

4-626
October 1955

UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Land Office
Post Office Box No. 777
Salt Lake City 10, Utah

Office Salt Lake City, Utah
Serial No. Utah 024316

LEASE OF COAL LANDS UNDER THE ACT OF
FEBRUARY 25, 1920, AS AMENDED

This lease, entered into on May 1, 1958, by the United States of America, the lessor, through the Bureau of Land Management, and Huntington Corporation, Box 1001, Palo Alto, California

the lessee, pursuant and subject to the terms and provisions of the act of February 25, 1920 (41 Stat. 437), as amended, hereinafter referred to as the act, and to all reasonable regulations of the Secretary of the Interior now in force which are made a part hereof,

WITNESSETH:

Section 1. Rights of lessee.--The lessor, in consideration of the rents and royalties to be paid and the conditions to be observed as hereinafter set forth, does hereby grant and lease to the lessee the exclusive right and privilege to mine and dispose of all the coal in the following-described tracts of land, situated in the State of Utah

- T. 16 S., R. 7 E., S1 Mer, Utah
- Sec. 10: N1/2, N1/4, S1/4, S1/2, S1/4, S1/2, S1/4
- Sec. 11: All
- Sec. 12: W1/4
- Sec. 13: W1/4
- Sec. 14: E1/4, E1/2

containing 1,800 acres, more or less, together with the right to construct all such works, buildings, plants, structures, and appliances as may be necessary and convenient for the mining and preparation of the coal for market, the manufacture of coke or other products of coal, the housing and welfare of employees, and, subject to the conditions herein provided, to use so much of the surface as may reasonably be required in the exercise of the rights and privileges herein granted.

Sec. 2. In consideration of the foregoing, the lessee hereby agrees:

(a) Bond.--To maintain the bond furnished upon the issuance of this lease, which bond is conditioned upon compliance with all the provisions of the lease, and to increase the amount of or furnish such other bond as may be required.

(b) Rental.--To pay the lessor annually, in advance, for each acre or part thereof covered by this lease, beginning with the date hereof, the following rentals: 25 cents for the first year, 50 cents for the second, third, fourth, and fifth years, respectively, and \$1 for the sixth and each succeeding year during the continuance of the lease, such rental for any year to be credited against the first royalties as they accrue under the lease during the year for which the rental was paid.

(c) Royalty.--To pay the lessor a royalty of 15 cents on every ton of 2,000 pounds of coal mined during the first 20 years succeeding the execution of this lease. Royalties shall be payable quarterly within 30 days from the expiration of the quarter in which the coal is mined.

(d) Minimum production.--Beginning with the sixth year of the lease, except when operations are interrupted by strikes, the elements, or casualties not attributable to the lessee, or unless on application and showing made, operations shall be suspended when market conditions are such that the lessee cannot operate except at a loss or suspended for the other reasons specified in section 39 of the act, to mine coal each year and pay a royalty thereon to a value of \$1 an acre or fraction thereof. Operations under this lease shall be continuous except in the circumstances described or unless the lessee shall pay a royalty, less rent, on such minimum amount of the leased deposits, for one year in advance, in which case operations may be suspended for that year.

(e) Payments.--Unless otherwise directed by the lessor, to make rental, royalty, or other payments to the Regional Mining Supervisor of the United States Geological Survey of the region in which the leased lands are situated. All remittances must be made payable to the United States Geological Survey.

(f) Plats, reports, maps.--At such times and in such form as the lessor may prescribe, to furnish a plat showing development work and improvements on the leased lands and a report with respect to stockholders, investment, depreciation, and costs. To furnish in such form as the lessor may prescribe, within 30 days from the expiration of each quarter a report covering such quarter, certified by the superintendent of the mine, or by such other agent having personal knowledge of the facts as may be designated by the lessee for such purpose, showing the amount of leased deposits mined during the quarter, the character and quality thereof, amount of its products and byproducts disposed of and price received therefor, and amount in storage or held for sale. To keep and prepare maps of the leased lands in accordance with the regulations in 30 CFR, Part 211.

(g) Weights.--To determine accurately the weight or quantity and quality of all leased deposits mined, and to enter accurately the weight or quantity and quality thereof in due form in books to be kept and preserved by the lessee for such purposes.

(h) Inspection.--To permit at all reasonable times (1) inspection by any duly authorized officer of the Department, of the leased premises and all surface and underground improvements, works, machinery, equipment, and all books and records pertaining to operations and surveys or investigations under this lease; and (2) the lessor to make copies of and extracts from any or all books and records pertaining to operations under this lease, if desired.

(i) Assignment of lease or interest therein.--To file for approval with the office prescribed in the regulations, within 90 days from the date of final execution, any assignment, sublease, or transfer made of this lease, whether by direct assignment, working agreement, transfer of royalty interest, or otherwise. Such instrument will take effect the first day of the month following its final approval by the Bureau of Land Management, or if the assignee requests, the first day of the month of the approval.

(j) Nondiscrimination.--In connection with the performance of work under this lease, the lessee agrees not to discriminate against any employee or applicant for employment because of race, religion, color or national origin. The aforesaid provision shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The lessee agrees to post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the nondiscrimination clause. The lessee further agrees to insert the foregoing provision in all subcontracts hereunder, except subcontracts for standard commercial supplies or raw materials.

(k) Lands disposed of with the coal deposits reserved to the United States.--If the lands embraced herein have been or shall hereafter be disposed of under laws reserving to the United States the deposits of coal therein, to comply with all conditions as are or may hereafter be provided by the laws and regulations reserving such coal.

(l) Operations, wages, freedom of purchase.--To comply with the operating regulations (30 CFR, Part 211), to exercise reasonable diligence, skill, and care in the operation of the property, and to carry on all operations in accordance with approved methods and practices as provided in the operating regulations, having due regard for the prevention of injury to life, health or property, and of waste or damage to any water or mineral deposits; to fairly and justly weigh or measure the coal mined by each miner; to pay all wages due miners and employees, both above and below ground, at least twice each month in lawful money of the United States; to accord all miners and employees complete freedom of purchase; to restrict the workday to not exceeding eight hours in any one day for underground workers, except in cases of emergency; to employ no boy under the age of sixteen and no girl or woman, without regard to age, in any mine below the surface; unless the laws of the State otherwise provide, in which case the State laws control.

(m) Taxes.--To pay when due, all taxes lawfully assessed and levied under the laws of the State or the United States upon improvements, output of mines, or other rights, property, or assets of the lessee.

(n) Overriding royalties.--Not to create, by assignment or otherwise, an overriding royalty interest in excess of 50 percent of the rate of royalty first payable to the United States under this lease or an overriding royalty interest which when added to any other outstanding overriding royalty interest exceeds that percentage, excepting, that where an interest in the leasehold or in an operating agreement is assigned, the assignor may retain an overriding royalty interest in excess of the above limitation if he shows to the satisfaction of the Bureau of Land Management, that he has made substantial investments for improvements on the land covered by the assignment.

(o) Delivery of premises in case of forfeiture.--In case of forfeiture of this lease, to deliver up to the lessor in good order and condition the land leased, including all buildings, and underground timbering and such other supports and structures as are necessary for the preservation of the mine or deposit.

Sec. 3. The lessor expressly reserves:

(a) Rights reserved.--The right to permit for joint or several use such easements or rights-of-way, including easements in tunnels upon, through, or in the land leased, occupied, or used as may be necessary or appropriate to the working of the same or other lands containing the deposits described in the act, and the treatment and shipment of the products thereof by or under authority of the Government, its lessees or permittees, and for other public purposes.

(b) Disposition of surface.--The right to lease, sell, or otherwise dispose of the surface of the leased lands under existing law or laws hereafter enacted, insofar as said surface is not necessary for the use of the lessee in the extraction and removal of the coal therein, or to dispose of any resource in such lands which will not unreasonably interfere with operations under this lease.

(c) Monopoly and fair prices.--Full power and authority to promulgate and enforce all the provisions of section 30 of the act to insure the sale of the production of said leased lands to the United States and to the public at reasonable prices, to prevent monopoly, and to safeguard the public welfare.

(d) Readjustment of terms.--The right reasonably to readjust and fix royalties payable hereunder and other terms and conditions at the end of 20 years from the date hereof and thereafter at the end of each succeeding 20-year period during the continuance of this lease unless otherwise provided by law at the time of the expiration of any such period. Unless the lessee files objections to the proposed terms or a relinquishment of the lease within 30 days after receipt of the notice of proposed terms for a 20-year period, he will be deemed to have agreed to such terms.

(e) Waiver of conditions.--The right to waive any breach of the conditions contained herein, except the breach of such conditions as are required by the act, but any such waiver shall extend only to the particular breach so waived and shall not limit the rights of the lessor with respect to any future breach; nor shall the waiver of a particular cause of forfeiture prevent cancellation of this lease for any other cause, or for the same cause occurring at another time.

Sec. 4. Relinquishment of lease.--Upon a satisfactory showing that the public interest will not be impaired, the lessee may surrender the entire lease or any legal subdivision thereof. A relinquishment must be filed in duplicate in the appropriate land office. Upon its acceptance it shall be effective as of the date

it is filed, subject to the continued obligation of the lessee and his surety to make payment of all accrued rentals and royalties and to provide for the preservation of any mines or productive works or permanent improvements on the leased lands in accordance with the regulations and terms of the lease.

Sec. 5. Protection of the surface, natural resources, and improvements.--The lessee agrees to take such reasonable steps as may be needed to prevent operations from unnecessarily: (1) Causing or contributing to soil erosion or damaging any forage and timber growth thereon; (2) polluting the waters of springs, streams, wells, or reservoirs; (3) damaging crops, including forage, timber, or improvements of a surface owner; or (4) damaging range improvements whether owned by the United States or by its grazing permittees or lessees; and upon any partial or total relinquishment or the cancellation or expiration of this lease, or at any other time prior thereto when required by the lessor and to the extent deemed necessary by the lessor, to fill any sump holes, ditches and other excavations, remove or cover all debris, and, so far as reasonably possible, restore the surface of the leased land to its former condition, including the removal of structures as and if required. The lessor may prescribe the steps to be taken and restoration to be made with respect to lands of the United States and improvements thereon.

Sec. 6. Removal of equipment, etc., on termination of lease.--Upon termination of this lease, by surrender or forfeiture, the lessee shall have the privilege at any time within a period of 90 days thereafter of removing from the premises all machinery, equipment, tools and materials, other than underground timbering placed by the lessee in or on the leased lands, which are not necessary for the preservation of the mine. Any materials, tools, appliances, machinery, structures, and equipment, subject to removal as above provided, which are allowed to remain on the leased lands shall become the property of the lessor on expiration of the 90-day period or such extension thereof as may be granted because of adverse climatic conditions, but the lessee shall remove any or all of such property where so directed by the lessor.

Sec. 7. Proceedings in case of default.--If the lessee shall not comply with any of the provisions of the act or the regulations thereunder or default in the performance or observance of any of the provisions of this lease, and such default shall continue for a period of 30 days after service of written notice thereof by the lessor, the lessor may institute appropriate proceedings in a court of competent jurisdiction for the forfeiture and cancellation of this lease as provided in section 31 of the act (30 U.S.C., sec. 188). If the lessee fails to take prompt and necessary steps to prevent loss or damage to the mine, property, or premises, or danger to the employees, the lessor may enter on the premises and take such measures as may be deemed necessary to prevent such loss or damage or to correct the dangerous or unsafe condition of the mine or works thereof, which shall be at the expense of the lessee. However, the lessee shall not be held responsible for delays or casualties occasioned by causes beyond the lessee's control.

Sec. 8. Heirs and successors in interest.--Each obligation hereunder shall extend to, and be binding upon, and every benefit hereof shall inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

Sec. 9. Unlawful interest.--No Member of, or Delegate to, Congress or Resident Commissioner, after his election or appointment, or either before or after he has qualified and during his continuance in office, and no officer, agent, or employee of the Department of the Interior, except as provided in 43 CFR 7.4(a)(1), shall be admitted to any share or part in this lease or derive any benefit that may arise therefrom; and the provisions of section 3741 of the Revised Statutes of the United States, as amended (41 U.S.C., sec. 22), and sections 431, 432, and 433, title 18, U.S.Code, relating to contracts, enter into and form a part of this lease so far as the same may be applicable.

IN WITNESS WHEREOF:

James L. French
Thomas A. Carr
(Witnesses to signature of lessee)

THE UNITED STATES OF AMERICA,
By [Signature]
(Signing Officer) APR 14 1958
Manager Land Office
(Title) (Date)

HUNTINGTON CORPORATION
(Lessee's signature)
By Laurence C. [Signature]
(Lessee's signature)
Laurence C. [Signature] Secretary
(If this lease is executed by a corporation, it must bear the corporate seal)

By [Signature] 7/90
Frederick M. [Signature]

1952)

UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau of Land Management

STIPULATION FOR LANDS UNDER JURISDICTION OF DEPARTMENT OF AGRICULTURE

The lands embraced in this lease (permit) issued under the Mineral Leasing Act of February 25, 1920 (41 Stat. 437, 30 U.S.C., 1946 ed., sec. 181 et seq.), as amended, the Mineral Leasing Act for Acquired Lands of August 7, 1947 (61 Stat. 913, 30 U.S.C., 1946 ed., Supp. III, sec. 351 et seq.) the act of September 1, 1949 (63 Stat. 683, 30 U.S.C., 1946 ed., Supp. III, sec. 192c) the act of June 30, 1950 (64 Stat. 311, 16 U.S.C., 1946 ed., Supp. IV, sec. 508(b)) or under the authority of any of the acts cited in section 402 of the President's Reorganization Plan No. 3 of 1946 (60 Stat. 1097, 5 U.S.C. 1946 ed., sec. 133 y-16, note) being under the jurisdiction of the Secretary of Agriculture, the lessee (permittee) hereby agrees:

(1) To conduct all operations authorized by this lease (permit) with due regard for good land management, not to cut or destroy timber without first obtaining permission from the authorized representative of the Secretary of Agriculture, and to pay for all such timber cut or destroyed at the rates prescribed by such representative; to avoid unnecessary damage to improvements, timber, crops, or other cover; unless otherwise authorized by the Secretary of Agriculture, not to drill any well, carry on operations, make excavations, construct tunnels, drill, or otherwise disturb the surface of the leased (permitted) lands within 200 feet of any building standing on the leased (permitted) lands and whenever required in writing by the authorized representative of the Secretary of Agriculture to fence or fill all sump holes, ditches and other excavations, remove or cover all debris, and so far as reasonably possible, restore the surface of the leased (permitted) lands to their former condition, including the removal of structures as and if required, and when required by such representative to bury all pipelines below plow depth.

(2) To do all in his power to prevent and suppress forest, brush or grass fires on the leased (permitted) land and in its vicinity, and to require his employees, contractors, subcontractors, and employees of contractors or subcontractors to do likewise. Unless prevented by circumstances over which he has no control, the lessee (permittee) shall place his employees, contractors, subcontractors, and employees of contractors and subcontractors employed on the leased (permitted) land at the disposal of any authorized officer of the Department of Agriculture for the purpose of fighting forest, brush, or grass fires on or originating on the leased (permitted) lands or on adjacent areas or caused by the negligence of the lessee (permittee) or his employees, contractors, subcontractors and employees of contractors and subcontractors, with the understanding that payment for such services shall be made at rates to be determined by the authorized representative of the Secretary of Agriculture, which rates shall not be less than the current rates of pay prevailing in the vicinity for services of a similar character: Provided, that if the lessee (permittee), his employees, contractors, subcontractors, or employees of contractors or subcontractors, caused or could have prevented the origin or spread of said fire or fires, no payment shall be made for services so rendered.

During periods of serious fire danger to forest, brush, or grass, as may be specified by the authorized representative of the Secretary of Agriculture, the lessee (permittee) shall prohibit smoking and the building of camp and lunch fires by his employees, contractors, subcontractors, and employees of contractors or subcontractors within the leased (permitted) area except at established camps, and shall enforce this prohibition by all means within his power: Provided, that the authorized representative of the Secretary of Agriculture may designate safe places where, after all inflammable material has been cleared away, campfires may be built for the purpose of heating lunches and where, at the option of the lessee (permittee), smoking may be permitted.

The lessee (permittee) shall not burn rubbish, trash or other inflammable materials except with the consent of the authorized representative of the Secretary of Agriculture and shall not use explosives in such a manner as to scatter inflammable materials on the surface of the land during the forest, brush, or grass fire season, except as authorized to do so on areas approved by such representative.

(3) In the location, design, construction and maintenance of all authorized works, buildings, plants, waterways, roads, telegraph or telephone lines, pipelines, reservoirs, tanks, pumping stations, or other structures or clearances, the lessee (permittee) shall take all measures reasonably necessary to prevent or reduce to the minimum extent scarring and erosion of the land, pollution of the water resources and any damage to the watershed. Where construction, operation, or maintenance of any of the facilities on or connected with this lease (permit) causes damage to the watershed or pollution of the water resources, the lessee (permittee) agrees to repair such damage and to take such corrective measures to prevent further pollution or damage to the watershed as are deemed necessary by the authorized representative of the Secretary of Agriculture.

(4) To pay the lessor (permitter) or his tenant or the surface owner or his tenant, as the case may be, for any and all damage to or destruction of property caused by lessee's (permittee's) operations hereunder; to save and hold the lessor (permitter) or the surface owner or their tenants harmless from all damage or claims for damage to persons or property resulting from lessee's (permittee's) operations under this lease (permit).

(5) To recognize existing uses and commitments, in the form of Department of Agriculture grazing, timber cutting, and special use permits, water developments, ditch, road, trail, pipeline, telephone line, and fence rights-of-way and other similar improvements, and to conduct his operations so as to interfere as little as possible with the rights and privileges granted by these permits or with other existing uses.

(6) To install and maintain cattle guards to prevent the passage of livestock in any openings made in fences by the lessee (permittee) or his contractors to provide access to the lands covered by this lease (permit) for automotive and other equipment.

(7) If lessee (permittee) shall construct any camp on the land, such camp shall be located at a place approved by the authorized representative of the Secretary of Agriculture, and such representative shall have authority to require that such camp be kept in a neat and sanitary condition.

(8) To comply with all the rules and regulations of the Secretary of Agriculture governing the national forests or other lands under his jurisdiction which are embraced in this lease (permit).

(9) Unless otherwise authorized, prior to the beginning of operations to appoint and maintain at all times during the term of this lease (permit) a local agent upon whom may be served written orders or notices respecting matters contained in this stipulation, and to inform the authorized representative of the Secretary of Agriculture, in writing, of the name and address of such agent. If a substitute agent is appointed, the lessee (permittee) shall immediately so inform the said representative.

(10) To address all matters relating to this stipulation to Regional Forester, U. S. Forest Service, Forest Service Building, Ogden, Utah. at _____ who is the authorized representative of the Secretary of Agriculture, or to such other representative as may from time to time, be designated, provided that such designation shall be in writing and be delivered to the lessee (permittee) or his agent.

(11) If all or any part of the leased (permitted) lands lie within a municipal watershed or are, in the opinion of the authorized representative of the Secretary of Agriculture, primarily valuable for watershed protection, the lessee (permittee) shall reseed or otherwise restore the vegetative cover, as required by the authorized representative of the Secretary of Agriculture, for watershed protection and erosion prevention on any areas damaged because of the operation.

This lease authorizes mining by underground methods only.

No roads or tipple sites will be located on national forest lands without obtaining prior written approval of the forest supervisor.

HUNTINGTON CORPORATION

Lessee (Permittee)

By: Laurence S. Duerig

Secretary

2F-8

By: Frederick L. Anderson

Frederick L. Anderson, President

7/90

Form 4-696
October 1955

UNITED STATES
DEPARTMENT OF THE INTERIOR
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containing 1,800 acres, more or less, together with the right to construct all such works, buildings, plants, structures, and appliances as may be necessary and convenient for the mining and preparation of the coal for market, the manufacture of coke or other products of coal, the housing and welfare of employees, and, subject to the conditions herein provided, to use so much of the surface as may reasonably be required in the exercise of the rights and privileges herein granted.

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(a) Bond.--To maintain the bond furnished upon the issuance of this lease, which bond is conditioned upon compliance with all the provisions of the lease, and to increase the amount of or furnish such other bond as may be required.

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Sec. 4. Relinquishment of lease.--Upon a satisfactory showing that the public interest will not be impaired, the lessee may surrender the entire lease or any legal subdivision thereof. A relinquishment must be filed in duplicate in the appropriate land office. Upon its acceptance it shall be effective as of the date

it is filed, subject to the continued obligation of the lessee and his surety to make payment of all accrued rentals and royalties and to provide for the preservation of any mines or productive works or permanent improvements on the leased lands in accordance with the regulations and terms of the lease.

Sec. 5. Protection of the surface, natural resources, and improvements.--The lessee agrees to take such reasonable steps as may be needed to prevent operations from unnecessarily: (1) Causing or contributing to soil erosion or damaging any forage and timber growth thereon; (2) polluting the waters of springs, streams, wells, or reservoirs; (3) damaging crops, including forage, timber, or improvements of a surface owner; or (4) damaging range improvements whether owned by the United States or by its grazing permittees or lessees; and upon any partial or total relinquishment or the cancellation or expiration of this lease, or at any other time prior thereto when required by the lessor and to the extent deemed necessary by the lessor, to fill any sump holes, ditches and other excavations, remove or cover all debris, and, so far as reasonably possible, restore the surface of the leased land to its former condition, including the removal of structures as and if required. The lessor may prescribe the steps to be taken and restoration to be made with respect to lands of the United States and improvements thereon.

