of the Commissioner.

F. Air Quality Maintenance

The Permittee shall comply with all standards and requirements of the MPCA, and all standards established by court order relating to maintenance of air quality.

G. Sedimentation and Erosion Control

1. The Permittee shall comply with all standards and requirements of the MPCA relating to sedimentation and erosion control.

- 2. The Permittee shall submit to the Commissioner within 180 days of the issuance of this permit a plan detailing a program which will be followed to provide sedimentation and erosion control during construction and operation of the system. The Commissioner shall review the plan and may approve it as submitted or may include conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D. Upon approval of the plan by the Commissioner, the Permitee shall not deviate significantly from the plan without the written approval of the Commissioner.
- 3. The Permittee shall control erosion. There shall be no erosion of tailings materials or deposition of tailings materials into the beds of any waters outside of the confines of the tailings or seepage recovery basins. The Permittee shall clean out and maintain seepage recovery areas to prevent accumulations of eroded materials from substantially reducing the storage capacity of the seepage recovery areas.
- 4. The Permittee shall, upon notification by the Commissioner, take immediate steps to correct any erosion and sedimentation problems.

H. Disposal and Treatment of Waters

The Permittee shall comply with all standards and requirements of the MPCA relating to the disposal and treatment of waters from the tailings disposal system.

XI. OTHER PERMITS

A. Stream Crossings of Roads and Railroads

(Permit Nos. 76-2045, 76-2046, 76-2047, 76-2060, 76-2062, 76-2063, 76-2064, 76-2065 and 76-2067)

1. Description

Road crossings are to provide access to the Mile Post 7 disposal area for exploration, operations and maintenance. There are two types of crossings, those within the basin and those outside the basin.

2. Requirements

Final approval has been given separately (and are attached hereto) for all of the crossings authorized hereunder except for the crossing at the SE-1/4, S19, T56N, R8W (Permit No. 76-2064) which will require final design field review and approval pending submission of low flow diversion plans and specifications.

After completion of diversion channels those crossings within the basin will no longer be needed and may be removed (Permit Nos. 76-2045, 76-2046, 76-2047, 76-2067). Those crossings outside the basin shall be maintained according to special provisions stipulated in their authorized permits.

B. Reclaim Water Facility and Pipeline Transport System

(Permit Nos. 76-2066 and 76-2031)

1. Description

These facilities are dual pipeline systems with controls, spill detection devices, emergency catchment basins and other protective mechanisms for the safe transport of fine tailings to the Mile Post 7 Basin, and transport of reclaim water back to the processing plant at Silver Bay.

2. Requirements

a. Prior to construction of the pipeline crossings of East Branch of the Beaver River and White
Rock Creek the Permittee shall submit to the Commissioner for
his approval detailed plans and specifications for the
crossing designs, as well as data to verify all design
assumptions. The Permittee shall submit its calculations of
the flows to be passed by the crossing structures. The
Permittee shall also submit procedures for clean-up and
mitigation of adverse impacts to the environment due to
pipeline failures. No construction of the crossings shall
commence until the approval of the Commissioner of the
detailed plans and specifications has been obtained.

b. Upon submission to the Commissioner by the Permittee of the data and documentation required, the DNR shall review the submissions for their completeness and adequacy. The Commissioner shall advise the Permittee whether the data submitted are adequate or, if not, what additional information or correction of deficiencies is required. Thereafter, the Commissioner may approve the plans and specifications as submitted by the Permittee or may impose further conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D.

c. There shall be no discharge to surface or ground waters of the State from these transport systems.

d. All necessary approvals for the crossings from state or county highway officials must be obtained and filed with the Commissioner prior to construction.

C. Power Plant Discharge Structure

(Permit No. 76-2050)

1. <u>Description</u>

The structure will consist of a 6 foot diameter steel conduit which will be placed in Lake Superior off Pancake Island (Beaver Island) and will extend 180 feet lakeward beyond the island. A 4 feet by 5 feet diffuser "nozzle" or "jet" will extend about 10 feet into the lake beyond the supporting structure. The discharge will enter the lake at a depth of 20 feet or more below the water surface and 20 feet or more above the lake bottom. Conduit placed on the lake bottom will require a maximum depth of 20 feet of fill material for support. The power plant discharge structure will directly return nearly all power plant cooling water to Lake Superior. The rate of return will be approximately 106,000 gallons per minute of water at 12°F. above ambient water temperature.

2. Requirements

a. Prior to the construction of the power plant discharge structure the Permittee shall submit to the Commissioner for his approval detailed plans and specifications, including provisions for mitigating any adverse effects to navigation resulting from the structure.

b. Upon submission to the Commissioner by the Permittee of the data and documentation required, the DNR shall review the data for their completeness and adequacy. The Commissioner shall advise the Permittee whether the data submitted are adequate or, if not, what additional information or correction of deficiencies is required. Thereafter the Commissioner may approve the plans and specifications as submitted by the Permittee or may impose further conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D. No construction shall commence until the approval of the Commissioner of the detailed plans and specifications is obtained.