Sec. 6. Removal of equipment, etc., on termination of lease.--Upon termination of this lease, by surrender or forfeiture, the lessee shall have the privilege at any time within a period of 90 days thereafter of removing from the premises all machinery, equipment, tools and materials, other than underground timbering placed by the lessee in or on the leased lands, which are not necessary for the preservation of the mine. Any materials, tools, appliances, machinery, structures, and equipment, subject to removal as above provided, which are allowed to remain on the leased lands shall become the property of the lessor on expiration of the 90-day period or such extension thereof as may be granted because of adverse climatic conditions, but the lessee shall remove any or all of such property where so directed by the lessor.

Sec. 7. Proceedings in case of default.--If the lessee shall not comply with any of the provisions of the act or the regulations thereunder or default in the performance or observance of any of the provisions of this lease, and such default shall continue for a period of 30 days after service of written notice thereof by the lessor, the lessor may institute appropriate proceedings in a court of competent jurisdiction for the forfeiture and cancellation of this lease as provided in section 31 of the act (30 U.S.C., sec. 188). If the lessee fails to take prompt and necessary steps to prevent loss or damage to the mine, property, or premises, or danger to the employees, the lessor may enter on the premises and take such measures as may be deemed necessary to prevent such loss or damage or to correct the dangerous or unsafe condition of the mine or works thereof, which shall be at the expense of the lessee. However, the lessee shall not be held responsible for delays or casualties occasioned by causes beyond the lessee's control.

Sec. 8. Heirs and successors in interest.--Each obligation hereunder shall extend to, and be binding upon, and every benefit hereof shall inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

Sec. 9. Unlawful interest.--No Member of, or Delegate to, Congress or Resident Commissioner, after his election or appointment, or either before or after he has qualified and during his continuance in office, and no officer, agent, or employee of the Department of the Interior, except as provided in 43 CFR 7.4(a)(1), shall be admitted to any share or part in this lease or derive any benefit that may arise therefrom; and the provisions of section 3741 of the Revised Statutes of the United States, as amended (41 U.S.C., sec. 22), and sections 431, 432, and 433, title 18, U.S. Code, relating to contracts, enter into and form a part of this lease so far as the same may be applicable.

IN WITNESS WHEREOF:

James L. French
Thomas A. Carr
(Witnesses to signature of lessee)

THE UNITED STATES OF AMERICA,
By [Signature]
(Signing Officer) APR 14 1958
Manager Land Office
(Title) (Date)

HUNTINGTON CORPORATION
(Lessee's signature)
By Laurence H. [Signature]
(Lessee's signature)
Laurence H. [Signature] Secretary
(If this lease is executed by a corporation, it must bear the corporate seal)

1952
UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau of Land Management

STIPULATION FOR LANDS UNDER JURISDICTION OF DEPARTMENT OF AGRICULTURE

The lands embraced in this lease (permit) issued under the Mineral Leasing Act of February 25, 1920 (41 Stat. 437, 30 U.S.C., 1946 ed., sec. 181 et seq.), as amended, the Mineral Leasing Act for Acquired Lands of August 7, 1947 (61 Stat. 913, 30 U.S.C., 1946 ed., Supp. III, sec. 351 et seq.) the act of September 1, 1949 (63 Stat. 683, 30 U.S.C., 1946 ed., Supp. III, sec. 192c) the act of June 30, 1950 (64 Stat. 311, 16 U.S.C., 1946 ed., Supp. IV, sec. 508(b)) or under the authority of any of the acts cited in section 402 of the President's Reorganization Plan No. 3 of 1946 (60 Stat. 1097, 5 U.S.C. 1946 ed., sec. 133 y-16, note) being under the jurisdiction of the Secretary of Agriculture, the lessee (permittee) hereby agrees:

(1) To conduct all operations authorized by this lease (permit) with due regard for good land management, not to cut or destroy timber without first obtaining permission from the authorized representative of the Secretary of Agriculture, and to pay for all such timber cut or destroyed at the rates prescribed by such representative; to avoid unnecessary damage to improvements, timber, crops, or other cover; unless otherwise authorized by the Secretary of Agriculture, not to drill any well, carry on operations, make excavations, construct tunnels, drill, or otherwise disurb the surface of the leased (permitted) lands within 200 feet of any building standing on the leased (permitted) lands and whenever required in writing by the authorized representative of the Secretary of Agriculture to fence or fill all sump holes, ditches and other excavations, remove or cover all debris, and so far as reasonably possible, restore the surface of the leased (permitted) lands to their former condition, including the removal of structures as and if required, and when required by such representative to bury all pipelines below plow depth.

(2) To do all in his power to prevent and suppress forest, brush or grass fires on the leased (permitted) land and in its vicinity, and to require his employees, contractors, subcontractors, and employees of contractors or subcontractors to do likewise. Unless prevented by circumstances over which he has no control, the lessee (permittee) shall place his employees, contractors, subcontractors, and employees of contractors and subcontractors employed on the leased (permitted) land at the disposal of any authorized officer of the Department of Agriculture for the purpose of fighting forest, brush, or grass fires on or originating on the leased (permitted) lands or on adjacent areas or caused by the negligence of the lessee (permittee) or his employees, contractors, subcontractors and employees of contractors and subcontractors, with the understanding that payment for such services shall be made at rates to be determined by the authorized representative of the Secretary of Agriculture, which rates shall not be less than the current rates of pay prevailing in the vicinity for services of a similar character: Provided, that if the lessee (permittee), his employees, contractors, subcontractors, or employees of contractors or subcontractors, caused or could have prevented the origin or spread of said fire or fires, no payment shall be made for services so rendered.

During periods of serious fire danger to forest, brush, or grass, as may be specified by the authorized representative of the Secretary of Agriculture, the lessee (permittee) shall prohibit smoking and the building of camp and lunch fires by his employees, contractors, subcontractors, and employees of contractors or subcontractors within the leased (permitted) area except at established camps, and shall enforce this prohibition by all means within his power: Provided, that the authorized representative of the Secretary of Agriculture may designate safe places where, after all inflammable material has been cleared away, campfires may be built for the purpose of heating lunches and where, at the option of the lessee (permittee), smoking may be permitted.

The lessee (permittee) shall not burn rubbish, trash or other inflammable materials except with the consent of the authorized representative of the Secretary of Agriculture and shall not use explosives in such a manner as to scatter inflammable materials on the surface of the land during the forest, brush, or grass fire season, except as authorized to do so on areas approved by such representative.

The lessee (permittee) shall build or construct such roads or do such clearing on the leased land as the authorized representative of the Secretary of Agriculture decides is essential for forest, brush, and grass fire prevention which is or may be necessitated by the exercise of the privileges authorized by this lease (permit) and shall maintain such roads at his headquarters or at the appropriate location on the leased land.

(3) In the location, design, construction and maintenance of all authorized works, buildings, plants, waterways, roads, telegraph or telephone lines, pipelines, reservoirs, tanks, pumping stations, or other structures or clearances, the lessee (permittee) shall take such reasonable and necessary measures to prevent or reduce to the minimum extent scarring and erosion of the land, pollution of the water resources and any damage to the watershed. Where construction, operation, or maintenance of any of the facilities on or connected with this lease (permit) causes damage to the watershed or pollution of the water resources, the lessee (permittee) agrees to repair such damage and to take such corrective measures to prevent further pollution or damage to the watershed as are deemed necessary by the authorized representative of the Secretary of Agriculture.

(4) To pay the lessor (permitter) or his tenant or the surface owner or his tenant, as the case may be, for any and all damage to or destruction of property caused by lessee's (permittee's) operations hereunder; to save and hold the lessor (permitter) or the surface owner or their tenants harmless from all damage or claims for damage to persons or property resulting from lessee's (permittee's) operations under this lease (permit).

(5) To recognize existing uses and commitments, in the form of Department of Agriculture grazing, timber cutting, and special use permits, water developments, ditch, road, trail, pipeline, telephone line, and fence rights-of-way and other similar improvements, and to conduct his operations so as to interfere as little as possible with the rights and privileges granted by these permits or with other existing uses.

(6) To install and maintain cattle guards to prevent the passage of livestock in any openings made in fences by the lessee (permittee) or his contractors to provide access to the lands covered by this lease (permit) for automotive and other equipment.

(7) If lessee (permittee) shall construct any camp on the land, such camp shall be located at a place approved by the authorized representative of the Secretary of Agriculture, and such representative shall have authority to require that such camp be kept in a neat and sanitary condition.

(8) To comply with all the rules and regulations of the Secretary of Agriculture governing the national forests or other lands under his jurisdiction which are embraced in this lease (permit).

(9) Unless otherwise authorized, prior to the beginning of operations to appoint and maintain at all times during the term of this lease (permit) a local agent upon whom may be served written orders or notices respecting matters contained in this stipulation, and to inform the authorized representative of the Secretary of Agriculture, in writing, of the name and address of such agent. If a substitute agent is appointed, the lessee (permittee) shall immediately so inform the said representative.

(10) To address all matters relating to this stipulation to Regional Forester, U. S. Forest Service, Forest Service Building, Ogden, Utah. at _____ who is the authorized representative of the Secretary of Agriculture, or to such other representative as may from time to time, be designated, provided that such designation shall be in writing and be delivered to the lessee (permittee) or his agent.

(11) If all or any part of the leased (permitted) lands lie within a municipal watershed, or are, in the opinion of the authorized representative of the Secretary of Agriculture, primarily valuable for watershed protection, the lessee (permittee) shall reseed or otherwise restore the vegetative cover, as required by the authorized representative of the Secretary of Agriculture, for watershed protection and erosion prevention on any areas damaged because of the operation.

This lease authorizes mining by underground methods only.

No roads or tippie sites will be located on national forest lands without obtaining prior written approval of the forest supervisor.

HUNTINGTON CORPORATION

Lessee (Permittee)

By: Laurence A. Huerig

Secretary

2F-14

7/90

By: Frederick L. Anderson

Frederick L. Anderson, President

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The Bear Canyon Haul Road is a Class I road approx 1800 ft long from the gate to the scale house. The road is 30 ft wide and crowned in the middle (Plate 3-5). Drainage is provided by ditches on each side and culverts are installed where needed.

The mine area/portal access road is a Class II road, approx 2,112 ft long and drainage structures are also in place (Plates 3-1 and 3-5). Three other Class II roads provide access to the Sediment Pond A, the coal preparation facility and to the bathhouse. Sections of these three roads are found on Plate 3-1a.

There is one Class III (jeep trail) road shown near the portal on plate 2-4, but it is not in use.

Roads are maintained in such a manner that the performance standards will be met throughout the life of the entire transportation facility, including maintenance of the surface, shoulders, parking and side areas, and erosion control structures for safe and efficient utilization of the road.

Reclamation of roads and parking areas is treated in the same manner as other working areas. Any asphalt or treated surfaces will be removed prior to rehabilitated upon completion of mining. See Plates 3-1, 3-1a, 3-2 and 3-5, and road agreement under Appendix 3-D.

3.3.11 Topsoil Storage Piles

Topsoil storage piles are located as shown in Plate 8-3. This material will be recovered as needed to carry out the reclamation plan described herein.

3.3.12 Explosives Storage and Handling

Co-Op has an explosives facility within the permit area but does not anticipate the use of explosives in their normal mining operation. However, in the unlikely event the need arises in the underground operation the following procedure will be adhered to:

3.3.12.1 Use of Explosives

There will be no surface blasting activities incident to this underground operation. There is a possibility that the need to use explosives in the underground operation to advance through faults, dikes, or other rock strata too hard for cutting by the continuous miner. Any use of explosives in the underground operation will be in compliance with all applicable state and federal laws, and will be conducted by persons trained, examined and industrial commission. Blasting material will be stored in fire proof bullet proof magazines and clearly designated as an (Explosive Storage Area), as required by state and federal laws.

3.5 ENVIRONMENTAL PROTECTION

3.5.1 Preservation of Land Use

COP Development Company, which is the legal owner of affected surface operations, anticipates that the post-mining land uses of the affected areas will remain the same as the pre-mining land uses. These uses are identified in Chapter 4. State or local governments have not proposed any changes in land use following reclamation.

Once operations in an area have ceased, the disturbed area *should be "regraded" ~~disturbed~~ areas (i)* will be scarified, sloped and seeded before the next growing season. The site will be reseeded with a mixture of seed approved by the Division of Oil, Gas, and Mining. Grass will be maintained by fertilization or reseeded until stable up to five years (Section 9.5). Co-Op is committed to total Reclamation of all disturbed areas. The mine access roads to the mine portal will be reclaimed and revegetated. This will accomplish a dual purpose of controlling runoff and revegetating the hillsides with vegetation comparable to existing growth.

Emery County zoning ordinances classify the Bear Canyon Mine plan area as Mining and Grazing (MG-1) and Critical Environment (CE-1). Co-Op will cooperate with all state and local land use plans and programs.

3.5.1.1 Projected Impacts of Mining on Current and Future Land Use

The tentative acreage to be disturbed for each activity described above are as follows:

Mine Shop Area	.75	acres
Mine Access Road	2.15	acres
Portal and Pad Areas	5.1	acres
Sediment Treatment Area	.5	acres
Scale Area	1.42	acres
Bath House/Road Widening	<u>1.98</u>	<u>acres</u>
Total	11.90	acres

The management objectives and the impacts from the Bear Canyon Mine pertaining to these objectives are described in detail in Chapter 4.

Impacts. Approx 12 acres of soil will be disturbed within the permit area. This includes loadout areas, offices, shops and substations, roads, portal areas, bath house and the topsoil storage area. The reduction in desirable plant species will temporarily reduce forage production and wildlife capacities. The short-term negative impact of vegetation removal would be outweighed by the positive impacts of revegetation and improved fire protection and prevention.

Wildlife in the area will adapt to the operation in a relative short time as witnessed by existing coal operations. Proposed construction may temporarily disrupt wildlife if human disturbance

is not kept to a minimum. These topics are discussed in detail in the Wildlife Report, Chapter 10.

3.5.1.2 Control Measures to Mitigate Impacts

Reclamation activities in the permit area will be directed toward minimizing the overall impact of coal mining. This can be accomplished by careful planning of the disturbed areas that must be later reclaimed.

The mine surface operation facilities proposed, will be returned to a wildlife/grazing habitat at the conclusion of the mining operation. The pre-mining and proposed post-mining uses are therefore identical for all areas (Chapter 4).

The initial step in the reclamation plan is to seal all large diameter openings. This will be accomplished by backfilling these openings with non-combustible material. The seals will be designed so that mine drainage, if any, will not enter surface water bodies. For a more detailed description of the sealing of openings see Section 3.6.3.1, Sealing of Mine Openings, Drill Holes, Wells, etc.

The next step in reclamation would be the removal of all surface structures, equipment and road blacktop. Next, all solid waste generated in abandonment operation will be collected and removed from the reclaiming areas. Additional information

concerning this aspect of the reclamation plan is presented in Section 3.6.3.2., Removal of Surface Structures.

Backfilling of the subterranean portion of the silos, holes and depressions will be the next reclamation activity. Once backfilling is completed, drainage will be returned and disturbed areas will be graded and recontoured. A detailed description of this reclamation phase is found in Section 3.6.4, Backfilling and Grading Plans.

A Suitably permanent and diverse vegetative cover, as required by the appropriate land management agency, will be established on all affected land. (See Sec. 9.5 and 10.5 for details). Land reclamation will take place as soon as possible after surface disturbance. All cut and fill slopes resulting from construction of the access road will be stabilized and revegetated at the first seasonal opportunity. Areas occupied by support facilities such as roads, office buildings, shops and coal handling structures will not be reclaimed until conclusion of the mining operation.

3.5.2 Protection of Human Values

There are no public parks nor historical sites worthy of preservation in the permit area.

discussion of the reclamation effort.

3.5.4.1 Projected Impacts of Mining on Soil Resources

Since the Bear Canyon Mine is an underground mine at the site of an old works, the overall impact of mining on soils will be minor. The impacts of surface operations and mining facilities on soil resources consist of coverage of soil by facilities, disturbance of soils during construction activities, erosion created by removing vegetation, reduced forage growth due to nutrient degradation, reduced wildlife capacity and particulate emissions to the air. However, the abandoned mine had large accumulations of debris which has now been cleaned up, which to a large degree constitutes enhancement.

3.5.4.2 Control Measures to Mitigate Impacts

The objectives of the proposed backfilling as soon as operation are concluded in each disturbed area, the removed topsoil will be redistributed on the site in a 6 in. uniform lift. Methods and techniques are detailed in Section 3.6.4.4, Soil Redistribution and Stabilization.

Topsoil Removal and Protection. Before new construction or mining activity that will disturb the surface of relative undisturbed areas, topsoil will be removed from the effected area. Vegetation

will first be removed, then topsoil will be segregated from other materials, removed and stockpiled separately in a stable approved site within the permit area. The stockpile will be protected from erosion, compaction, or contamination and will be stabilized with interim revegetation procedures.

Backfill, Compaction and Grading. To the maximum extent practicable, disturbed surface areas will be backfilled, compacted and graded according to the approved time schedule. The purpose of these operations is to return disturbed areas to approx original makeup and contour. Wherever possible, backfilling will return the various soil horizons to their original site and make them compatible with surrounding areas. Compaction will help the returned soils remain in place. Grading will restore the contour to as near the original state as possible; however, because of local conditions, large-scale backfilling, compaction and grading will not be possible in many areas.

Since this mine produces no acid-forming or toxic-forming materials, backfilling required to cover such materials will be limited (Appendix 3-E).

Physical and Chemical Soil Stabilization. Soils will be stabilized by physical and chemical methods before planting. This will include placement of crushed heavy material at the top of road-fill slopes, for example. Other approved and proven methods will be

employed as necessary. Chemical stabilization will include the addition of neutralizing chemicals to soils shown to be excessively acidic or basic. Nutrients and soil amendments will be added in the amounts indicated by soil layer can sustain the approved post-mining land use.

Biological Soil Stabilization. Returned soils will be stabilized biologically by revegetation of disturbed areas. This stabilization effect will be accomplished by the new vegetative cover, particularly small shrubs and trees. This aspect of soil stabilization will begin as soon as topsoil is redistributed. Section 3.6.5, Revegetation Plan, provides specific detail on the aspect of the reclamation plan.

3.5.5 Protection of Vegetative Resources

Co-Op has maintained a commitment to reclaim the unused disturbed areas to the extent of the cover of the natural vegetation on the mine plan area. Chapter 9, Vegetative resources, provides a preliminary report on the vegetative resources of the area.

3.5.5.1 Projected Impacts of Mining on Vegetative Resources

Since the Bear Canyon Mine is an underground mine, the overall impact on surface vegetation is minor. The effects of surface operations on vegetation from new construction areas, on-site

erosion and reduction of desirable plant species which will reduce forage production and wildlife capacity.

3.5.5.2 Mitigating Measures to be Employed to Reduce Impacts on Vegetative Resources

All disturbed areas will be planted and revegetated during the first appropriate season following grading and redistribution of topsoil. This program will include any necessary addition of remedial treatments to the soil. A suitable, permanent and diverse vegetative cover has been selected on the basis of appropriate land management agency requirements and will be established on all reclaimed areas (Chapter 9). The schedule of the program is presented in Section 3.6.6. What follows is an outline of the major aspects of the revegetation plan. The specific measures involved will be addressed on a site specific basis.

Seeding and Planting (817.111). All plants used to revegetate the disturbed areas will be native or compatible species selected specifically for the vegetative community, as detailed in Section 9.3.2. Seed types will include wheatgrass, salina wildrye, sagebrush, pinyon and juniper and are listed in Chapter 9, Section 9.5. Wherever possible, seed will be drilled or disked into the ground. In steep slope areas, where such techniques are difficult or impossible, hydro-seedings or cyclone spreader seeding will be

done.

Native shrubs will be used for shrub replanting. These will be potted seedlings, if available. Bare-root trees will be used to some extent. Seedling will be planted during the months of April - May when possible however, depending on availability fall planting would occur September - October.

Mulching and Moisture Retention. As required, all regraded and topsoiled areas will be mulched or otherwise treated to promote germination of seeds and to retain moisture. Various moisture-retention products are available and are detailed in the specific reclamation plan chapter 9.

Maintenance. Should such procedures prove necessary to the success of the revegetation plan, protection of replanted areas from animals may be carried out. Such procedures however, are unlikely to be needed because the species to be selected should not require continuous or considerable maintenance beyond replanting.

3.5.5.3 Monitoring Procedures

Qualitative observations of revegetated areas will be made yearly throughout the ten year liability period. Quantitative measurements of reclamation will be collected during years 3, 5, 7, 9 and 10 of the same bond liability period. Any areas not

SURVEY RENEWABLE RESOURCE LANDS
AND POTENTIAL OF SUBSIDENCE IMPACTS

On June 13, 1984, an area survey was conducted of the entire Bear Canyon Mine Permit Area as well as all surrounding areas which could feasibly be impacted by subsidence. The results of that survey are as follows:

- a. Hydrologic Balance. There are no seeps and/or springs above the area of the coal beds. No surface water was observed other than Bear Creek which lies beyond the potential area of subsidence.
- b. Timber. There is no marketable timber within the area and the terrain is so steep as to preclude the establishment and/or harvest of such.
- c. Vegetation (Ref. grazing). The bulk of the area is high priority wildlife habitat. Potential impacts were evaluated in cooperation with UDWR Personnel. The results of that evaluation are discussed under Impacts.

The terrain is inhospitable to domestic grazing and is not utilized as such under present or future land use practices.

R614-301-528.330 Disposal of Non-Coal Waste. Co-Op has undertaken a massive clean-up operation wherein large quantities of scrap have already been removed from the permit area. This operation was completed (1 Sept 1983) the balance of the salvageable equipment is being stored in the designated area.

The equipment which is not scrapped out is temporarily stored in the storage yard in Bear Canyon. This site is situated in such a manner to insure that whatever runoff results from the area will pass through designated sediment facilities.

The non-coal waste (other than rock refuse) generated in the operation of the mine is placed in metal dumpsters which are strategically located on the property. A local trash collector is contracted to replace these bins when they are approx 80 pct full,

Appendix 3-E addresses a comprehensive plan to handle toxic or contaminated material in the course of reclamation.

3.6 RECLAMATION PLAN

Co-Op upon completion of mining on the permit area, will reclaim all disturbed surface areas as diligently and rapidly as possible, to restore the property to a variety of alternative uses. All reclaimed areas will be maintained for the entire 10 yr responsibility period.

The post-mining land uses will be grazing, recreation, wildlife and mineral. Portals will be closed and concrete foundations will be buried with fill material.

Where physically possible, disturbed areas will be scarified, sloped, topsoiled and seeded or planted before the next growing season. The site will be revegetated with a mixture of grasses, forbs, brush and trees as agreed upon with the appropriate land management agencies. Reclaimed areas will be maintained during the ten year liability period. Seed will be planted with the best techniques available at that time (Chapter 9).

Proposed access roads, to the mine portals, will be reclaimed and revegetated. This will accomplish a dual purpose of controlling runoff and revegetating the hillsides with vegetation comparable to existing growth.

The initial step in the reclamation plan is to seal all large-diameter openings by backfilling these openings with non-combustible material, (earth & small rock) adjacent to the portals. The seals will be designed such that mine drainage, if any, will not enter surface water bodies. For a more detailed description of the dealing of openings, see Section 3.6.3.1, Sealing of mine Openings, Drill Holes, Wells, etc.

The next step in reclamation would be the removal of all

surface structures, equipment and road blacktop. Once this has been accomplished, all solid waste generated in the abandonment operation will be collected and removed from the reclaiming areas. Additional information concerning this aspect of the reclamation plan is present in Section 3.6.3.2, Removal of Surface Structures.

Backfilling of the subterranean portion of the silos, holes and depressions will be the next reclamation activity, Once the backfilling is completed, the disturbed areas will be graded and recontoured. A detailed description of these reclamation phase is found in Section 3.6.4, Backfilling and Grading.

Reclamation Timetable. A suitably permanent and diverse vegetation cover to be established on all affected areas of land.

Land reclamation will take place as soon as possible after surface disturbance. All cut and fill slopes resulting from construction of access roads and coal yards will be stabilized and revegetated at the first seasonal opportunity. Areas occupied by support facilities such as roads, office buildings, shops, coal handling structures and conveyors will not be reclaimed until conclusion of the mining operations. Demolition and removal of structures should commence in March, April 2033. Portal seals and grading should commence in June and be completed by September 2033. Drill and hydroseeding and stream enhancement work should be completed by 30 Oct. The area should be monitored during July

2034, and again during July 2035, at this point shrub and tree density, as a result of planting, can be determined. When the vegetation standard is achieved, the sediment control structures will be removed.

3.6.1 Contemporaneous Reclamation

Interim Reclamation (during operations) has occurred in areas that are no longer needed or that require short term stabilization. These areas were seeded and mulched. Other areas may be reclaimed at different times during the operation as specific activities are concluded (Appendix 3-G). This same procedure will apply to any area which becomes available during the life of the mine, and will be implemented upon the first available favorable season.

3.6.2 Soil Removal and Storage

To prevent suitable topsoil from being wasted or contaminated by spoil or other waste materials topsoil was removed from all new construction areas as a separate operation. The topsoil is stockpiled and protected from wind and water erosion and contamination which might lessen its capability to support vegetation. The following subsections deal specifically with the various phases of the topsoil and subsoil handling plan. There is approx 2,600 cu yds of topsoil site in Bear Canyon. The balance of 5,500 cu yds has been purchased from RAILCO Company, was tested

to insure its compatibility, and is located on the Ball Park Storage Area (Plate 8-3).

Topsoil Removal. At the start of any construction phase, topsoil has been collected from the area where useable soil existed. Existing vegetation has been removed and the topsoil collected prior to excavation of other surface disturbance operations with affected areas. The depth of topsoil removal in each case depends on the amount of A and B horizon material as defined in OSM Regulation 30 CFR 783.21 and 783.22.

The topsoil in these areas consists of A horizon quality material and B horizon quality material. The C horizon material was not removed since it is not sufficiently capable of supporting diverse vegetation. Chapter 8 presents additional soil information.

The equipment used for topsoil removal consisted of bulldozers, front-end loaders and dump trucks. The use of bulldozers require pushing of the topsoil to a collection point for loading into dump trucks or other means of transportation to the designated stockpile. Adequate supervisory personnel were present at the time of topsoil removal to instruct the equipment operators in the proper techniques of topsoil removal and to ensure that required horizons were removed and stored.

Topsoil Stockpile. During any stockpiling operation, unnecessary compaction was prevented by limiting the equipment traffic over the stockpile. Plans involving topsoil storage can be labeled as "short term" or "long term" depending on completion of activities in each area and the reclamation schedule presented in Section 3.6.6.

Short-Term Topsoil Storage Areas. Short-term stockpiles of topsoil will be for areas to be reclaimed almost immediately upon cutting and at final grade. Topsoil will be redistributed promptly to minimize natural degradation processes. (such as pipeline trenches, etc.)

Long-Term Topsoil Storage Areas. During any new construction of areas that will be used for the duration of the mining operation within the permit area, topsoil will be collected and stockpiled. the topsoil will be used later for post-mining reclamation of the abandonment areas.

Topsoil Protection. The short-term topsoil will be sprayed with water or temporary vegetated to retard erosion. The long-term topsoil stockpile will be protected by the following operational steps:

- a. A stable surface will be provided in an area outside the influence of active operation.

- b. As a stockpile is completed, it will be left in a rough condition to minimize erosion.
- c. Stockpiles will be situated and protected to prevent water erosion and sprayed with a tackifying agent.
- d. Storage piles will be vegetated with quick growing soil-stabilizing plants.
- e. Signs will be posted to protect the stockpiles from accidental use as fill or from other inadvertent material contamination.
- f. The establishment of noxious plant series will be prevented.

The stockpiled topsoil will not be removed or otherwise disturbed until required for the redistribution operation on a prepared, regraded disturbed area.

Topsoil Redistribution. Prior to topsoil redistribution, regraded land will be scarified by a ripper-equipped tractor. The ground surface will be ripped to a depth of 14 in. in order to reduce surface compaction, provide a roughened surface to assure topsoiled adherence and promote root penetration.

Within a ten day period prior to seeding, topsoil will be distributed on all areas to be reclaimed. During this time the topsoil will be allowed to settle and attain equilibrium with its natural environment. This procedure will be followed for all areas in which facilities such as roadbed, mine pads and building sites are to be abandoned.

Topsoil redistribution procedures will ensure approx uniform thickness of 6 in. consistent with the proposed reclamation plan. Topsoil will be redistributed within a ten day period prior to seeding and establishment of permanent vegetation.

To minimize compaction of the topsoil following redistribution, travel on reclaimed areas will be limited. After topsoil has been applied, surface compaction will be reduced by using a disk running at a 6 in. depth. This operation will also help prepare a proper seed bed and protect the redistributed topsoil from wind and water erosion.

Co-Op will exercise care to guard against erosion during and after application of topsoil and will employ the necessary measure outlined in Chapter 8, to ensure the stability of topsoil on graded slopes.

3.6.3 Final Abandonment

Co-Op anticipated that the post-mining land uses of the permit area will be the same as the pre-mining. State and local governments have not proposed any land use changes for the post-mining period. This section delineates the abandonment and reclamation steps to be taken which will allow a return to the original land use once mining operations are complete. In general, disturbed portions of the mine plan area will be returned to their original wildlife/grazing habitat.

Method of Achieving and Supporting Post-Mining Land Uses. The following presents the abandonment steps and revegetation/reclamation activities which represent the method of achieving and supporting post-mining land uses. The activities are organized in the approx order of execution. These listed activities are also discussed in Chapter 4.

3.6.3.1 Sealing of Mine Openings. Drill Holes, Wells, etc.

Exploratory Holes, Bore Holes, And Wells. Upon abandonment of drilling operations, all drill holes are to be cemented with an approved slurry. The slurry mixture will consist of 5.2-5.5 gal. of water per bag of cement. Co-Op is committed to plugging all drill holes with 5 ft of cement as required by rule M3(5) UMLR Act of 1975.

Shafts. The shafts will be filled from bottom to collar with non-combustible material. A cap consisting of a 6 inch thick reinforced concrete slab will be used as a seal. The cap will be equipped with a 2 inch diameter vent pipe and will extend for a distance of 15 ft below the surface of the shaft collar.

Mine Entries (R614-301-529). Seals will be installed in all entries as soon as mining is completed and the mine is to be abandoned. Seals will be located at least 25 ft inside the portal mouth entry. Prior to installation all loose material within 3 ft of the seal will be removed from the roof, fib and floor. The mine entry seals will be made of solid concrete blocks (average min compressive strength of 1,800 lbf/in² tested in accordance with ASTM C140-70) and mortar (1 part cement, 3 parts sand and no more than 7 gallons of water per sack of cement) to form a wall two blocks thick.

Seals will be installed in the following manner:

- a. The seal will be recessed at least 16 inches deep into the fib and 12 inches deep into the floor. No recess will be made into the roof. The recess will be made into the floor. The blocks will be at least 6 inches high, except in the top course and 8 inches wide.
- b. The blocks will be laid and mortared in a transverse pattern.

Shafts. The shafts will be filled from bottom to collar with non-combustible material. A cap consisting of a 6 inch thick reinforced concrete slab will be used as a seal. The cap will be equipped with a 2 inch diameter vent pipe and will extend for a distance of 15 ft below the surface of the shaft collar.

Mine Entries (UMC 817.13-15). Seals will be installed in all entries as soon as mining is completed and the mine is to be abandoned. Seals will be located at least 25 ft inside the portal mouth entry. Prior to installation all loose material within 3 ft of the seal will be removed from the roof, rib and floor. The mine entry seals will be made of solid concrete blocks (average min compressive strength of 1,800 lbf/in² tested in accordance with ASTM C140-70) and mortar (1 part cement, 3 parts sand and no more than 7 gallons of water per sack of cement) to form a wall two blocks thick.

Seals will be installed in the following manner:

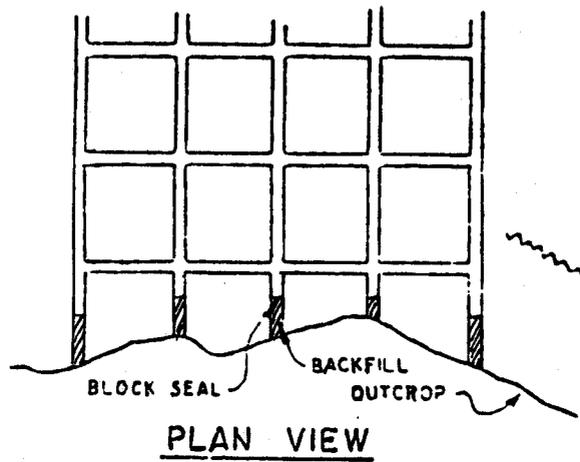
- a. The seal will be recessed at least 16 inches deep into the rib and 12 inches deep into the floor. No recess will be made into the roof. The recess will be made into the floor. The blocks will be at least 6 inches high, except in the top course and 8 inches wide.
- b. The blocks will be laid and mortared in a transverse pattern.

In the bottom course, each block will be laid with its long axis parallel to the rib. The long axis in succeeding courses will be perpendicular to the long axis block in the preceding course. An interlaced pilaster will be constructed in the center. The seals will have a total thickness of 16 inches. Where conditions permit, the portal seals will be graded to conform with existing surface contours and seeded. In those instances where sizable highwalls established in preparing the portal site cannot be returned to original contours.

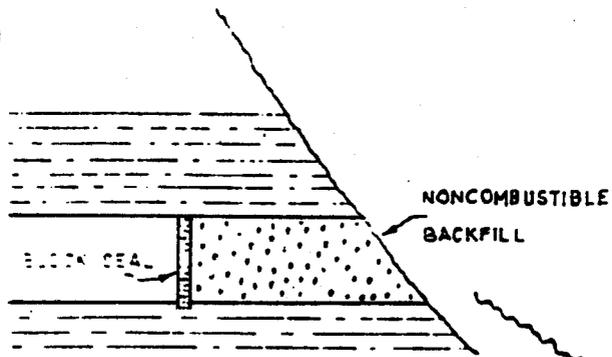
The opening in front of the wall will be filled with non-combustible material as above and the portal and entire exposed seam on the highwall will be covered with 6 to 8 ft of noncombustible material, graded, covered with suitable material and seeded. For illustration of a typical seal, see Figure 3.6-1. Temporary seals are discussed in Section 3.6.9.1.

3.6.3.2 Removal of Surface Structures

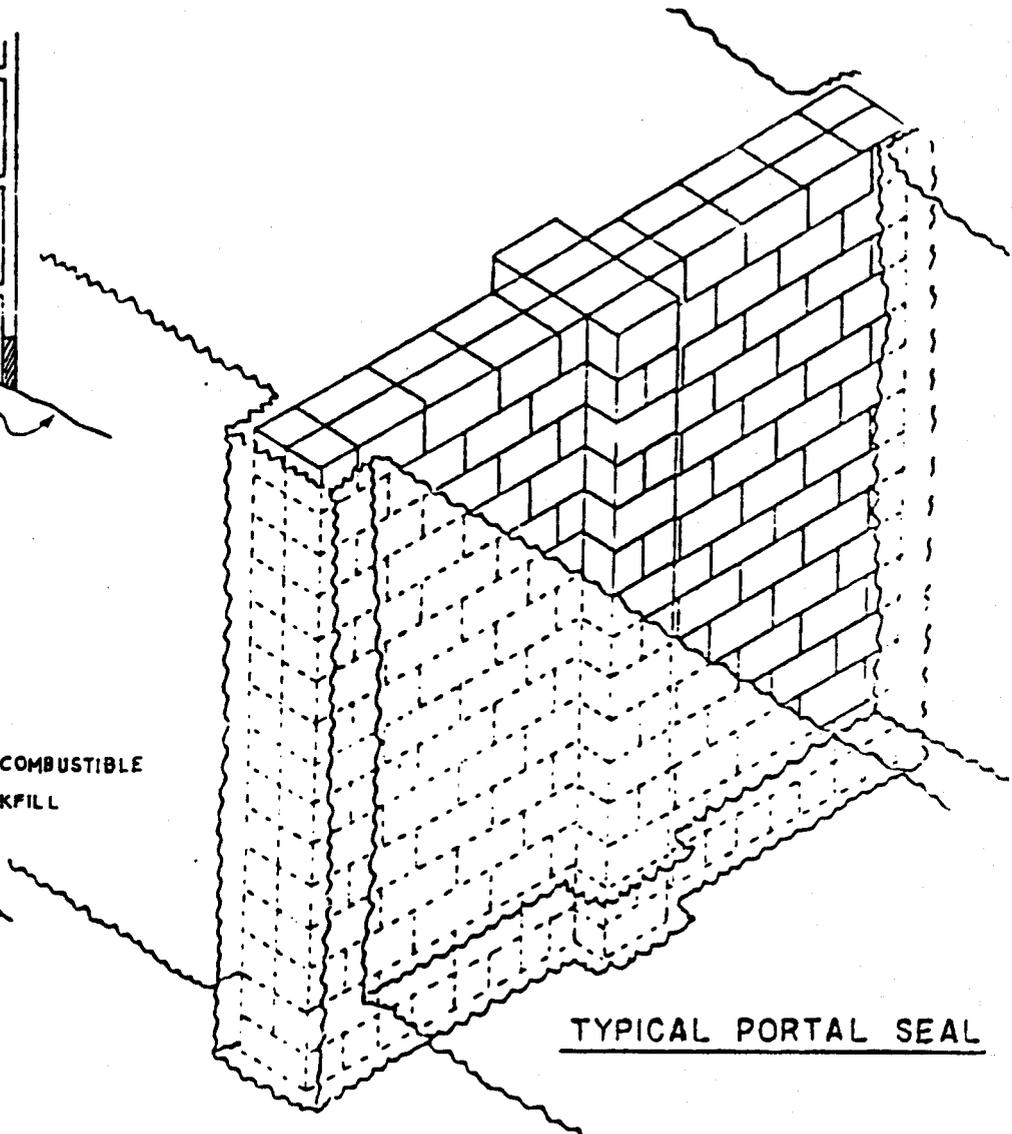
NO) Co-Op will restore disturbed land-surface areas to their approx pre-mining conditions. to the extent technologically and economically feasible. All surface facilities including support facilities will be removed and restored to prevent damage to fish, wildlife, and associated environmental values.



PLAN VIEW



SECTION VIEW



TYPICAL PORTAL SEAL

Figure 3.6-1 Typical Portal Seal

Building Removal. Office, shop, storage, scale, buildings and bath house:

- a. Each structure will be removed.
- b. Foundations will be removed if they are close to the surface. Deeper foundations will be fractured and covered with at least 3 ft of dirt.

Road Abandonment. The access road and small support roads will be reclaimed. Culverts and blacktop surfacing material will be removed. Reclamation would then include recontouring, ripping, adding cross drains, water bars, topsoil and seed. See Appendix 3-D, Detailed Plan.

Mine Operational System Removal. Systems such as domestic water will be phased out and removed or buried. All exposed structures, tanks and lines will be removed and properly disposed. Buried lines will be removed where feasible; otherwise, lines will be severed and left in place beneath the fill. Leaving lines in place will cause less disturbance than digging them up in some cases.

Area Cleanup. Solid waste generated in the abandonment operation will be collected and removed.

3.6.3.3 Disposition of Dams, Ponds and Diversions

After the disturbed areas are stabilized and runoff is comparable to the area's pre-mining conditions without detention time, the site drainage system will be removed. The site drainage system areas will be backfilled and revegetated. All ponds will be drained and allowed to dry; thereafter they will be backfilled and revegetated.

Natural drainage pattern will be returned to a surface drainage pattern similar to the original.

3.6.4 Backfilling and Grading Plans

The objective of the proposed backfilling, soil stabilizing, compacting, contouring and grading process is to achieve a reclaimed surface which all provide a variety of topographic features enhancing post-mining land use.

Reclamation earthwork activities will be conducted as outlined in Section 4.5, Post-mining Land Use and Section 3.6.6, Schedule of Reclamation. The steps to be taken in the backfill, soil stabilization, compaction, contouring and grading problems are described in the following subsections. Stability analysis of backfilled areas are discussed in Appendix 3-F.

Backfilling operations, utilizing equipment such as rubber-tired scrapers, front-end loaders and dump trucks, will be conducted in the portal and treatment facility areas. Holes or depressions will be filled when the mining operation is concluded. Compaction operations utilizing equipment such as sheep-foot tampers, will be conducted to stabilize all filled holes and depressions. The portal fill material will be put in place with an load, haul, dump (LHD) unit to ensure proper backfilling.

In general, the backfilling and grading operation will take place in the following manner:

- a. All mining portals will be sealed and backfilled as previously described.
- b. Solid waste generated in the facilities removal will be collected and removed to an approved landfill.
- c. A backhoe and dozer will work in conjunction to remove the outer edge of the operational benches and compact it against the highwall. This will be accomplished by the backhoe reaching over the edge of the bank approx 20 in. pulling the material back. The dozer will then push and compact this material from the highwall outward to reach a bench slope of approx 1v:3H for drainage purposes.

- d. This operation will start on the upper bench and work across the bench to the upper access road.
- e. The backhoe and dozer will work in the same manner to eliminate the access road, working down to the lower pad. A typical cross-section of the reclaimed road cut is shown in Figure 3.6-2.
- f. The above procedure will continue on down the canyon reshaping the mine yard and disturbed area to the configuration shown on Plate 3-2, Post-mining topography.
- g. As backfilling and grading is completed, operational areas will be scarified by ripping to a depth of 14 in. with a dozer where possible. Steep slopes will receive ripping to create ledges, crevices, pockets and screes. These areas are shown on the Post mining Topography Plate 3-2 as cat track terraces. This will reduce compaction and prevent topsoil slippage, and improve soil retention and vegetation establishment in the cat tracks. The area will be walked over to create grouser marks which run perpendicular to the slope.
- h. Topsoil will be spread over the disturbed areas after the grading and ripping is complete.