D. Construction of Structures on the Tailings Delta

(Permit No. 76-2068)

1. Description

The Permittee proposes to construct on the tailings delta facilities for the purpose of separating water from the fine tailings slurry consisting of clarifiers and other facilities. The Permittee also proposes to construct tailings pumphouse No. 1, together with appurtenant facilities and a collection basin to receive tailings slurry if pipes must be drained back to the plant, and to receive storm runoff which presently discharges into Lake Superior. Collected water will be used as plant makeup water.

2. Requirements

a. Prior to the construction of the facilities, the Permittee shall submit to the Commissioner for his approval detailed plans and specifications.

b. Upon submission to the Commissioner by the Permittee of the data and documentation required under this section, the DNR shall review the submissions for their completeness and adequacy. The Commissioner shall advise the Permittee whether the data submitted are adequate or, if not, what additional information or correction of deficiencies is required. Thereafter, the Commissioner may approve the plans and specifications as submitted by the Permittee or may impose further conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes, Chapters 105 and 116D. No construction shall commence until the approval of the Commissioner of the detailed plans and specifications has been obtained.

c. No tailings contained in these structures shall enter the air or water of the state.

d. The Permittee shall comply with all standards and requirements of the MPCA relating to these structures and their operation.

E. Tailings Delta Protection

(Permit No. 76-2051)

1. Description

The Permittee proposes to stabilize the tailings delta along the following conceptual design, as described in the Klohn-Leonoff February 1976 plan for tailings delta protection received as administrative hearing exhibit 127G and filed with the United States District Court on May 16, 1977.

- a. An initial broad dike 5,100 feet long, 25 feet high and 100 feet wide of waste mine rock would be constructed on a line about 600 feet inland from the present lakeside edge.
- b. Lake Superior wave action would erode a natural beach on the portion of the delta lying lakeward of the dike.
- c. When the tailings beach erosion progressed sufficiently to permit the waves to reach the dike, the initial dike on the lake side would be flattened by wave action and rock would be spread over the beach.
- d. Periodically, mine waste rock would be added along the lakeside face of the dike to add to the changes in water levels. It is not presently known how often this maintenance would be required.
- e. Revegetation of the delta behind the dike.

2. Requirements

- a. The proposed plan for delta stabilization is recognized as the Permittee's preferred approach and is acknowledged to be a potentially adequate approach for achieving satisfactory stabilization. In order to determine whether the proposed plan is based on sound assumptions and will effectively achieve stabilization as anticipated, further monitoring of the delta will be required subsequent to the cessation of tailings discharges into Lake Superior. The results of such monitoring will be used to assess whether the Permittee's proposed plan is adequate or must be amended in order to achieve satisfactory stabilization.
- b. Within 270 days after the issuance of this permit the Permittee shall submit to the Commissioner for his approval a monitoring plan for the tailings delta. Such monitoring plan shall include a program to acquire data before, and within one year following the cessation of the present lake disposal practice, and will be sufficient to allow a reasonable evaluation of the delta character, climatic conditions and hydrodynamic processes affecting the delta during tailings deposition and for a representative period after tailings deposition ceases.

- Within 90 days of the completion of the data gathering provided for in the monitoring plan, the Permittee shall submit to the Commissioner for his approval a final design and plan (which may be the original proposed plan, an amended plan, or a new plan, as determined by the Permittee on the basis of the monitoring data) for the best practicable means of protecting or otherwise dealing with the tailings delta including provisions for any necessary The Commissioner shall advise the Permittee maintenance. whether the data submitted are adequate or, if not, what additional information or correction of deficiencies is required for approval. Thereafter the Commissioner may approve the detailed design and plan as submitted by the Permittee or may impose further conditions consistent with the permitted and authorized overall project and subject to the provisions of Minnesota Statutes Chapters 105 and 116D.
- d. After approval of the final design and plans has been granted, the Permittee shall proceed with the implementation of the final plan. The effectiveness of the plan shall be routinely monitored and the results of the monitoring reported to the Commissioner.
- The Permittee is authorized, at its e. option, subject to the limitations and conditions of this subsection, to implement its present delta stabilization plan upon issuance of this permit subject to the above-described monitoring and subject to the other terms of this section. In the event the results of such monitoring reasonably disclose that modifications are required to achieve satisfactory feasibility and stabilization or to protect public health, safety and welfare, the Permittee shall be subject to such remedial action as is necessary for the satisfactory completion of delta stabilization as provided for in this section. If the Permittee chooses to begin construction upon issuance of this permit, the Permittee shall provide the Commissioner a detailed work schedule and such additional information as may be reasonably required.