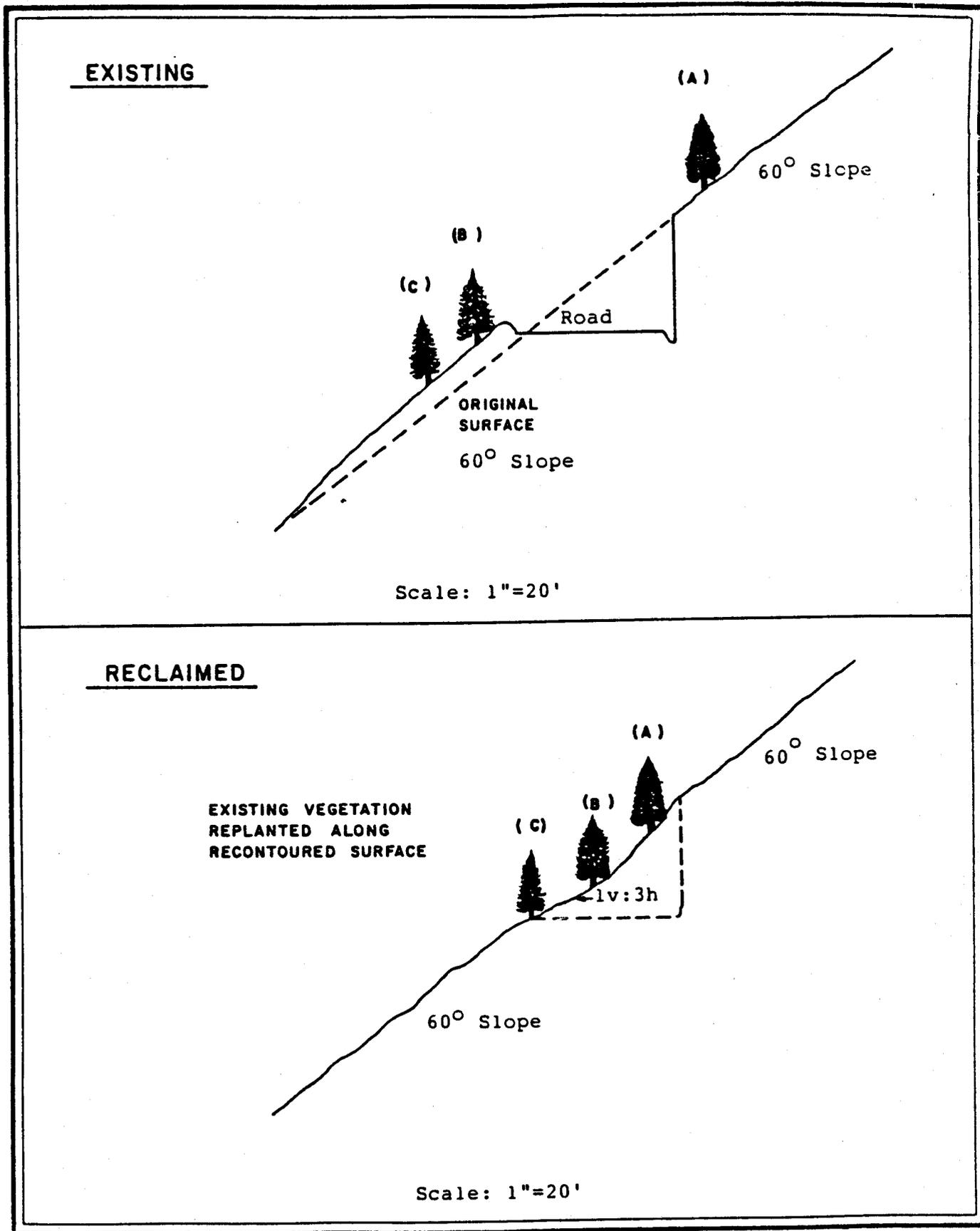


Figure 3.6-2 Typical Slope Reclamation

- i. Upon completion of the above, the area will be reseeded as per the plan.
- j. Material used for the recontouring will be taken from side slopes or other existing embankments within the disturbed area. In general, material to be compacted or used for fill will be taken from a side slope or embankment close enough to allow for pushing into place by a dozer, rather than loading and hauling by truck.

3.6.4.1 Recontouring

The cut slopes will be constructed in a manner to achieve a 3:1 safety factor & physical stability. This design will prevent slides and other related erosional damage. Upon abandonment, slopes will only be reduced to the amount physically possible. This amount will be limited to the reach of a backhoe, approx 20 feet. Steep slopes and highwalls are inaccessible to conventional equipment, and thus, cannot be reduced or flattened appreciably during reclamation. Stability analysis on these areas have confirmed that they have a factor of safety greater than 1.3 as they presently exist (Appendix 3-F). Stability and the designated post-mining land use can be achieved without extensive backfilling and return to the approx original contour.

In Feb 1981, a slope stability analysis was performed by Dames

& Moore on the Bear Canyon Mine access road. The purpose of this study was to analyze the static safety factor of the side-cast cut and fill slopes along this road, the conclusion of this study was that the slope stability had a safety factor ranging from a min of 1.43 to 2.15. This study was performed on the soil characteristics of the down-cast material which was not compacted. This is the same material that will be partially pulled back and compacted against the highwalls. Increasing both the cohesion and unit weight of material and increasing the safety factor above the min of 1.43. This will result in a factor of safety well above the required 1.3. Copies of the Dames & Moore report along with an earlier, report are included in Appendix 3-F.

3.6.4.2 Removal or Reduction of Highwall

Highwalls will be reduced to the extent practicable to improve the typical min slope static safety factor of 1.3. Only those highwalls that can be lessened by reaching with a backhoe will be reduced. Highwalls greater than 20 ft in height will be left as shown on Plate 3-2, Post-mining Topography; however, these highwalls are shown to have a stability safety of greater than 1.3 by the following analyses:

A 1981 slope stability study of the Bear Creek Mine Access Road by Dames and Moore indicated a static safety factor of 1.43 to 2.15 (Appendix 3-F). This study was performed to analyze the

static safety factor of the side-cast cut and fill slopes along the Bear Creek Portal Access Road, The maximum static safety factor of 2.15 was achieved in the trial arc which included the highwall area (Shown on Plate 2 of their report). As a further note on page 5 of the 20 Feb 1981 report, they indicate, "It should be noted that the factor of safety of the trial arc which cuts deep into the slope does not consider the presence of bedrock, increasing strength of the natural soils with depth, or the effect of the calcium carbonate cementation in the soil. If the above were incorporated into the analysis, the factor of safety would be significantly higher, "Since the highwalls are commonly made up of varying layers of bedrock material, it is reasonable to assume their strength and stability will increase accordingly. A further check on the highwall stability, a separate analysis was performed using a different method. This analysis uses the Hoek method, and is based on rock parameters typical of those contained in the Blackhawk Formation of the Wasatch Plateau. The safety factor is calculated using the following parameters:

Maximum Slope Height	100 ft
Slope Angle	80 deg
Rock Mass Cohesion	65 psi
Rock Mass Friction Angle	31 deg
Rock Mass Bulk Density	155 lbs/ft ³

Based on these parameters, and utilizing the Hoek charts,

included as Figure 3F-1 and 3F-2, the highwalls have a safety factor of 2.61 for dry conditions and 2.40 for saturated conditions.

The residual highwall will have a static safety factor of greater than 1.3 and will be compatible with the geomorphic processes of the area. The rock types common in the highwall are very similar to those in surrounding vertical cliffs; therefore, the highwalls will react similarly to the geomorphic processes in this area.

3.6.4.3 Terracing and Erosion Control

The need to terrace some of the steeper slopes within the mine plan area currently is not anticipated. Erosion control measures to be employed, will be specific to each situation. Mulching, silt fences, straw, etc. will be used as described in Section 7.2.6, to reduce and limit rainfall/erosion impacts.

3.6.4.4 Soil Redistribution and Stabilization

Prior to redistribution, the regraded land will be scarified by a ripper-equipped tractor. The ground will be ripped to a depth of 14 in. to reduce surface compaction, provide a roughened surface to assure topsoil adherence and ~~to~~ vegetational root penetration.

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Within a 10 days period to seeding, topsoil will be distributed on all areas to be reclaimed. During this time, the topsoil will be allowed to settle and attain equilibrium with its natural environment. This procedure will be followed for all areas in which facilities such as roadbeds, mine pads and building sites are to be abandoned.

Topsoil redistribution procedures will ensure an approx 6 in. thickness consistent with the proposed reclamation plan. Topsoil will be redistributed in the fall of the year suitable for establishing permanent vegetation.

To minimize compaction of the redistributed topsoil, travel on reclaimed areas will be limited. After topsoil has been applied, surface compaction will be reduced with disk to a depth of 6 inches. This operation helps prepare a proper seed-bed and protect the redistributed topsoil from wind and water erosion. Co-Op will exercise care to guard against erosion during and after application of topsoil and will employ the necessary measures to ensure the stability of topsoil on graded slopes as outlined in Chapter 8.

In addition to the vegetative stabilization discussed in Section 3.6.5, Revegetation Plan, Physical stabilization of the soil is also planned. The specific methods to be implemented are defined in Chapter 8. An example of the soil stabilization

methodology that will be used includes the placement of crushed and heavier material at the toe of road fill slopes.

3.6.5 Revegetation Plan

All disturbed areas will be planted and revegetated during the first appropriate season following grading and topsoil redistribution procedures and will include, the addition of remedial soil treatments. A permanent, diverse vegetative cover, using approved seed mixes listed in Chapter 9 Section 9.5, will be established on all reclaimed areas. The following subsections describe the major aspects of the proposed revegetation plan.

3.6.5.1 Soil Preparation/Testing

Scarifying Areas. Operational areas will be scarified to reduce compaction and to prevent topsoil slippage. Steep slope areas which must remain after abandonment will receive special ripping to create ledges, crevices, pockets and screes and are referred to as cat track terraces. This will allow better soil retention and vegetation establishment.

Fertilization and Neutralization-R614-301-243. The topsoil will be tested before it is seeded to determine the type and amount of fertilizer or neutralizer required. Soil analysis will measure the following components:

Phosphorus
Nitrogen
Soil pH and salinity
Soil Texture
Sodium Absorption Ratio (SAR)

Chemical analyses for micronutrients will be conducted by testing soil extract potassium, calcium and magnesium for atomic absorption analyzer. Ammonium acetate will be used to extract potassium, calcium and magnesium for atomic absorption analysis. Phosphorus will be determined with sodium bicarbonate extraction and calorimetric analysis. The kjeldahl method will be used for determination of total nitrogen. Soil texture will be determined by a Bouyoucus hydrometer method (sodium hexametaphosphate dispersing agent).

Soil pH will be determined on a 1:1 soil/water mixture tested with an electrode pH meter. Salinity will be analyzed by using a Whetstone conductivity cell on an extract of each soil sample.

All necessary fertilization or neutralization, as determined by soil testing will be done.

3.6.5.2 Seeding and Transplanting

Steep slopes will be seeded with a hydro-seeder. Gently sloping and flat areas will be seeded with a drill seeder. Many shrubs and all trees will be planted by hand setting to ensure a permanent plant cover.

Seed, mixes to be used during reclamation are listed in Chapter 9, Section 9.5. Any changes in the approved seed mixes will first be cleared with UDOGM.

Seedlings will be planted in Apr - May or Sept - Oct depending on availability and sequence of completion, plants will be grouped to provide wildlife cover. Spacing within the group is defined in

Chapter 9 and will be correlated to the reference area.

3.6.5.3 Mulching

On all reclaimed areas a wood fiber mulch will be used to enhance moisture retention required for seed germination. Tackifier will be added to the mulch to help it adhere to the soil. A min of 60 lbs tackifier/ton fiber will be applied, with steeper sloping areas requiring more as shown in Section 9.5.

3.6.5.4 Irrigation

Since the species used for reclamation are known for their survival characteristics, it is felt that artificial application of additional water will not be required. Should lower than average precipitation or irregularities in distribution of precipitation occur following the initiation of reclamation procedures which temporarily precludes vegetation establishment, a preferred course of action would be to replant problem areas.

3.6.5.5 Management

Deer and rodent use of areas planted with tree and shrub species will be observed yearly. If heavy use of the planted trees and shrubs by deer appears probable, appropriate protection measures will be taken. Also, should significant rodent damage become

likely, a control program may be developed in conjunction with UDWR and appropriate land management agencies.

3.6.5.6 Vegetative Monitoring, Revegetation Success Assessment and Test Plots on Interim Revegetation

All interim seeded areas will be inspected at the end of each growing season to determine the success of the seeding program for a period of at least five years (reclamation years 1-5). Where success is not apparent, as represented by achievement of 80 pct original cover during the 5-year period, monitoring will be immediately investigated to determine the possible failure cause(s), so that positive steps can be taken to establish the desired interim vegetation during the next seasonal opportunity. Planting and/or seeding will be implemented on a contemporaneous basis as soon as backfilling or grading are complete (Appendix 3-G). This effort will ensure a temporary cover of small grains, grasses or legumes until a permanent cover can be established.

Ocular estimates will be made to determine the degree of success for interim revegetation attempts.

3.6.6 Schedule of Reclamation

The general timetable for completing the major steps in reclamation is:

- 2033 - Landfills and solid wastes will be regraded and seeded as they are completed.
- 2033 - Underground mine openings will be closed and sealed as they are abandoned.
- 2033 - Surface facilities will be removed as they become unnecessary.
- 2033-2034 - The completion of surface reclamation will be in as short a time as possible after operations cease.

3.6.6.1 Detailed Timetable for Completion of Each Major Step in Reclamation

The specific timetable for completing each major step or phase in reclamation is not applicable for all. Reclamation will commence upon abandonment (year 2033).

3.6.6.2 Reclamation Monitoring

Upon completion, the reclaimed area will be monitored to determine when bond release parameters are achieved. If the monitoring indicates inadequacies, and rills and/or gullies develop on reclaimed areas, the damage will be addressed in such a manner to allow re-application of seed and mulch and tack the next available growing season.

Earth work will constitute;

1. The diversion of water concentrations away from eroded areas with small hand-made berms.
2. Distribution of additional soil if necessary to fill gullies.
3. Recontouring with equipment as warranted.
4. Re-application of seed, tack, mulch and fertilizer in the approved manner as outlined in Chapter 9.

If gullies constitute an overall change in drainage pattern, a plan to stabilize and modify drainage pattern will be submitted to the Division for approval prior to implementation.

Monitoring in years 1 and 2 will be ocular estimates with the

intent of identifying problem areas. Quantitative monitoring will be made during years 2, 3, 5, 9 and 10 until bond releases. Both the final reclaimed area and reference area will be sampled for cover, density (woody plants). Species composition data will be collected and compiled every two years, using cover sampling data. Productivity measurements will be collected during years 9 and 10 of the bond liability period.

The success of the reclamation effort will be evaluated by detailed sampling of cover, woody plant density and production of reference and reclaimed areas. The data from the reclaimed areas and the reference area will be collected during the same growing season. Vegetation data must meet the following parameters to be judged to adequately reclaimed relative to cover and production, i.e., ground cover, 70 pct of reference area cover at 90 pct statistical confidence; productivity, 90/90; and woody plant density, 90/80.

Wood plant density standards will be sampled for each reference area as well as the reclaimed areas and the success of the reclaimed area based on the results from the reference areas (90 pct pre-mining stock level survival at bond release) cover. Woody plant density on reclaimed and reference areas will be measured using the same methods employed during the baseline studies.

Standard methods, as outlined in Chapter 9, Vegetative Resources, will be applied to determine the degree of success for revegetation attempts. Production will be measured using a Harvest methodology. Shrub density data will be collected, using 1 m x 50 m transects.

One of the greatest challenges of revegetation is to create reclaimed areas which have a large number of desirable species. Species diversity on the reclaimed areas will be encouraged by including a variety of grasses, forbs, and shrubs in seeding and planting mixes.

Species diversity will be judged adequate when the relative cover and pct distribution of biomass for the major life form groups approx that which occurs in the reference areas. That is, if the relative cover by perennial grasses is 50 pct in the reference areas, then the relative cover by perennial grasses on the reclaimed areas should also be approx 50 pct. This same relationship should also hold true for productivity. If most of the cover and production were being provided by annual forbs on the reclaimed areas and by perennial grasses on the reference areas, then the reclamation would be judged unsuccessful.

The purpose of the above procedures is to demonstrate that based on cover, production, woody plant density, and species diversity, the disturbed areas have been returned to stable plant

communities capable of withstanding the intended post-mining land use.

3.6.7 Reclamation Bonding

BOND

CO-OP MINING COMPANY

BEAR CANYON MINE

ACT/015/025, EMERY COUNTY, UTAH

3.6.7.1 Detailed Timetable for Completion of Major Reclamation Processes

The following schedule of reclamation is proposed to be initiated within 90 days (weather permitting) of final abandonment of the mining operation:

	<u>Actual Time</u>
a. Seal Portal - 1 week	1 week
b. Remove Structures - 2.5 weeks	3.5 weeks
c. Soil Placement (backfilling and grading)	
1. Upper Pad - 1 week (including road)	4 weeks
2. Channel Restoration - 1.5 week	6 weeks
3. Lower Pad and Diversions - 1.5 week (including road)	7.5 weeks
d. Seed-bed Material and Handling - 1 week	8.5 weeks
e. Reseeding and Fertilizing - 1 week	9.5 weeks
f. Mulching - .5 week	10 weeks
g. Protective Fencing - 2 weeks (concurrently)	10 weeks

The above reclamation tasks are, therefore, proposed to be completed within 10 weeks following the start of reclamation activities.

3.6.7.2 Reclamation Cost and Bonding

Labor - Hourly Rates from 1990 Means Site Work Cost Data

Equipment Operator	= \$22.10
Truck Driver	= \$18.10
Average Helper	= \$22.10
Foreman	= \$24.10
Crane Operator	= \$22.90
Welder	= \$23.45

Equipment - Hourly Rates from 1990 Means Site Work Cost Data (Rate includes rental and operating cost)

a. Loader - 950B (2-1/2 cu yd bucket) - \$769.60/day Operator	\$ 96.20 <u>22.10</u> \$118.30
b. Crane - Groves RT-580 20T - \$630.40/day Operator	\$ 78.80 <u>22.90</u> \$101.70
c. Truck and Operator - \$419/day Operator	\$ 52.38 <u>18.10</u> \$ 70.48
d. Cat D-7G - \$819.20/day Operator	\$102.40 <u>22.10</u> \$124.50
Ripper (three shanks = \$13.13 + 1.40 operator/hr)	\$ 14.53
e. Backhoe (Cat 235) - \$1587.40/day Operator	\$198.43 <u>22.90</u> \$221.33
f. Acetylene Torch	\$ 6.30

g.	Lowboy (truck/trailer) - \$45.63 + 27.50 + 13.90 + 2.45	\$ 89.48
h.	Cat D-3 - \$392.80/day Operator	\$ 49.10 <u>22.10</u> \$ 71.20
i.	Dump Truck (10 yd) - \$311.10/day Operator	\$ 38.89 <u>18.10</u> \$ 56.99

Backhoe (BH) Cycle Time Estimates - 235 Backhoe (From Cat Performance Handbook)

Average

Load Bucket	6.5 Sec
Swing Bucket	6.0 Sec
Dump Bucket	2.5 Sec
Swing Empty Bucket	<u>5.0 Sec</u>
	20.0 Sec-2.12 yds ³

Medium to hard digging (hard packed soil with up to 50 pct rock content) depth to 70 pct of machine's capability

3 cu yd/min x 2.12 yd x 60 = production/hr = 381.60 cu yd/hr or 180 cycles/hr

Cut and fill yardage (same number - 1- cycle)

Crawler Tractor (D7G) Cycle Time Estimates (From Cat performance Handbook)

D7G Cut Material - 200 yd run
Average Blade Load of 15 cu yd

Cycle Time 7.6 min - Loaded Average
 4.0 min - Return
 11.6 min

Efficiency 50 min/hr
50 min/11.6 min cycle x 15 yd/cycle = 64.65 yd/hr

950B Loader Cycle Time (From Cat Performance Handbook)

a.	Pile (10 in. material and smaller)	+ .01 min
b.	Common ownership of trucks	- .04 min
c.	3/4 inch to 6 inch	<u>.00 min</u>

113 cu yd/hr
196 cu yd/hr topsoil

Summary of Reclamation Cost Estimate

a.	Seal Portals and Backfill	\$ 35,000.00
b.	Removal Structures	\$ 32,595.00
c.	Solid Waste Removal	\$ 2,451.44
d.	Soil Placement (backfilling and grading)	\$ 36,146.00
e.	Channel Restoration	\$ 16,892.24
f.	Reseeding and Fertilizer	\$ 7,511.52
g.	Mulching	\$ 9,092.80
h.	Protective Fencing	\$ 6,000.00
i.	Baseball Park Seeding	\$ 2,520.00
j.	Retaining Wall Removal	\$ 442.66
k.	Borehole Plugging	\$ 343.40
l.	Maintenance and Monitoring of Subsidence, Vegetation and Erosion (10 yr bond liability period)	\$ 19,460.00
m.	Hydrology Monitoring (10 yr bond liability period)	\$ 23,072.00
n.	Supervision (10 weeks)	\$ 9,640.00
o.	Mobilization and Demobilization	<u>\$ 2,500.00</u>
		\$203,667.06
	10 pct Contingency	<u>\$ 20,366.70</u>
	(1990 dollars)	\$224,033.70