F. Water Appropriation for the Reclaim Water Structure (Permit No. 76-2052)

1. <u>Description</u>

The Permittee will appropriate a maximum of 2,313 million gallons (6,938 acre feet) of water per year to be returned to the E. W. Davis Plant from the Mile Post 7 tailings basin. Such waters will consist of tailings slurry transport water and runoff and precipitation collected within the Tailings Basin.

The water will be appropriated by means of two pumps with an average pumping rate of 4,400 gpm and a maximum rate of 10,000 gpm.

2. Requirements

Water appropriations from the reclaim water system shall not commence until the reclaim water and pipeline transport systems have been constructed, and until the Commissioner has given all necessary approvals for the impoundment of waters and disposal of tailings.

G. Water Appropriation From Lake Superior

The Permittee shall provide the Commissioner with an application for the modification of permits for the appropriation and use of water from Lake Superior at the E. W. Davis Processing Plant at Silver Bay.

This modification is needed to provide for revised water use at the plant reflecting modifications in the plant water needs. The appropriation of water from Lake Superior will decrease from present needs.

The Permittee shall provide data with the application to support the water appropriation request. The Permittee shall indicate the maximum amount of water to be requested for each phase of the operations.

XII. PERMIT CANCELLATION, SUSPENSION OR ALTERATION

Subject to all existing rights and remedies at law, and subject to the rights of appeal in the manner provided by Minn. Stat. §§ 105.37-105.64 (1976):

- A. As provided in Minn. Stat. § 105.44 (1976), the Commissioner may cancel or modify this permit at any time if he deems it necessary for any cause for the protection of the public interests.
- B. As provided in Minn. Stat. § 105.64 (1976), the Commissioner may cancel or modify this permit at the request of or with the consent of the Permittee upon such conditions as the Commissioner deems necessary for the protection of the public interest.
- C. As provided in Minnesota Statutes, § 105.64 (1976), if the Permittee violates any of the terms or conditions of this permit, or violates any law pertaining to the project permitted hereunder, the Commissioner may, at his discretion:

- Cancel this permit;
- 2. Modify this permit as the Commissioner deems necessary; or
- 3. Suspend this permit or any portion thereof until such time as the permit violation is corrected and the Commissioner reinstates this permit in writing.
- D. As provided in Minn. Stat. § 105.64 (1976), if the Commissioner deems it necessary to protect the public health and safety; to protect the public interests in lands or waters against substantial injury resulting in any manner or to any extent not expressly authorized by the permit; or to prevent substantial injury to persons or property resulting in any manner or to any extent not authorized by the permit, the Commissioner may, at his discretion:
 - 1. Cancel this permit;
- 2. Modify this permit as the Commissioner deems necessary; or
- 3. Suspend this permit or any portion thereof until such time as the conditions which led to the suspension are corrected and the Commissioner reinstates the permit in writing.

For any action proposed to be taken pursuant to the above provisions (paragraphs A, B, C or D) the Commissioner shall give the Permittee at least 30 days written notice of such action, shall state the grounds of the proposed cancellation, modification or suspension, and shall give the Permittee an opportunity to be heard thereon.

- E. As provided in Minn. Stat. § 105.64 (1976), if the Commissioner deems it necessary to protect the public health or safety in an emergency situation; or to protect persons, property, or public interests in lands and waters against imminent danger of substantial injury in any manner or to any extent not expressly authorized by this permit, the Commissioner may by written order:
- 1. Suspend forthwith operations under this permit; or
- 2. Require the Permittee to take any measures necessary to prevent or remedy the situation which has caused the emergency or imminent danger.

No order issued pursuant to this provision (paragraph E) shall remain in effect for more than 30 days from the date of its issuance unless the Commissioner gives the Permittee at least 10 days written notice of any extension of the order and an opportunity for the Permittee to be heard on the matter of the extension.

- F. If situations occur in the construction or operations authorized hereunder which may endanger the public health or safety, the Permittee shall notify the Commissioner immediately and shall immediately take corrective measures and cease construction or operations if the situation so requires. Such situations include but are not limited to:
- l. If the minimum freeboard in the tailings basin becomes insufficient to accommodate a probable maximum flood.
- 2. If instrumentation indicates potential structural stability problems which could lead to failure of a containment structure.
- 3. Such other situations as the Commissioner will reasonably identify in supplements to this permit after the submissions and reviews required hereunder have taken place, and which may be necessary to prevent the endangerment of the public health, safety and welfare.
- G. If the Commissioner, pursuant to the terms of this permit, suspends or cancels this permit or orders the Permittee to cease operations permitted hereunder, the Permittee shall do so immediately.
- H. Any cancellation, modification or suspension of this permit by the Commissioner shall be in writing.

Dated at Saint Paul, Minnesota, this 23rd day of August, 1977.

WILLIAM B. NYE

Commissioner of Natural Resources