<u>Escalated Values</u>	<u>Escalation Factor</u>
1991 - \$228,155.00	1.84% (actual)
1992 - \$232,354.00	1.84% (est)
1993 - \$236,629.00	1.84% (est)
1994 - \$240,983.00	1.84% (est)
1995 - \$245,417.00	1.84% (est)

NOTE: Section 3.6.7.3 modification and adjustment

Reclamation Costs

a. Seal and Backfill Portals \$ 35,000.00
AMR Costs-\$3,500/seal including
backfill x 10 seals \$ 35,000.00

b. Removal Structures

Fan

Labor - 2 men. X \$176.80/day x 2 days \$ 707.20
Equipment (hauling) - truck + operator
x 4 hrs x \$70.48/hr 281.92
20 T crane x 2 hrs x \$101.70/hr 203.40
SUBTOTAL \$ 1,192.52

Structures and Conveyors (Principle and Secondary)

Labor - 3 men x \$176.80/day x 4 days \$ 2,121.60
Equipment (hauling) - truck + operator
x 32 hrs x \$70.48/hr 2,255.36
1 loader + operator x 32 hrs x \$118.30
(950B - 2 - 1/2 cu yd bucket) 3,785.60
Crane - 4 hrs @ \$101.70/hr 406.80
SUBTOTAL \$ 8,569.36

Hiawatha Receiving Bin

Labor - 2 men @ \$176.80/day x 2 days \$ 707.20
20 ton Crane - 4 hrs x \$101.70 406.80
Truck + Operator - 4 hrs x \$70.48 281.92
Subtotal \$ 1,395.92

Substation Power Transformer

Labor - 2 men x \$176.80/day x 2 days \$ 707.20
Hauling - truck + operator
x 16 hrs x \$70.48 1,127.68
Loader - 4 hrs x \$118.30/hr (+ operator) 473.20
SUBTOTAL \$ 2,308.08

Sales-Receiving-Scale House Complex

Labor - 2 men x \$176.80/day x 3 days \$ 1,060.80
Equipment (hauling) - truck + operator
x 16 hrs x \$70.48/hr 1,127.68
Loader - 8 hrs x \$118.30/hr + operator 946.40
SUBTOTAL \$ 3,134.88

Water System (10,000 gal & 12,000 gal tanks)

Labor - 2 men x \$176.80/day x 1 day \$ 353.60
Hauling - truck + operator
x 4 hrs x \$70.48/hr 281.92
Loader - 2 hrs x \$118.30/hr + operator 236.60
Acetylene Torch - 4 hrs @ \$6.30/hr 25.20
Welder - 4 hrs @ \$23.45/hr 93.80
SUBTOTAL \$ 991.12

Reclamation Costs (cont)

Fuel Storage Tank and System

Labor - 2 men x \$176.80/day x 2 days	\$	707.20
Hauling - truck + operator x 16 hrs x \$70.48/hr		1,127.68
Loader - 8 hrs @ \$118.30/hr + operator		946.40
Acetylene Torch - 2 hrs @ \$6.30/hr		12.60
Welder - \$23.45/hr x 2 hrs		46.90
		<hr/>
SUBTOTAL	\$	2,840.78

Truck Loadout

Labor - 48 hrs @ \$22.10/hr	\$	1,060.80
Lowboy truck + operator @ \$89.48/hr x 5.5 hrs		492.14
20 ton Crane 2 hrs x \$101.70		203.40
10 yd dump 6 hrs @ \$56.99		341.94
Torch - 4 hrs @ \$6.30/hr		25.20
Welder - 4 hrs x \$23.45/hr		93.80
950B Loader @ \$118.30/hr x 4 hrs		473.20
D-7 Crawler Tractor - 4 hrs @ \$124.50/hr		498.00
		<hr/>
SUBTOTAL	\$	3,188.47

Stacking Facility and Coal Bins

Labor - 4 men x \$176.80/day x 1 day	\$	707.20
Truck and operator \$70.48 x 4 hrs		281.92
20 ton Crane 4 hrs x \$101.70		406.80
950B Loader \$118.30/hr x 4 hrs		473.20
Acetylene Torch - 2 hrs @ \$6.30/hr		12.60
Welder - 2 hrs @ \$23.45/hr		46.90
		<hr/>
SUBTOTAL	\$	1,928.62

Crusher Facility

Labor - 2 men @ \$176.80/day x 4 days	\$	1,414.40
20 ton Crane - 8 hrs x 101.70/hr		813.60
truck + operator - 8 hrs x \$70.48		563.84
Acetylene Torch - 4 hrs @ \$6.30/hr		25.20
Welder - 4 hrs @ \$23.45/hr		93.80
		<hr/>
SUBTOTAL	\$	2,910.84

Oil Slack Loadout

Labor - 2 men @ \$176.80/day x 2 days	\$	707.20
20 ton Crane - 4 hrs x \$ 101.70		406.80
Truck + operator - 4 hrs x \$70.48		281.92
		<hr/>
SUBTOTAL	\$	1,395.92

Misc. Structures (Lamphouse, powder magazine,
electrical service depot, etc.)

Labor - 2 men @ \$176.80/day x 1 day	\$	353.60
Truck + operator - 4 hrs x \$70.48		381.92
		<hr/>
SUBTOTAL	\$	635.52

The only foreseeable potential negative impacts would be to the ground water hydrology through actual intercept of aquifers or the disruption of aquifers as a result of subsidence and the possible impacts of escarpment failure. The potential for these impacts have been investigated and are discussed in detail in the remainder of this appendix.

GEOLOGY-PERMIT EXPANSION AREA

Geologic conditions, specifically stratigraphic and structural conditions, for the permit expansion area are a continuation of those existing in the present Mine plan area, with modifications as noted below.

Based on site inspections, published literature (Spieker, 1931, and Danielsen, et.al. 1981) and test hole data (Appendix 7-A, Figure 7A-10), the geologic structure of the Bear Creek Trail Canyon areas and vicinity consists of a gentle (<4 deg.), regional, S to SE dip. The general geologic conditions of the permit expansion area, including stratigraphy and structure, are thus a continuation of the general geologic conditions described in Chapter 6. The Mine Plan covers areas that adjoin the permit expansion area on the south and west (Plate 2-1). This proximity illustrates the continuity of the geologic structure of the permit expansion area with the present Mine Plan conditions. Reference is thus made to Section 6 to meet the requirements of UMC 783.14 Geology Description, for the proposed addition with the following

additions:

Ref. UMC 783.14

1 (i) Subsurface water may be encountered by the projected mine workings within the permit expansion area (Plate 3.1) at their intersection with the fault located at the east margin of the permit expansion area (Plate 6A).

2 (ii) The average overburden thickness over the Bear Canyon seam has increased, for the permit expansion area, to 1550 ft versus 1200 ft for the adjoining west portion of the present Mine Plan area (Sec. 14) and 1100 ft for the adjoining south portion of the present Mine Plan area (Sec. 23). In addition, the North Horn formation, consisting predominantly of shales, overlies approximately 80 pct of the proposed addition as compared to approx 30 and 10 pct, respectively, of the adjoining west and south portion of the present Mine Plan area.

(a)(2)(iii) and (a)(2)(iv). The stratum immediately above and below the Bear Canyon Seam have been sampled and analyzed for pyritic content, potential alkalinity, and clay content. In addition, the coal seam has been sampled and analyzed for pyrite, marcasite and sulfur content. The Hiawatha Seam has not yet been sampled in the area near the permit expansion; however, it is proposed that such

RECLAMATION PLAN

MINE PORTAL ROAD

The following procedures are designed to revegetate and control erosion. They will satisfy the commitments made by Co-Op in their permit application and all applicable portions under CFR 784.13. The area in question will be along and adjacent to the main mine access. the reclamation will be of a permanent nature. (See Plate 3-1). The actual ground involved comprises approximately 3 acres of disturbance.

METHODOLOGY

The actual implementation of abandonment and ultimate reclamation can be broken down into four major categories and classification of types of work needed:

- a. Earth Moving. Redistribution of top soil and redistribution of road cut material to approximate original contour of surface.
- b. Clump Planting of adjacent vegetation on recontoured surface.
- c. Seeding and Mulching to re-establish interim species and reduce erosion until climax vegetation can be established.

- d. Perennial Stream Channel Restoration and reconstruction of permanent drainage.

Phase #1 - Earth Moving

The road system can be brought back to a reasonable configuration by implementation of a large backhoe unit, the actual method will involve the pulling of surface material from the road surface and berm and placing it against the opposing high wall. This material will then be covered with approx 1 ft of top soil by pulling material from about 10 ft below the road cut up onto the road surface and spreading and compacting this material with the front bucket, at the same time pulling the leading edge of the high wall down to alleviate the degree and angle of the high wall.

All work done both above and below the road will take into consideration existing vegetation and all effort will be made to minimize disturbance and utilize existing vegetation. When there is no alternative other than disturbance, an effort will be made to relocate earth and maintain existing vegetation in place, attempting to relocate the revegetation in the proximity of the road disturbance, (Figure 3.6-2).

Phases #2 and #3 - Revegetation

This procedure involves a two phase program:

- a. Clump plant existing vegetation in a small basins along the recontoured road.
- b. Hydromulch the entire area to supplement revegetation and control run-off until stabilization is complete and to prepare a site which will be stable enough for a period of time to allow vegetation to become established.

The seed mix is composed of rapidly growing grasses and forbs species as well as woody species in order to stabilize and lessen the impact of surface run-off. Hydromulching to be carried out in conjunction with the earth work of Phase 1.

By this methodology, the area should be fully stocked and provide the hydrological and aesthetic commitments as detailed in mine per application. Recommendations for the hydroseeding and munching operation are as follows:

- a. Mid fall, apply the seed simultaneously with a soil tackifier, the rate and species application as indicated, Target completion by 15 Oct.

- b. Then apply a wood fiber mulch with tackifier at the approximate rate of 1,500 to 2,000 lbs per acre.
- c. Incorporate approximately 100 lbs of 16-16-8 fertilizer in the mulch application.

Stream Buffer Zones UMC 817.57

Co-Op has attempted to protect Bear Creek in all areas where existing structure and disturbance preclude the establishment of a buffer zone. This has been accomplished by earthen berms along roads adjacent to the stream, culverts in the area of the scale house, silt fences, and straw filters on all tributaries which pass disturbed runoff from haul roads. In addition, all disturbed area runoff other than haul roads pass through a sediment pond prior to discharge into Bear Creek. The buffer zone that does exist is properly posted and signed.

No additional disturbance is anticipated in the Bear Canyon drainage however, if in the future, expansion is required, Co-Op is committed in taking all necessary safeguards to ensure the integrity of Bear Creek and establishing an adequate buffer zone.

Phase #4 Drainage Channel Stabilization and Reconstruction

In conjunction with the recontouring, all drainage areas will re-establish to approximate original configuration. In order to minimize the loss of soil, all drainages will be lined with hygronomy blankets for approximately 10 ft above and below the areas of disturbance. In addition, where conditions warrant, rock rip rap will also be utilized to add yet another parameter of stability.

CONCLUSIONS AND RECOMMENDATIONS

The advantages of this recommended procedure are as follows:

- a. By utilizing a backhoe, associated disturbance will be kept minimal.
- b. The clump planting procedure accomplishes all of the below:
 1. Immediate ground cover.
 2. Aesthetically pleasing upon completion.
 3. Maximize potential for native species to establish.
 4. Inoculation of soil with indigenous mycorrhiza.
 5. Modify and enhance the micro-environment surrounding each clump.

- c. The hydroseeding, mulching, fertilization, and tackifying will virtually assure rapid establishment, thus minimizing wind and water erosion.
- d. The channel liners are a proven method to eliminate erosion at the same time allowing for stabilization through revegetation.
- e. A cost effective methodology to address a common problem associated with pre-law disturbance.

Class 1 Roads

The Bear Canyon Haul Road is approximately 1800 ft long from the gate to the scale house as shown on Plates 3-5 and 2-2. As shown on the map, This portion of the road has been included in the Permit Area. This Class 1 road is constructed 30 ft wide and is surface with 6 in. of 3/4 in. gravel, crowned in the middle as shown on the cross section. Drainage will be provided along the road by ditches with a minimum depth of 1.8 ft. Erosion protection, such as straw bales at 100 ft intervals or 6 in. median diameter rip rap on a bed of 1 in. gravel 6 in. thick, shall be provided in all areas where velocities are expected to exceed 5 ft per second. Culverts are installed as shown on the drawings; In addition, the two proposed 30 in. CMP culverts are now in place as indicated on the map. Culvert inlets will be protected by

rock-lining or concrete headwalls. In areas where culverts are placed, at least 30 in. of headwater depth is available to allow for a variance to allow the 18 in. culverts to pass the 10-year, 24-hour storm event. The culvert on the submitted drawing is to scale, and was installed with a trash rack to prevent plugging, a rock headwall at the inlet, and rip rap at the outlet to prevent erosion.

This road will be maintained in such a manner that the performance standards will be met throughout the life of the entire transportation facility, including maintenance of the surface, shoulders, parking and side areas, and erosion control structures for safe and efficient utilization of the road.

Upon completion of the operation and reclamation of the mine site disturbed area, it is anticipated that this portion of the Bear Canyon Road will also be reclaimed. This will occur at approximately the same time as the final removal of the sedimentation pond and diversions on the mine site. The road surfacing material will be removed and either salvaged or disposed of within the pond site and buried. The reclamation will then be accomplished by ripping up the remaining base, spreading the material across the (roadway) disturbed area, and planting the area with the approved seed mix. During this time, all culverts shall be removed and either salvaged or disposed of in an approved landfill, and the natural drainage patterns shall be restored.

Class II Roads

The road that accesses facilities and the mine portals access is approximately 2,112 ft long. A cross-section and profile of this road is shown on Plate 3-5. Culvert locations and ditches are also shown on this drawing, as well as on Plate 3-1. The road was originally constructed for access to the old Bear Mine, and has since been widened and fitted with proper drainage controls to protect the environment. The road is designed, used and maintained to meet the requirements of UMC 817.151 - 817.156, and to control or minimize erosion and siltation, air and water pollution, and damage to public or private property.

The road is located along the canyon floor above the stream, and along the stable slope leading to the portals. The overall grade of the road does not exceed 1:V:10h (10 pct) and the maximum pitch grade does not exceed 1V:6.5h (15 pct). The horizontal alignment is consistent with the existing topography and with the volume, speed, and weight of anticipated traffic.

As mentioned earlier, the initial road was constructed under pre-law conditions, using the cut/fill side-cast method. A stability analyses was performed on the road by Dames & Moore in 1981 (Appendix 3-F). Their conclusion was that the Bear Canyon Portal Access Road has a stability factor of safety of a minimum of 1.43, and ranges upward to 2.15.

There are 3 other Class 11 roads within the Permit Area. Following is a description of each of these:

- a. Road to Sediment Pond A. This road is 430 ft long and was constructed to allow access to the Sediment Pond and to facilitate cleaning of the drainage to the pond. The road has an overall slope of approximately 4.0 pct and does not exceed 15 pct at any point. The horizontal alignment is consistent with the existing topography and with the volume, speed, and weight of anticipated traffic.

- b. Road to the Coal Preparation Facility. This road is 600 ft long, and was constructed to provide access to the Coal Preparation Facility. The road has an overall slope of approximately 10.0 pct, and does not exceed 15 pct at any point. The horizontal alignment is consistent with the existing topography and with the volume speed, and weight of the anticipated traffic.

- c. Bathhouse Road. This road is 160 ft long, and provides access to the bathhouse. The road has an overall slope of approximately 3.0 pct, and does not exceed 15 pct at any point. The horizontal alignment is consistent with the existing topography and with the volume, speed, and weight of the anticipated traffic.

Ditches and culverts have been added to the roads to control run-off and safely pass the run-off from a 10-year, 24-hour precipitation event. (see Plates 3-1 and 3-5). Ditches shall be maintained at a minimum depth of 1.8 ft, and at least 30 in. of headwater depth will be maintained at the inlet of the 18 in. culverts. Culverts are fitted with trash racks to prevent plugging, and buried and compacted a minimum of 30 in. to prevent crushing. In areas where velocities of run-off exceed 5 fps, erosion protection such as straw bales at 100 ft intervals or 6 in. median diameter rip rap on a bed of 2 in. gravel/sand 6 in. thick shall be maintained. Culvert spacing conforms with the requirements of UMC 817.153 (c) (z) for Class II Roads. (i) rock or concrete headwalls shall be provided at the inlet to all culverts, and rip rap or other erosion protection shall be provided at the outlet.

The roads are surfaces with 4 in. of $-3/4$ gravel, and is maintained in such a manner that the approved design standards are met throughout the life of the facility. Damage to the roads from use or weather events shall be promptly repaired.

These roads shall be removed upon completion of the mining operation. The timing and procedure of removal and reclamation is discussed in detail under the Backfilling and Grading Plan in Sec. 3.6.4.

Class III Roads

The only Class III Road on the permit area is a jeep trail that was constructed pre-law, probably as a cattle trail. This road is shown on Plate 2-2, Surface Facilities Map. The road is blocked off and is not used; therefore, no maintenance or reclamation plan is proposed for this trail.

All roads shall be maintained in such a manner to prevent damage to fish, wildlife, and related environmental values. This is accomplished by;

- a. Maintaining hydrologic controls, such as ditches, culverts, diversions and sedimentation ponds to assure that disturbed drainage is conveyed away from undisturbed drainages and either held or cleaned before releases.
- b. Watering of roads as necessary to reduce fugitive dust.
- c. Protection of wildlife within the permit area and reporting of sightings of threatened and endangered species.
- d. Contemporaneous reclamation.
- e. Advocating good-housekeeping practices to reduce the possibility of contamination of surface waters in the area.

- f. Co-Op is committed that all support facilities will be restored to prevent damage to fish, wildlife, and related environmental values and the possibility of additional contributions of suspended solids to stream flow or runoff outside the permit area will be minimal.

There is one additional class 3 road giving access to sediment "Pond A". The road is in actuality the disturbed drainage ditch to sediment "Pond A", and is used infrequently to clean sediment from "Pond A".

TOXIC MATERIALS & HANDLING

Any material that is contaminated with coal, as determined by visual observation, will be placed against the highwall and buried beneath a min of 2 ft of fill material during reclamation. Material that is contaminated with oil or grease or any other potentially acid or toxic matter, as determined by visual means, will be placed against the highwall and covered with a min of 4 ft fill, top soiled, and reclaimed. Interim isolation of such material will be by use of berms created by a backhoe or loader.

Since the roof material from the mine has shown a high SAR value, any roof rock that is stored on the surface will be isolated by a berm as long as it is stored on site. During reclamation, this material will be placed against the top of the highwall and covered with a minimum of 4 ft of material, covered with required plant growth medium and revegetated.

UMC 817.103 Covering Coal and Acid and Toxic Forming materials

The pH, acid-base potential, texture and electrical conductivity of these materials must be included on the date reported.

Co-Op reply. Co-Op submitted a sample to CT&E testing for this data and the results are included attached. Co-Op will commit to removing any and all such material or disposing of them in a manner

APPROVED INTERIM RECLAMATION PLAN

SCOPE

The following procedures are designed to revegetate and control erosion. They will to a large degree satisfy the commitments made by the Co-Op in their permit while also satisfying OSM regulations as pertaining to wildlife concerns and interim reclamation for those areas which will be utilized during mining operations.

Actual procedures involve a two phase program:

- a. Earthwork to prepare the site to be stable enough for a period of time to allow vegetation to become established.
- b. Hydroseed and Mulch the entire area to supplement revegetation and control runoff until stabilization is complete.

METHODOLOGY

Phase 1 - Earth Moving

The pad down slopes will be brought back to a reasonable configuration by implementation of a crawler tractor. The actual method will involve smooth contouring of the existing soil and walking the crawler up and down the slope attempting to minimize

compaction while at the same time creating small indentations by the grouser on the track. This methodology creates an enhanced micro-climate for the establishment of seed and guarantees sufficient compaction as to assure integrity and stability of embankment and prohibit failure.

Phase 2 - Seeding and Mulching

The entire disturbed area will be hydroseeded during the mid fall season with a Target completion date of 15 October. The seed mix and rate of application for interim reclamation is shown in Table 3G-1. Hydro-seeding and mulching will be carried out in conjunction with the earth work of Phase 1. Recommendations for the hydroseeding and mulching operation are shown in Table 3G-2.

Table 3G-1 Recommended Seed Mix for Interim Reclamation

<u>Species</u>	<u>Lbs/Acre PLS Hydroseed</u>
Grasses	
<u>Agropyron dasystachyum</u> Thickspike Wheatgrass	6
<u>Agropyron spicatum</u> Bluebunch Wheatgrass	8
<u>Elymus salina</u> Salina Wildrye	1.5
<u>Oryzopsis hymenoides</u> Indian Ricegrass	3
<u>Poa secunda</u> Sandberg Bluegrass	2
Forbs	
<u>Medicago sativa</u> Alfalfa	2
Cover Crop	
<u>Avena sativa</u> Oats	20

Table 3G-2 Suggested Ratios of Tack to Fiber for Hydro-seeding
and Hydro-mulching to Serve as Mulch or Soil Binder

<u>Slope Angle (deg)</u>	<u>Slope Ratio (rise:run)</u>	<u>Slope (pct)</u>	<u>Tack/ton Fiber (lbs)</u>	<u>Tack/ Fiber (ratio)</u>
14	1 : 4	25	60 (min)	1 : 30
26	1 : 2	50	80	1 : 25
33	1 : 11/2	66	100	1 : 20
45	1 : 1	100	120	1 : 16
57	11/2 : 1	150	140	1 : 14
64	2 : 1	200	160	1 : 12

Note: Mulch will be applied at a rate of 1,500 to 2,000 lbs per
acre.

- d. Due to the nature of the site the material will be covered with coal storage for most of the calendar year. This will help improve and maintain stability and increase compaction.
- e. The fill shall be inspected by a qualified professional or registered professional engineer during placement and compaction of fill materials. A certified report will be provided to UDOGM within two weeks after each inspection. A copy of the report will be retained at the mine site.
- f. As the pond is being cleaned, temporary sediment material storage will be in the area shown on Plate 2-4 along the road and truck loading area.

4.4.2.2 Historical Use

Historically, the area in question was the site of an active coal mine. However, during the last five yrs, land use within the permit boundary has not changed in any essential way.

4.4.2.3 Land Capability and Productivity Before Mining

Present land capability and productivity will be only slightly reduced compared to the after mining capability due to the small area of actual surface disturbance. Mining activities have proceeded on the current lease areas of Co-Op historically with only minor effects on productive capabilities in terms of soils, topography, vegetation or hydrology. The soils indigenous to the area affected by the operations are described in Chapter 8. Vegetation is discussed in Chapter 9.

Surface water in the permit area is limited to surface run-off that flows most heavily during the spring and early summer months and then normally dry up. The quality and quantity of this water and of the ground water will be identified in Chapter 7.

4.4.2.4 Land Productivity Before Mining

Land productivity in terms of plant products before any mining will not differ greatly from future productivity due to the small area

4.5.1 Method of Achieving and Supporting

Chapter 3 presents in detail, the abandonment steps and revegetation/reclamation activities to be used to achieve the proposed post-mining land uses.

Area Cleanup. Solid waste generated in the abandonment operation will be collected and removed.

Recovering of the General Area. Grading and back filling will be done to achieve a final contour suitable for the wildlife/grazing habitat specified as the post-mining land use.

- * Operational benches will not be removed.
Their banks will be reduced whenever possible;
their surface areas will have a 3h:1v slope for
drainage.

- * Side hill cuts will be reduced to the maximum
extent physically possible. The cuts which are
already physically stable will not be reduced.

Wind Protection Barriers. In addition to the wind protection provided by the abandonment sloped, rock wing barriers will be constructed by a small portion of the rock generated during the mining operation. During abandonment small piles of the rock will

be formed on the upper decks to provide protection and stability to reclaimed areas.

Scarifying Areas. Operational areas will be scarified to reduce compaction and to prevent topsoil slippage. Steep slope areas which must remain after abandonment will receive special ripping to create ledges, crevices, pockets and screens. This will allow better soil retention and vegetation establishment.

Distribution of Topsoil. Topsoil from the stockpile will be spread over the disturbed areas in such a manner as to prevent excessive compaction.

Fertilization and Neutralization. Fertilization or neutralization determined as necessary by soil testing will be done.

Seeding and Tree Planting. Vegetation will be established to prevent erosion, to optimize the effect and to provide cover. Perennial woody species will be emphasized, along with those of proven nutritional value and ability to support wildlife. The types and amounts of such vegetation are discussed in Section 9.7 and Appendix 9-D.

Moisture Retention. If operational testing determines that moisture retention is necessary, the following systems may be used:

4.5.2 Differing Post-Mining Land Use Support

The mine site will be returned to wildlife/grazing [rangeland] habitat, which is similar to the pre-mining land use.

4.5.3 Final Surface Configuration

The proposed final surface contour plan would allow the side hill cuts and operational benches at the mine site to be reduced so that they provide stability, drainage and conform to natural contours.

4.5.4 Compatibility with Surrounding Land Uses

Throughout the life of the project and especially during abandonment phases, the following assessments will be made:

1. The visual resources will be assessed. The abandonment assessment will concentrate on how effectively final drainages and slope patterns fit into the area's general visual resources. This assessment will be made through the period of liability.
2. The recreational resources will be assessed. This process will include a review of post-mining hunting, camping, hiking and recreational land use. If it is found, during the liability period, that any of these activities have

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7.1.5 Affects of Mining on Groundwater Balance

Mining operations in the permit area will be confined to the coal bearing strata within the basal part of the Blackhawk formation. The coal strata are generally dry and are part of an undeveloped regional aquifer system which consists of a series of generally discontinuous perched water zones within the Blackhawk formation. Overlying and underlying formations are unsaturated. Negligible impacts, on the regional aquifers or existing groundwater development areas, are anticipated by mining activities in the permit area. Additional information, gained as mining progresses into the northeast margin of the permit area, will be required to determine the potential impact of the apparent fault related water occurrences in the East Bleeders.

7.1.5.1 Quantity

Mining affects on water quantities consist of interceptions of local perched zones, and as evidently fault related occurrences in the East Bleeders. These waters are collected as sumps within the mine and diverted either for dust control or surface discharge. The perched zones, if undisturbed, would flow to the southeast to be eventually intercepted by the Bear Springs fault. The groundwater intercepted from this source by mining is very small (estimated 10-15 gpm total) in relation to the aquifer storage in the permit area (55,000 acre-ft, est).

Appendix 7-K
SMALL AREA EXEMPTIONS

GENERAL

Upon inspection of the Mine permit area it was found that the areas described below exist in the undisturbed zones and that surface runoff going through these areas does not pass through the sediment pond treatment facilities. In order to provide adequate treatment for these areas, straw bale dikes and/or silt fences will be installed as indicated on Plate 7-1. The sediment control structures will be positioned so that surface runoff passes through them before entering Bear Creek. Treatment facilities will be maintained for each area until approved and determined that adequate revegetation cancels the need for treatment.

OUTSLOPE BANK OF UPPER STORAGE PAD.

During construction of the Upper Storage Pad (Plate 7-1) some fill was apparently overcast down the face of the slope below. The area covers approximately 800 sq ft. A silt fence will be installed and maintained at the inlet to culvert C-8U.

AREA NEAR PORTAL NO. 1

This area lies between the upper lamphouse/mine portal bermed pad and the portal access road, extending from the road junction on the south to just north of the upper office trailer at the beginning of the Cattle Co. Road. The area is approx. 0.28 acres. A silt

fence is installed at the north end of the area where runoff flows down hill from the Cattle Co. Road area. Runoff from the area passes through a silt fence near the inlet to culvert C-6U.

BALL PARK TOPSOIL PILE

The ball park covers 1.2 acres. Straw bale dikes and/or silt fences will be installed on the south east side, in line with the natural flow to treat runoff before it enters Bear creek.

AREA SOUTH OF SHOP/BATH HOUSE & WAREHOUSE

This area lies between the shop/bath house & warehouse pad and ditch D-10U. The area is only a few feet wide, is partially vegetated, separated from the pad with a berm and a silt fence is installed and maintained in the drainage below the area.

TOPSOIL STOCKPILE

The main topsoil storage pile covers approx 0.1 acres. The area is encircled by an 18 in. berm and is protected by established vegetation.

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been purchased to relieve the deficiencies in the present stockpile. These results are attached in Appendix 8-A.

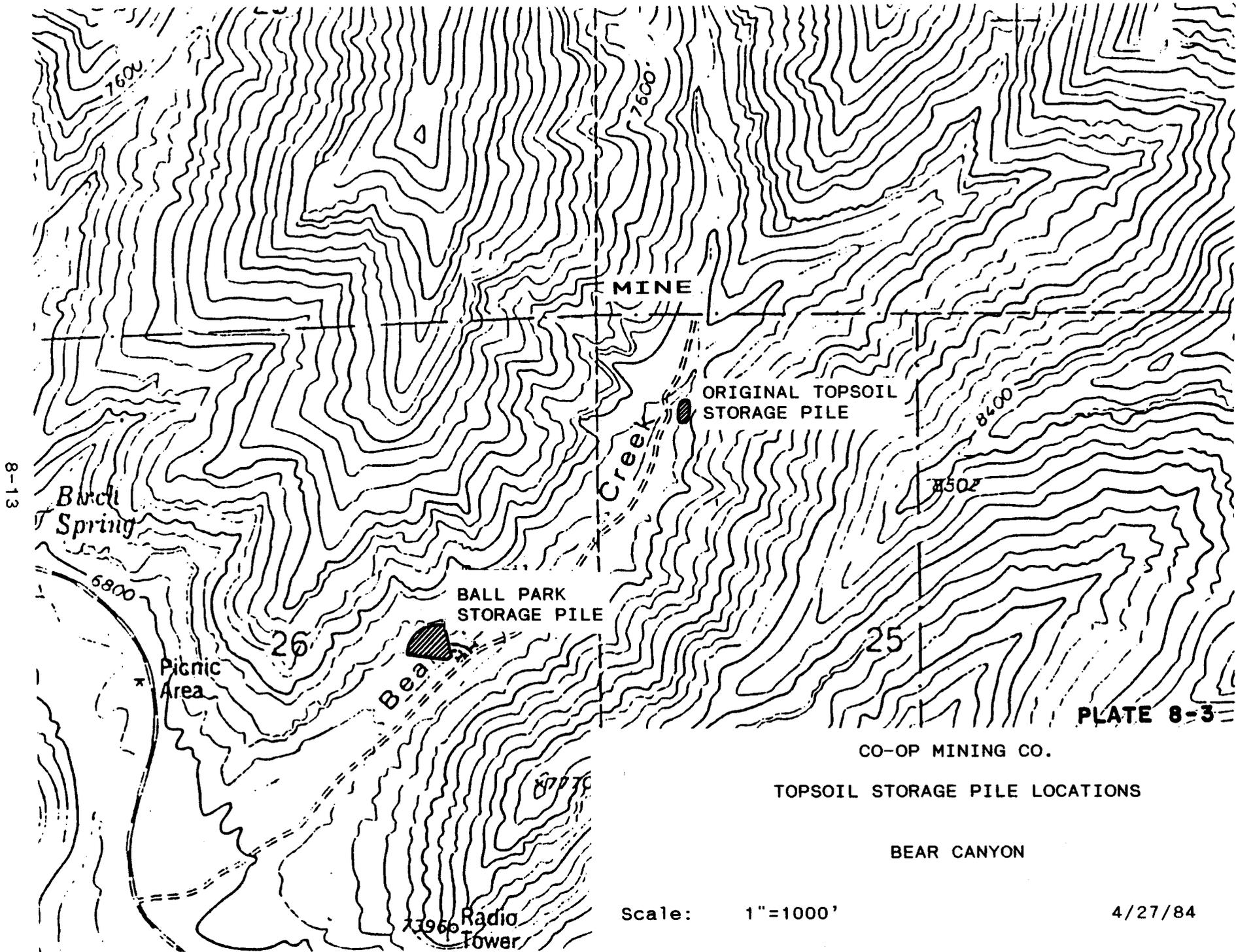
8.6 SELECTED OVERBURDEN MATERIALS OR SUBSTITUTES

There are approx 10 acres of disturbed area at the Bear Canyon Mine site. Of the 10 acres, approx 3.8 acres were constructed prelaw, and although no topsoil was saved, native material is available as down-cast material. In order to show that the downcast material is adequate and suitable as final reclamation plant growth material for the 3.8 acres, procedures outlined in Appendix 8-D will be followed.

The remaining 6.2 acres of disturbance will be covered with 6 in. of topsoil during reclamation. This will require approx 5,000 cu yds of topsoil. There are two topsoil storage areas on site (Plate 8-3), with a total of approx 6,000 cu yds of topsoil storage.

8.6.1 Original Topsoil Storage Pile

The original topsoil storage pile is located north-east of the scale house in Bear Canyon (Plate 8-2). This pile consists of approx 2,600 cu yds of topsoil stripped from the Bear Canyon disturbance. The pile is marked and is protected by a berm and vegetation to prevent soil loss.



8-13

MINE

ORIGINAL TOPSOIL STORAGE PILE

BALL PARK STORAGE PILE

PLATE 8-3

CO-OP MINING CO.

TOPSOIL STORAGE PILE LOCATIONS

BEAR CANYON

Scale: 1"=1000'

4/27/84

7396 Radio Tower

7600

7600

8400

8500

6800

26

25

8770

Birch Spring

Picnic Area

Creek

Bear

8.6.3 Topsoil Summary

The following table summarizes the information discussed in the previous Sections:

Table 8.6-2 Summary Table

Total mine disturbance	10 acres
Area with topsoil (pre-law, down-cast material)*	3.8 acres
Area requiring topsoil	6.2 acres
Topsoil required	
6.2 acres x 6 in. depth	5,000 cu yds
Topsoil stored	
Upper site	2,600 cu yds
Ball Park site	3,400 cu yds
Total topsoil available	6,000 cu yds
Excess topsoil available	1,000 cu yds

* Downcast material to be used as substitute plant growth material.

8.7 REMOVAL, STORAGE AND PROTECTION OF SOILS

8.7.1 Physical and Chemical Properties of Soils

The 1982 Co-Op field investigations provided information on the physical and chemical properties of soils in the permit area and is discussed in Appendix A. A rating for topsoil is included on the forms included as are some chemical properties. Soils found on-site are listed in the Soils Legend and shown on Plate 8-1. In studies during the 1984 field season on site sampling was analyzed

for the required chemical properties in all horizons (see Appendix A).

8.7.1 Soil Removal, Handling, Storage, and Protection Plans

To prevent suitable topsoil from being wasted or contaminated by waste materials, topsoil was removed from all new construction areas as a separate operation. The topsoil was stockpiled and was consolidated and protected from wind and water erosion and contamination which might lessen its capability to support vegetation. The following subsections deal specifically with the various phases of the topsoil and subsoil handling plan.

8.7.1.1 Topsoil Removal

At the start of the construction phase, topsoil was collected from the area. Existing vegetation was removed and topsoil was collected prior to excavation or other disturbance operations within the affected areas.

The depth of topsoil removal in each case depends on the amount of A and B horizon material as defined in OSM Regulation 30 CFR 783.22. The topsoil removed in these areas consists of A horizon quality material and B horizon quality material with virtually no distinctive difference. The C horizon material was not removed since it was not sufficiently capable of supporting

diverse vegetation due to the excessive rock.

The equipment used for topsoil removal consisted of bulldozers, front-end loaders, and dump trucks. The use of bulldozers requires pushing of the topsoil to a collection point for loading into dump trucks or other means of transportation to the designated stockpile. Adequate supervisory personnel were present at the time of the topsoil removal to instruct the equipment operators in the proper techniques of topsoil removal and to ensure that required horizons were removed and stored.

8.7.1.2 Topsoil Stockpile

Plans involving topsoil storage can be labeled as "short term" or "long term" depending on completion of activities in each area and the reclamation schedule presented.

Short-Term Topsoil Storage Areas. Short-term stockpiles of topsoil will be for areas to be reclaimed almost immediately upon cutting. At final grade topsoil will be redistributed promptly to minimize natural degradation processes. No short-term piles are anticipated at this time. If a need arises, a site-specific plan will be submitted prior to disturbance.

Long-Term Topsoil Storage Areas. During any new construction of areas that will be used for the duration of the mining operation

within the permit area, topsoil will be collected and stockpiled. The topsoil will be used for post-mining reclamation.

Topsoil is presently being stored within areas of the permit boundary (Section 8.6). These piles should be considered "long term".

8.7.1.3 Topsoil Protection

The short-term topsoil stockpile will be sprayed with water or temporarily vegetated to retard erosion. The long-term topsoil stockpile will be protected by the following operational steps:

1. A stable surface will be provided in an area outside the influence of active operations.
2. As a stockpile is completed, it will be left in a rough condition to minimize erosion.
3. Stockpiles will be situated out of drainages to prevent water erosion.
4. Storage piles will be vegetated with quick growing, soil-stabilizing plants. Revegetation will involve the immediate seeding of stockpiles during the next planting season with the seed mixture recommended in Section 9.5, in compliance with

the requirements of the appropriate land management agency.

5. Signs will be posted to protect the stockpiles from accidental use as fill or from other inadvertent material contamination. The establishment of noxious plant species will be prevented.
6. Stockpiled topsoil will not be removed or otherwise disturbed until required for redistribution on a prepared and regraded disturbed area.

8.8 REDISTRIBUTION OF SOILS

Prior to topsoil redistribution, regraded land will be scarified by a ripper to a depth of 14 in. in order to reduce surface compaction, provide a roughened surface assuring topsoil adherence, and promote root penetration. Steep slope areas which must remain after abandonment will receive special ripping to create ledges, crevices, pockets, and screes. This will allow better soil retention and vegetation establishment.

Within a ten day period prior to seeding, topsoil will be distributed on areas to be reclaimed. During this time the topsoil will be allowed to settle and attain equilibrium with its natural environment. This procedure will be followed for areas in which facilities such as roadbeds, mine pads, and building sites are to be abandoned.

Topsoil redistribution procedures will ensure an approx uniform thickness of 6 in. as stated in the reclamation plan. Topsoil will be redistributed in the fall of the year (Oct.) suitable for establishment of permanent vegetation.

To minimize compaction of the topsoil following redistribution, travel on reclaimed areas will not be allowed. After topsoil has been applied, surface compaction will be reduced by using a D-6 crawler tractor and disking to a 6 in. depth. This operation will also help prepare a proper seed bed and protect the redistributed topsoil from wind and water erosion.

Co-Op will exercise care to guard against erosion during and after application of topsoil and will employ wood fiber mulch and tackifiers to ensure the stability of topsoil on the graded slopes. The specific methods to be implemented are defined in Section 9. The soil stabilization methodology that will be used includes the placement of crushed and heavier material at the toe of road fill slopes, and the random placement of large rocks and boulders on the surface. This procedure will enhance the microclimate as well as make the reclaimed area more aesthetically compatible with the undisturbed surroundings.

8.9 NUTRIENTS AND SOIL AMENDMENTS

Phosphorus

Nitrogen

Soil pH and salinity

Soil texture

Sodium Absorption Ratio (SAR)

Chemical analysis for micronutrients will be conducted by testing soil extracts from the redistributed material. All necessary fertilization or neutralization, as determined by soil testing, will be done according to the final Reclamation Plan.

8.10 EFFECTS OF MINING OPERATIONS ON TOPSOILS, NUTRIENTS, AND SOIL AMENDMENTS

Since the Bear Canyon Mine is an underground mine, the impact of mining on soils will be minor overall. The impacts of surface operations and mining facilities on soil resources consist of coverage of soil by land-fills and refuse, disturbance of soils during construction activities, erosion created by removing vegetation, reduced forage growth due to nutrient degradation, reduced livestock capacity, and particulate emissions to the air.

The areas in which soils have been disturbed to date within the permit area, includes the loadout area, future offices, shops and substations,

roads, portal areas, and the topsoil areas. Additional acreage may be disturbed in the future if Co-Op elects to proceed with certain projects it is considering.

8.11 MITIGATION AND CONTROL PLANS

Detailed Interim Reclamation Plans are included in Appendix 3-C of this Reclamation Plan in regard to stockpiling, long and short-term plans, and goals for final reclamation.

Co-Op is committed to take whatever steps are necessary to minimize loss of soil through erosion. Whenever rills or gullies become evident, will be filled, regraded, rip-rapped and re-seeded tackified, and mulched. This work will commence prior to any significant loss (Rills and Gullies, less than 9 in.).

INTRODUCTION

No topsoil material was removed to a designated topsoil storage area from the portal access road and adjacent areas due to the prelaw nature of the disturbance. The native material available as down-cast material has been designated as a substitute to be used during reclamation. In order to show that the material is suitable for reclamation as substitute topsoil material the procedures discussed below have been defined and are to be followed as described.

DEFINITION OF AREA

The substitute topsoil material is located at the nearest approx 20 ft of surface material 0 to 2 ft deep along the down-hill side of the referenced portal access road shown on Plate 2-4. A typical section of the area showing the reclamation procedure is shown in Figure 3.6-2 and described in Section 3.6.4.

PHYSICAL AND CHEMICAL PROPERTIES OF SOIL

Soil samples (PR-1 and PR-2) were taken 12 April 1989 as selected by DOGM representative Henry Sauer, along the access road. The results are included in Appendix 8A (Page 8A-12 and 8A-13) and have been found suitable as plant growth material. Samples were tested following the guidelines in Table 1 from the State of Utah,

Department of Natural Resources, Division of Oil Gas and Mining, Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining.

REVEGETATION TRIAL TESTING

In order to further verify the suitability of the substitute topsoil material revegetation field testing will be performed as requested by DOGM.

1. An on-site survey will be made in the summer of 1989 by a representative of Co-Op and DOGM to determine areas that require additional seeding due to recent disturbances. Much of the area has revegetated since the original disturbance.
2. Areas that require additional seeding will be hydroseeded during the fall of 1989 using the Pinyon Juniper Grass, grass and forbs seed mix recommended in Section 9.5, Table 9.5-3. Tack to fiber ratios, rate of application of wood fiber mulch and fertilizer will be applied as defined in Section 9.5.
3. Monitoring of a 30 ft x 50 ft area near the Hiawatha Portal, selected by DOGM representative Henry Sauer, in August 1989, will be completed for a period of 10 years (1999) or until applicable vegetation standards are met following the procedures defined in Section 3.5.5, 3.6.5 and 3.6.6.

RECLAMATION

This topsoil material will not be disturbed until required for redistribution during reclamation except as required to maintain the immediate roadside berm. Reclamation will be followed as defined in this plan.

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Plate 9-1 Vegetation Map

9.3.3.2 Riparian Vegetation Types

The riparian vegetation type (Plate 9-1) occurs as a narrow band in the moist bottoms of canyons in the mine plan area. Although riparian species such as Narrowleaf Cottonwood Populus angustifolia and River Birch Betula occidentalis occur in the type, species such as White Fir Abies concolor and Douglas Fir Pseudotsuga menziesii, which are common in the surrounding conifer type, also dominate the riparian type. In some areas it is primarily the presence of the stream bottom and relatively robust growth from of the species that separate the riparian bottom from the surrounding conifer vegetation. Most of the vegetation cover in this type is provided by the trees. The under story in the riparian type consists of scattered shrubs such as Rocky Mountain Juniper Juniperus scopulorum and Woods Rose Rosa woodsii as well as a sparse cover of grasses and forbs. Use of the riparian type by native and domestic herbivores appeared to be light.

9.3.3.3 Pinyon-Juniper Type

PJ habitats, prevalent on south-facing slopes with rocky substrata of blocky sandstone, were extensive in the permit area (see Vegetation Map, Plate 9-1). Most PJ areas were dominated by open stands of Pinyon Pine Pinus edulis, Rocky Mountain Juniper Juniperus scopulorum, and Utah Juniper Juniperus osteosperma, with large Curl-leaf Mountain Mahogany Cercocarpus ledifolius. In a few

The areas in question are along and adjacent to the Bear Canyon Mine and Trail Canyon Mine access road and will be of a permanent nature.

The actual ground involved comprises approximately 10 acres of disturbed land primarily road and deck areas. The actual procedures involve a four phase program; (1) earthwork, (2) hydromulch the entire area to supplement revegetation and control run-off until stabilization is complete, (3) prepare a site which will be stable enough for a period of time to allow vegetation to become established, and (4) to plant seedlings to further stabilize the soil and to provide necessary wildlife, hydrological and aesthetic commitments as detailed in mine reclamation permit.

9.5.1 Phase 1 - Earthwork - Original Contour

The roads and pads will be brought back to a reasonable configuration by implementation of a large backhoe unit in conjunction with a crawler tractor (JD450). The actual methods will involve the pulling of material from approximately ten feet below the road cut up onto the road surface and spreading and compacting this material with the crawler tractor, at the same time pulling the leading edge of the high wall down to lessen the degree and angle of the high wall. All work done, both above and below the road, will take into consideration existing vegetation and all effort will be made to minimize disturbance where possible. When

there is no alternative other than disturbance, an effort will be made to relocate earth and maintain existing vegetation in place; attempting to relocate the vegetation in the proximity of the road disturbance.

The material redistributed to regain original contour will be compacted to approximately 95 pct of the original or adjacent undisturbed soil. Upon completion of this step of spreading and compacting, the unconsolidated native material will approach the original configuration of the site prior to disturbance. The native topsoil which was removed from the area will be redistributed to a depth of 6 inches, as indicated by Soil Survey - March 1980. Upon redistribution of the A horizon soil, all associated compaction resulting from spreading will be alleviated by ripping the entire area to a depth of 20 cm to enhance the revegetation effort.

9.5.2 Phase 2 - Seeding and Mulching

The entire area of disturbance will be drilled or hydroseeded during the first Fall following the complete abandonment and earth work. (September through November). Spring seeding was considered too speculative to be implemented based on the variation in Spring moisture regimes.

The largest portion of the recontoured site will facilitate

drill seeding in order to lessen compaction, a rangeland drill seeder pulled behind a small crawler tractor will be utilized. A tentative estimate of the area to drill seed is approximately 6.5 acres. The balance of the area would then be hydroseeded. The seed mix and rate of application is attached.

In combination with the seed, the following rates of tackifier will be utilized:

Table 9.5-1 Suggested Ratios of Tack to Fiber

<u>slope angle (deg)</u>	<u>slope ratio (rise:run)</u>	<u>percent slope</u>	<u>lbs. Tack per ton fiber</u>	<u>ratio tack to fiber</u>
14	1 : 4	25	60(min)*	1 : 30
26	1 : 2	50	80	1 : 25
33	1 : 1 1/2	66	100	1 : 20
45	1 : 1	100	120	1 : 16
57	1 1/2 : 1	150	140	1 : 14
64	2 : 1	200	160(min)	1 : 12

* 60 pounds is suggested as a minimum to insure excellent stabilization; however, in many conditions 40 pounds of Tack per acre has given excellent results on a 1:4 or less slope.

(Rates of Tack were developed with respect to velocity and erosive power of water which is proportional to the square

root of the slope.) An empirical factor was determined from laboratory and field studies to arrive at the minimum Tack fiber ratio. Thus, 60 pounds of Tack per ton of fiber is about minimum for slopes up to 20 pct and the empirical factor is determined as 60 divided 20 pct = For a 100 pct slope (1:1 or 45 degrees) the ratio of Tack to fiber is calculated as: (100 pct) (12) = 120 pounds. Tackifier to be used for Hydroseeding and Hydromulching to Serve as Mulch or Soil Binder.

Following the seeding effort the entire area of disturbance will be hydromulched and fertilized. The rate of application of the wood fiber mulch is:

1,200 to 1,500 lbs/acre on flat areas or gentle slopes
2,000 to 2,500 lbs/acre on slopes exceeding 3:1 (horiz
to vert) slopes

The mulch will also be fortified with Tack as previously indicated according to slope. Incorporated in the mulch slurry the following rate of fertilizer will be applied per acre:

80 lbs N/acre
100 lbs P205/acre
100 lbs K205/acre

Approximately 50 pct of the above application will be incorporated in the mulch and the balance be added as an over-spray the following Fall. Recommendation on fertilizer requirements is based on soils test.

9.5.3 Phase 3 - Site Preparation

Site stability will be largely accomplished through the grading, compacting and the utilization of a tackifying agent. However, on those areas with slopes of more than 2:1, the following procedures will add an additional parameter of stability and enhance the revegetation efforts. Site preparation is both general and specific in procedures. The sites and methods provide a multitude of purposes and to a large degree are residual for several years. First and foremost, they effectively decrease the angle of repose of the slope in question. In accomplishing this you effectively modify the site and change those conditions which preclude vegetation from becoming established. Second, you change the severity of erosion and, in fact, use those surface waters which heretofore were destructive in nature. This is accomplished by creating basins wherein the water has time to soak in and thus can be utilized by vegetation.

By utilizing a small crawler tractor (JD450) terraces can be contoured on all slopes in excess of 2:1. The resulting terrace creates a bench effect and are spaced at 12 in. intervals down the

creates a bench effect and are spaced at 12 in. intervals down the slope. A terrace of 8 ft toed toward the hill is thus created. Planting is then instigated at approximately 2 ft distance from the cut face to minimize the detrimental effect of potential sluffing. On a small portion of the disturbed area it may be necessary to utilize hand labor to construct small terraces, approximately 18 in. benches on a contour of 4 ft intervals. These terraces are constructed utilizing a "Region 6" hand tool and would only be implemented in areas deemed hazardous for equipment and or in sensitive areas such as along Bear Creek where down east material could adversely effect the drainage. This, in turn , decreases the impact on adjacent watersheds and improves quality of surface waters. Those areas which are terraced provide a more favorable ecosystem than that of an equivalent slope. It facilitates better utilization of grasses and forage for grazing animals; to some degree it modifies climate in that severity of wind and weather is somewhat diminished. Also, the cut face acts in much the same as a snow drift fence does in trapping and causing small areas of snow retention.

9.5.4 Phase 4 - Planting

The planting of seedlings will be done within two years of the seeding effort in order to evaluate the number and species of seedlings necessary to insure both composition and stocking of woody species to maximize utilization by wildlife and domestic

The species and numbers of individual plants are correlated to the reference area which was established during July of 1983. Species and stocking rates recommended for supplemental planting are listed in Section 9.5.5.

9.5.4.1 Planting Procedure

Planting will be done utilizing a powered auger with a capability of drilling a 3 inch plus diameter hole to a depth of 16 inches. The roots of the seedling will be arranged in as near natural position as possible paying special attention not to "J" the root tips. (Figure 9-1).

By holding the seedling at the root crown, soil will be compacted back around the roots being careful to leave no air pockets or loose dirt (which would constitute settling). The tree will be firm when light pressure is exerted on the needles and standing in an erect position. Only hands shall be used to pack soil around the tree - the use of a stick or foot is strictly forbidden.

At all times the trees will be protected from direct sun light and special care will be exhibited when lifting the seedling from the planting bag to the prepared hole. The spacing of planted shrubs and trees will be to obtain the desired density and

diversity while providing small clumps of cover for wildlife on approximately 100 ft intervals throughout the areas of disturbance that are in excess of 2 acre in size.

9.5.4.2 Field Storage

Field storage facilities are illustrated in Figure 9-2. In the event snow is not available, a similar cache can be constructed using wet burlap and damp straw.

The mine will have to maintain a sorting, packaging and storing tent at the cache site. A sorting table will need to be set up in one tent. Each seedling must be examined and all that do not have a 2 to 1 crown to root relationship or are damaged must be discarded. The seedlings then need to be dipped in a vermiculite slurry and then rolled in wet burlap and placed in canvas planting bags.

The trees can only be left in the bags for twenty-four hour periods and then must be repacked following the same procedures. The field handling of packed trees requires the crowns be kept moist and the bags covered with insulated tarps and stored in shaded areas.

Table 9.5-3 Recommended Seed Mix, Pinyon Juniper Grass

<u>Species</u>	<u>Lbs/Acre</u>	<u>Approx No. P.L.S/Ft²</u>
<u>Grasses</u>		
<u>Agropyron dasystachyum</u> Thickspike Wheatgrass	3	12
<u>A. spicatum</u> Bluebunch Wheatgrass	7.5	20
<u>Elymus salina</u> Salina Wildrye	1.5	15
<u>Oryzopsis hymenoides</u> Indian ricegrass	3	12
<u>Poa secunda</u> Sandberg bluegrass	1	20
<u>Forbs</u>		
<u>Achillea millifolium</u> western yarrow	.15	10
<u>Aster chilensis</u> pacific aster	.15	9
<u>Hedysarum boreale</u> Northern sweetvetch	9	7
<u>Lupinus sericeus</u> Silky sweetvetch	20	6
<u>Penstemon palmeri</u> Palmer penstemon or <u>P. strictus</u> Rocky Mountain penstemon	.5	7
<u>Shrubs</u>		
<u>Amelanchier Utahensis</u> Utah serviceberry	5	5
<u>Artemisia tridentata spp. vaseyana</u> Big sagebrush	.18	11
<u>Cercocarpus ledifolius</u> Curlleaf Mountain mahogany	7	8
<u>Chrysothamnus nauseosus var. albicaulus</u> Whitestem rubber rabbitbrush	.6	6
<u>Sambucus cerulea</u> Blue elderberry	<u>1</u>	<u>5</u>
For hydroseeding	61.58	159
1/2 application for drill seeded areas	31.00	

During breaks, lunch, etc., the crews planting bags must be placed in shaded areas. At the end of each operational day all bags must be unpacked and the trees redipped in vermiculite and rolled in wet burlap and repackaged to be used first the succeeding day.

9.5.5 Recommended Seed Mix

Table 9.5-2 Recommended Seed Mix, Riparian-Creek Bottom

<u>Species</u>	<u>Lbs/Acre P.L.S.</u>
<u>Grasses</u>	
Phalaris arundinacea	1
Oryzopsis hymenoides	3
Stipa viridula	2
Bromus marginatus	6
Agropyron dasystachyum	5
<u>Forbs</u>	
Clematis ligusticifolia	2
Arnica cordifolia	1
Artemisia ludoviciana	.15
Vicia americana	3.5
Achillea millefolium lanulosa	.25
Melilotus officinalis	3
<u>Shrubs</u>	
Woodsii	4
Rhus trilobata	3
Chrysothamnus nauseosus var. albicaulis	.5
Sambucus cerulea (raw-uncleaned)	5
TOTAL	39.4 lbs/acre

Rosa

Rates are designed for hydroseeding

Drill seeded area would be 1/2 the listed application rate.

Species to be planted:

<u>Species</u>	<u>Linear Ft Spacing</u>	<u>Number per Acre</u>
Populus angustifolia	5 ft	1,072
Rosa woodsii	8 x 8	680

After two years the seeding effort will be evaluated and planting will be instigated in the event it appears necessary to bring the density and diversity of woody species up to the confidence levels of the corresponding reference area. The same species will be planted as listed above under shrubs. In addition, the following tree species will be planted:

<u>Species</u>	<u>Number per Acre</u>	<u>Spacing within Clumps*</u>
<u>Punus edules</u>	18	5 ft
<u>Acer glabrum torr.</u>	18	5 ft
<u>Prunus virginiana</u>	5	25 ft

* Clumps spaces at 30 yd. intervals for wildlife cover

9.5.5.1 Noxious Weeds

The following weeds are officially designated as noxious for the State of Utah, as per the authority vested in the Commissioner of Agriculture under Section 4-17-3, Utah Noxious Weed Act, and will be controlled as directed by the Emery County, Extension Agent if found within the permit area:

Bermudagrass	<u>Cynodon dactylon</u>
Bindweed	<u>Convolvulus spp.</u>
Broadleaved Peppergrass	<u>Lepidium latifolium</u>
Canada Thistle	<u>Cirsium arvense</u>
Dyers Woad	<u>Isatis tinctoria</u>
Johnson Grass	<u>Sorghum halepense</u>
Leafy Spurge	<u>Euohorbia esula</u>
Musk Thistle	<u>Carduus nutans</u>
Quackgrass	<u>Agropyron repens</u>
Russian Knapweed	<u>Centaurea repens</u>
Scotch Thistle	<u>Onopordium acanthium</u>
Whitetop	<u>Cardaria spp.</u>

9.5.6 Revegetation Cost Estimate

All costs are based on known costs-contract amount, on work either in progress or completed in the preceding 12 months.

Table 9.5-4 Revegetation Cost Estimate

<u>Type of Activity</u>	<u>Cost per Acre</u>
<u>Hydromulching and Seeding:</u>	
Application of seed and tackifier; equipment and labor only	\$175.00
Application of mulch, fertilizer and tack; equipment and labor only	
275.00/acre	
<u>Mobilization (Utah Area)</u>	
Mulch	Job 500.00
Tack @ 1.60/# 140#/acre	380.00/acre
Fertilizer @\$23.00/100#	224.00/acre
	23.00/acre
<u>Drill Seeding</u>	
JD450 Crawler @\$45.00/hour	240.00/acre
estimating 8 hours/acre	360.00/acre
Case 580 Backhoe @ \$35.00/hour	
estimating 24 hours/acre	840.00/acre
<u>Seed</u>	
Variable - current quote	165.00/acre
Planting and Site Preparation	93.00/acre
Nursery Stock	.50/each

REFERENCE AREA

CRITERIA, RATIONALE, AND METHODOLOGY

Co-Op, Bear Canyon Mine was established on a site which was previously disturbed in the early 1920's - 1940's, precluding an accurate determination of the predisturbance vegetation. The mine lies in a narrow canyon within an elevational range of 6,970 ft to 7,675 ft. The vegetation zone is considered transitional.

A reference area was selected off site (in Trail Canyon), but within the fee property of the mine's parent company. Selection was made in 1983 by Co-Op representative, Mel Coonrod, and Division Biologist, Lynn Kunzler, see Plate 9-1. The reference area is marked on site with metal 5 ft 5 in. posts in each corner. The 250 ft x 150 ft reference area consists of two sub-areas, representing pinyon/juniper-grass and riparian vegetation types, which were believed to comprise the pre-disturbed condition. See Figure 9A-1.

Table 9A-2 Riparian Reference Area

<u>Species</u>	<u>Pct of Total Cover</u>
<u>Grasses</u>	
Agrostis spp.	<1
Bromus tectorum	5
Bromus marginatus	<1
Juncus spp.	<1
Oryzopsis hymenoides	2
Poa pratensis	3
Stipa comata	<u>14</u>
	25 pct
<u>Forbs</u>	
Apocynum androsaemifolium	<1
Arnica cordifolia	1
Artemisia dracunculus	2
Castilleja spp.	<1
Cirsium spp.	<1
Clematis columbiana	5
Equisetum spp.	1
Hackelia floribunda	<1
Ipomopsis aggregata	<1
Lathyrus spp.	<1
Smilacina spp.	<1
Taraxacum officinale	<1
Tragopogon dubius	<u><1</u>
	12 pct
<u>Shrubs</u>	
Artemisia frigida	1
Astragalus spp.	2
Chrysothamnus nauseosus	5
Chrysothamnus viscidiflorus	1
Ephedra viridis	<1
Gutierrezia spp.	1
Opuntia spp.	<1
Purshia tridentata	9
Rhus trilobata	<1
Rosa woodsii	<1
Symphoricarpos spp.	<u><1</u>
	20 pct
Total vegetation	57 pct
Bare ground	9 pct
Rock	20 pct
Litter	14 pct

Bear Canyon Reference Area (in Trail Canyon)
 Table 9A-3 SHRUB DENSITY RESULTS
 (Standard for both pinyon.juniper and riparian vegetation)

/ha = N/24 transects X 200

<u>Shrubs</u>	<u>Number</u>	<u>Pct of Shrub Composition</u>
Artemisia tridentata	16	0.42
Chrysothamnus nauseosus	608	15.89
Ephedra viridis	566	14.79
Eriogonum spp.	2108	55.10
Guaiacum sanctum	350	9.15
*Juniperus osteosperma	16	0.42
*Juniperus scopulorum	8	0.21
Opuntia spp.	8	0.21
*Pinus edulis	75	1.96
*Pinus monophylla	16	0.42
Rosa woodsii	25	0.78
Purshia tridentata	16	0.42
Tamarix pentandra	<u>8</u>	<u>0.21</u>
Total Shrubs/ha	3820	100 pct

All shrubs rooted within the sample area.
 *Tree species included due to their shrub-like nature less than 5 ft in height.

TREE DENSITY

A total count of all trees within the reference area was made indicating a density of:

<u>Shrubs</u>	<u>Number</u>	<u>Number Per Acre</u>
Juiperus osteosperma	7	14
Juniperus scopulorum	2	5
Pinus edulis	7	14

10.3 EXISTING WILDLIFE RESOURCES

10.3.1 Wildlife Habitat in the Mine Plan Area

The area of potential impact is covered by several important habitats that are used by species considered of "high interest" to various management agencies because of economic or recreation value. There are five major vegetation habitats from a faunal standpoint: pinyon-juniper, sagebrush, conifer, grass, and riparian.

Mine Site Location. This area is approximately 10 acres and is one area where surface construction will occur. It is covered primarily with pinyon and juniper trees, sagebrush, and rabbitbrush, with spruce trees in some of the side canyons. Basically it is a high, dry, desert environment.

Haul Road and Utility Corridors. Haul road and Utility corridors are both described as having the same general habitat as the Mine site with the addition of a narrow band of riparian habitat along Bear Creek.

limited to low quality environs, but none, as far as is presently known, are rare in the inter-mountain region.

10.3.3.2 Raptors

Two species of endangered raptors may be found in the mine plan area. These are the bald eagle and peregrine falcon. There are no known roosting trees for golden eagles or nesting sites for other eagles or falcons within the permit area according to a survey conducted by the Raptor Biologist from the U.S. Fish and Wildlife Service.

Additional studies have been made during the raptor breeding seasons confirming the absence of raptor nesting sites in the Permit area (Appendix 10-D).

10.4 EXPECTED IMPACTS OF MINING OPERATIONS ON FISH AND WILDLIFE

10.4.1 Aquatic Wildlife

The mine is an existing mine and as such should have no additional impact on Bear Creek, which is furthermore of little value to the aquatic sources of the area. Natural conditions would be stressful to the aquatic life even if existing mining activities were removed.

caused by planned surface facilities will have no significant impact on the herd.

Mule Deer. Mule deer on the Bear Canyon Mine and the proposed expansion areas are considered part of herd unit 33 by UDWR. Historically, through 1977, this herd experienced the same general fluctuations as the other herd units of the state. Populations decreased in the early 1970's primarily due to severe climatic conditions, but took a general upswing through the summer of 1977. Then there were three consecutive yr of decline wherein the deer were forced to the extreme lower limits of their winter range by abnormally deep and long-lasting snow.

The animals utilize the entire area of potential impact but seasonally concentrate in, and more heavily utilize, specific habitat types. The high elev mountain brush-grass and conifer-aspen habitats near the Northern edge of the permit area are used for summer range and fawning. The low altitude mountain brush, mixed desert shrub, and pinyon juniper habitats are used as winter range during normal winters; during excessive snow the deer move off the impact area and go east well below the Permit Area. The browse in the wintering habitats in the impact area is in relatively good condition and can facilitate overwintering of deer in a normal yr.

Cougar. The entire Bear Canyon Mine and Haul Road area provide

11.4.2 Description of Control Measures Fugitive Dust Control Plan

The following subsections describe in detail the fugitive dust control measures that are in effect or are planned for the mine plan for each of the listed sources.

TOPSOIL REMOVAL AND STORAGE PILE

The operator currently implements a water spray program during operations involving topsoil removal and stockpiling. Revegetation of stockpile areas is initiated after topsoil has been replaced.

ACCESS ROADS

The roads leading to material supply, storage areas and the connecting road from the Bear Canyon Portal area to the coal loading area experience frequent use. When necessary, a soil stabilizing agent will be worked into the upper layer of the roadbed. A road grader is used periodically to remove accumulations of spilled materials from the roadbeds. Vehicular speed is limited to a max of 30 mph. Periodically, or as necessary during the operating life of the mine, the roads will be treated with water and/or nontoxic dust suppressants.

COAL HANDLING FACILITIES

Principal sources of fugitive dust emissions related to the coal handling facilities have been identified as conveyor, crusher building, and coal storage. The proposed control measures for each of these sources are discussed individually below.

Conveyors. Conveyors, housing the main belts from the mine portals to the run of mine coal intermediate stockpile, will be covered. Transfer points in the raw coal/crusher area contain water sprays or other dust control methods as applicable. The conveyor discharge height is minimized.

Crusher Building. The primary crushers are enclosed and contain water sprays or other measures. Crushed coal is transported to the storage area conveyor.

Coal Storage Pile. The coal storage pile is periodically sprayed with water and/or nontoxic dust suppressants. The coal pile is oriented in an area to best protect it from the prevailing wind direction and minimize wind erosion.

Kenney for same copy

~~NOTE~~ RECEIVED
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DIVISION OF
OIL, GAS & MINING

Please replace the following pages in the 14 copies submitted Friday; p 3-ii thru 3-vi, 3-10, 3G-4 and 9-23. There were minor errors/omissions.

Thank you,



Kimly C. Mangum

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3.3.14 Total Area for Surface Disturbance During Permit Term

Total area of surface disturbance during the permit term is approx 16 acres. Individual areas are shown on Plate 3-2.

3.3.15 Additional Area for Surface Disturbance for Life of Mine

Surface disturbance in addition to what has already been disturbed is not anticipated.

3.3.16 Detailed Construction Schedule

Construction of coal handling and processing facilities began on 1 April 1981, and were largely completed by 1 Nov 1985. Construction of truck scale and caretaker dwelling was completed by 1 Dec 1985. Construction of shop complex began on 15 Aug 1983, and completed on 1 Oct 1985. Construction of the new bath house and road widening over Bear Creek began in the summer of 1990.

3.4 OPERATION

Co-Op started its mining operation through an existing mine in the Bear Canyon Seam and later extended into the Hiawatha Seam below. Access to the lower Hiawatha seam was made in the summer of 1986 through two new portals in the outcrop, and through a rock slope tunnel from the Bear Canyon seam. The following mining plans pertain to the existing operation in these two seams.

Table 9.5-3 Recommended Seed Mix, Pinyon Juniper Grass

<u>Scientific Name</u>	<u>Common Name</u>	<u>PLS lbs/ac</u>	<u>Cost/ac*</u>
SHRUBS			
<u>Amelanchier utahensis</u>	Serviceberry	2.0	\$64.00
<u>Artemisia tridentata</u>	Big Sagebrush (Vasey)	0.2	\$ 6.80
<u>Cercocarpus ledifolius</u>	Mtn. Mahogany	2.0	\$76.00
<u>Chrysothamnus nauseosus</u>	Rubber Rabbitbrush	0.5	\$16.50
<u>Rhus trilobata</u>	Squawbush	1.0	\$14.70
FORBS			
<u>Achillea millifolium</u>	Yarrow	0.1	\$ 1.60
<u>Aster chilensis</u>	Pacific Aster	0.2	\$18.00
<u>Hedysarum boreale</u>	Northern Sweetvetch	1.5	\$60.00
<u>Linum lewsi</u>	Lewis Flax	1.0	\$10.00
<u>Melilotus officinalis</u>	Yellow Sweetclover	1.0	\$ 0.45
<u>Pentstemon palmeri</u>	Palmer's Pentstemon	0.5	\$ 7.13
GRASSES			
<u>Elymus cinereus</u>	Gt. Basin Wildrye	3.0	\$12.15
<u>Elymus lanceolatus</u>	Thickspike Wheatgrass	2.0	\$ 4.20
<u>Elymus smithii</u>	Western Wheatgrass	3.0	\$ 9.60
<u>Elymus spicatus</u>	Bluebunch Wheatgrass	3.0	\$ 5.55
<u>Stipa hymenoides</u>	Indian Ricegrass	2.0	\$18.80
TOTAL		23.0	\$325.48

* Rates based on drill seeding pure live seed (PLS). The rate would be doubled if the seeding method employed is surface broadcasted.

APPENDIXES

A	Violation List	2A-1
B	Title Insurance Policy	2B-1
C	Insurance	2C-1
D	Affidavit of Publication	2D-1
E	Pole Line Easement	2E-1
F	Federal Lease	2F-1

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LIST OF PLATES

Plate 2-1	Permit Area
Plate 2-2	Surface Ownership
Plate 2-3	Sub-Surface Ownership
Plate 2-4	Surface Facilities

2.2.2 Holders of Leasehold Interest in Surface Area and Coal Rights

The names and addresses of holders of record in Leasehold interest are listed below: Coal mining lease by and between Co-Op Mining Co. and Peabody Coal Co., executed 1 December 1975 (Plate 2-1).

T16S, R7E SLBM	Sec. 14 SW 1/4, SE 1/4
	Sec. 23 E1/2, E1/2 W1/2
	Sec. 24 All West of N-S Fault
	Sec. 25 All West of N-S Fault
(Fed. Lease U024316)	Sec. 13 W 1/2 W 1/2
	Sec. 14, E 1/2 NW 1/4, NE 1/4
(Fed. Lease U024318)	Sec. 26 E 1/2 NW 1/4

The right to mine and remove from, and use for purposes incident to mining, including access roads, camp facilities, surface operations, storage of coal, and other activities. Also unrestricted use of all access roads leading to and from property. Lease is binding on the successors to the parties of the lease. Co-Op also holds Federal Lease U024316 (See Appendix 2-F, Plate 2-1).

2.2.3 Purchase of Record Under a Real Estate Contract for Surface Area Coal

See Appendix 2-B Title Insurance Policy and Property Title.

2.2.4 Operator, if Different from Applicant

Same as above.

2.5.1 Waiver of Owners of Nearby Occupied Dwellings

Applicant does not propose to conduct or locate surface facilities within 300 feet of an occupied dwelling.

2.6 PERMIT TERM INFORMATION - ANTICIPATED FOR EACH PHASE

2.6.1 Starting Date

The mine started construction in 1981 and was in production by late fall of 1981. Mining in the 160 acre Lease addition area is proposed to begin in the spring of 1989 (Appendix 3-K).

2.6.2 Termination Dates

Termination dates anticipated for each phase of mining are nebulous at this time although a detailed estimate of production and reserves are included in the Geology Section and a projection of 22-years appears realistic (from 1990). The final termination date for the mining operation is expected to be 2012.

2.6.3 Numbers or Surface Acres Affected

The anticipated disturbance by the Bear Canyon Mine totals about 16 acres. Plate 2-1 shows potential property expansion and future facilities of the mine.

NOV/CO STATUS REPORT

MINE: ACT/015/025

NOV/CO # (Agency)	Issued/ Modify	Abatement/ Statement	Term/Vac Date	Pertinent Regulations
N87 26 04 01 (DOGM)	06/05/87	06/30/87	T08/03/87	UMC817.121
	<u>Description</u>	Failure to install & monitor subsidence monuments.		
	<u>Action Taken</u>	Monuments installed and monitoring begun.		
N87 11 03 01 (DOGM)	08/19/87 09/15/87	09/15/87 08/31/87	T09/24/87	UMC817.43, UMC817.45,
	<u>Description</u>	Failure to maintain diversions, culvert below sed pond & office.		
	<u>Action Taken</u>	Road swale to sed pond "B" and culvert below installed.		
N87 11 02 01 (DOGM)	08/19/87 11/20/87	10/19/87 08/31/87	T11/20/87	UMC817.52
	<u>Description</u>	Failure to submit water sampling data for annual report.		
	<u>Action Taken</u>	Data submitted.		
N87 27 01 02 1 of 2 (DOGM)	09/25/87 12/11/87	10/30/87 10/02/87	T12/11/87	UMC771.19
	<u>Description</u>	Failure to install environmental control measures.		
	<u>Action Taken</u>	Plans submitted and approved to delete culvert C-2R and C-3R. Culvert and headgate installed per plan.		
N87 27 01 02 2 of 2 (DOGM)	09/25/87 12/11/87	10/30/87	T12/11/87	UMC817.153
	<u>Description</u>	Failure to avoid plugging or collapse and erosion at inlets and outlets.		
	<u>Action Taken</u>	Plans submitted and approved to delete culvert C-2R and C-3R. Culvert and headgate installed per plan.		
N88 20 01 01 (DOGM)	02/12/88	02/12/88 02/12/88	T02/09/88	UMC817.52, UMC817.52, UMC771.19
	<u>Description</u>	Failure to collect required baseline water monitoring data for surface and ground monitoring.		
	<u>Action Taken</u>	Monitoring issues resolved and started.		

<u>NOV/CO #</u> <u>(Agency)</u>	<u>Issued/</u> <u>Modify</u>	<u>Abatement/</u> <u>Statement</u>	<u>Term/Vac</u> <u>Date</u>	<u>Pertinent</u> <u>Regulations</u>
N88 26 12 02 1 of 2 (DOGM)	07/13/88	07/28/88 08/12/88 07/27/88	T08/16/88	UMC771.19
<u>Description</u>	Storing lump coal in a non-designated and non-authorized area.			
<u>Action Taken</u>	Plan for coal storage submitted and approved.			
N88 26 12 02 2 of 2 (DOGM)	07/13/88	07/27/88	T07/14/88	UMC771.19, UMC817.50
<u>Description</u>	Mine water discharge from Hiawatha Portal.			
<u>Action Taken</u>	Discharge stopped.			
N88 29 01 01 (DOGM)	08/04/88 10/08/88	08/19/88 08/26/88 11/02/88 08/12/88	T11/03/88	UMC771.19
<u>Description</u>	Drainage control plans required for hiawatha seam.			
<u>Action Taken</u>	Drainage plans submitted, reviewed and approved.			
N88 20 02 01 (DOGM)	08/18/88	09/15/88	T09/15/88	UMC771.19
<u>Description</u>	Cave-in to be converted to emergency escapeway and ventilation portal. Road cuivert to be deleted from plan.			
<u>Action Taken</u>	Plans submitted and approved, changes implemented.			
N88 30 03 01 (DOGM)	10/07/88	11/07/88 10/17/88	T11/03/88	UMC817.43, UMC817.45
<u>Description</u>	Failure to maintain diversions. Failure to minimize erosion at #1 portal, hiawatha portal and access road.			
<u>Action Taken</u>	Diversions cleaned, improved and maintained.			
N88 30 06 03 1 of 3 (DOGM)	12/21/88	01/27/88 12/27/88	T01/25/89	UMC771.19
<u>Description</u>	Failure to maintain ballpark topsoil storage area, install signs and maintain sediment control.			
<u>Action Taken</u>	Topsoil signs and sediment controls installed.			

<u>NOV/CO # (Agency)</u>	<u>Issued/ Modify</u>	<u>Abatement/ Statement</u>	<u>Term/Vac Date</u>	<u>Pertinent Regulations</u>
N89 30 06 03 2 of 3 (DOGM)	12/21/88	01/27/88 06/30/89 04/04/89 12/27/88	T04/05/89	UMC817.43
<u>Description</u>	Failure to maintain diversion ditch D-4D and culvert C-2D inlet.			
<u>Action Taken</u>	Diversion repaired and inlet cleaned and improved.			
N89 30 06 03 3 of 3 (DOGM)	12/21/89	01/27/89 06/30/89 04/04/89 12/27/88	T04/05/89	UMC817.42
<u>Description</u>	Failure to pass disturbed surface drainage to treatment facility. Ballpark topsoil pile.			
<u>Action Taken</u>	Sediment control implemented.			
N89 30 01 01 (DOGM)	03/14/89	04/15/89 03/17/89	T04/05/89	UMC817.43
<u>Description</u>	Failure to maintain diversion road swale and access road diversion.			
<u>Action Taken</u>	Diversion and swale cleaned and repaired.			
N89 32 02 01 (DOGM)	07/11/89	08/11/89	T08/11/89	UMC771.19, UMC817.23
<u>Description</u>	Failure to install ballpark topsoil pile sprinkler system.			
<u>Action Taken</u>	sprinkler system installed.			
N89 28 18 01 (DOGM)	07/14/89 07/28/89 08/01/89	07/14/89 10/10/89 07/14/89	T10/12/89	UMC771.19, UMC817.43
<u>Description</u>	Failure to obtain approval for new conveyor before construction and failure to maintain runoff controls.			
<u>Action Taken</u>	Control measures implemented, plans submitted and approved.			
N89 26 21 02 1 of 2 (DOGM)	11/16/89 12/29/89	12/15/89 11/27/89	T12/24/89 12/24/89	UMC771.19
<u>Description</u>	Construction of machine shop without authorization. Failure to install culvert C-4U, silt fence and culvert C-8U extension.			
<u>Action Taken</u>	Plans submitted and approved, drainage control structures installed.			

<u>NOV/CO #</u> <u>(Agency)</u>	<u>Issued/</u> <u>Modify</u>	<u>Abatement/</u> <u>Statement</u>	<u>Term/Vac</u> <u>Date</u>	<u>Pertinent</u> <u>Regulations</u>
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N89 26 21 02 2 of 2	11/16/89 12/29/89	12/15/89 11/27/89	T12/24/89	UMC817.43
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(DOGM)

<u>Description</u>	Failure to maintain ditches and diversions; D-1U, D-1D, D-3U, D-4U and D-8U.
<u>Action Taken</u>	Diversions cleaned and regraded.

N89 32 04 01	10/30/89 12/29/89		T11/09/89 V12/07/89	UMC771.19, UMC817.111
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(DOGM)

<u>Description</u>	TRAIL CANYON MINE ACT/015/015 - Failure to drill seed verses hydroseed on lower pad.
<u>Action Taken</u>	Lower pad drill seeded per plan within specified time. Violation vacated.

During this period 0 unvacated CO's were issued for this mine.
 During this period 18 unvacated NOV's were issued for this mine.

AREA NEAR PORTAL NO.1

This area lies between the upper lamphouse/mine portal bermed pad and the portal access road, extending from the road junction on the south to just north of the upper office trailer at the beginning of the Cattle Co. Road. The area is approx. 0.28 acres. A silt fence is installed at the north end of the area where runoff flows down hill from the Cattle Co. Road area. Runoff from the area passes through a silt fence near the inlet to culvert C-6U. Runoff volume from this area is calculated to be 0.019 acre ft.

BALL PARK TOPSOIL PILE

The ball park covers 1.2 acres. Straw bale dikes and/or silt fences will be installed on the south east side, in line with the natural flow to treat runoff before it enters Bear creek. Runoff volume from this area is calculated to be 0.082 acre ft.

TOPSOIL STOCKPILE

The main topsoil storage pile covers approx 0.1 acres. The area is encircled by an 18 in. berm and is protected by established vegetation. Runoff volume from this area is calculated to be 0.0068 acre ft.

Note: Runoff volumes are based on the 10 yr 24 hr event of 2.25 in. and runoff CN of 82.

GENERAL

Upon inspection of the Mine permit area it was found that the areas described below exist in the undisturbed zones and that surface runoff going through these areas does not pass through the sediment pond treatment facilities. In order to provide adequate treatment for these areas, straw bale dikes and/or silt fences will be installed as indicated on Plate 7-1. The sediment control structures will be positioned so that surface runoff passes through them before entering Bear Creak. Treatment facilities will be maintained for each area until approved and determined that adequate revegetation cancels the need for treatment. These areas are designated as "Best Technology Currently Available" or BTCA Areas. Drainage from these areas will be monitored as possible to show compliance with the state and federal limitations.

OUTSLOPE BANK OF UPPER STORAGE PAD.

During construction of the Upper Storage Pad (Plate 7-1) some fill was apparently overcast down the face of the slope below. The area covers approximately 800 sq ft. This area received interim vegetation seeding in 1990. Also at the base of the cliff there is a pile of downcast material that will be revegetated. A silt fence will be installed and maintained at the inlet to culvert C-8U and a sediment trap installed to capture potential sediment from this area. The sediment trap will be periodically cleaned and

maintained so as to capture sediment before it enters culvert C-8U and is carried to Bear Creek. The runoff volume for this area is calculated to be 0.0013 acre ft.

AREA NEAR PORTAL NO.1

This area lies between the upper lamphouse/mine portal bermed pad and the portal access road, extending from the road junction on the south to just north of the upper office trailer at the beginning of the Cattle Co. Road. The area is approx. 0.28 acres. A silt fence is installed at the north end of the area where runoff flows down hill from the Cattle Co. Road area. Runoff from the area passes through a silt fence near the inlet to culvert C-6U. Runoff volume from this area is calculated to be 0.019 acre ft.

AREA NEAR THE HIAWATHA PORTAL

This area lies between the portal access road and the storage pad below. It is approx 60 ft wide and 260 ft long covering approx 0.36 acres. This area was seeded in the fall of 1990. A silt fence is installed at the base of the area near the inlet to culvert C-7U. Not all of the runoff enters culvert C-7U, it flows to D-3D and eventually into sediment pond A. Runoff volume from this area is calculated to be 0.024 acre ft.

BALL PARK TOPSOIL PILE

The ball park covers 1.2 acres. Straw bale dikes and/or silt fences will be installed on the south east side, in line with the natural flow to treat runoff before it enters Bear creek. Runoff volume from this area is calculated to be 0.082 acre ft.

TOPSOIL STOCKPILE

The main topsoil storage pile covers approx 0.1 acres. The area is encircled by an 18 in. berm and is protected by established vegetation. Runoff volume from this area is calculated to be 0.0068 acre ft.

Note: Runoff volumes are based on the 10 yr 24 hr event of 2.25 in. and runoff CN of 82.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Serial Number U-024316

Lease Date May 1, 1958

COAL LEASE READJUSTMENT

Part I. LEASE RIGHTS GRANTED

This lease, entered into by and between the United States of America, hereinafter called the lessor, through the Bureau of Land Management, and

C. O. P. Coal Development Company
53 West Angelo Avenue
Salt Lake City, UT 84115

hereinafter called lessee, is readjusted, effective May 1, 1988, for a period of 10 years and for so long thereafter as coal is produced in commercial quantities from the leased lands, subject to readjustment of lease terms at the end of each 10 year lease period.

Sec. 1. This lease readjustment is subject to the terms and provisions of the:

Mineral Lands Leasing Act of 1920, Act of February 25, 1920, as amended, 41 Stat. 437, 30 U.S.C. 181-287, hereinafter referred to as the Act;

Mineral Leasing Act for Acquired Lands, Act of August 7, 1947, 61 Stat. 913, 30 U.S.C. 351-359;

and to the regulations and formal orders of the Secretary of the Interior which are now or hereafter in force, when not inconsistent with the express and specific provisions herein.

Sec. 2. Lessor, in consideration of any rents and royalties to be paid, and the conditions and covenants to be observed as herein set forth, hereby grants to lessee the exclusive right and privilege to drill for, mine, extract, remove or otherwise process and dispose of the coal deposits in, upon, or under the following described lands:

T. 16 S., R. 7 E., SLM, Utah, Emery County
Sec. 10, N $\frac{1}{2}$, N $\frac{1}{2}$ S $\frac{1}{2}$, SE $\frac{1}{2}$ SW $\frac{1}{2}$, S $\frac{1}{2}$ SE $\frac{1}{2}$;
Sec. 11, all;
Sec. 12, W $\frac{1}{2}$ W $\frac{1}{2}$;
Sec. 13, W $\frac{1}{2}$ W $\frac{1}{2}$;
Sec. 14, NE $\frac{1}{4}$, E $\frac{1}{2}$ NW $\frac{1}{4}$.

containing 1,800.00 acres, more or less, together with the right to construct such works, buildings, plants, structures, equipment and appliances and the right to use such on-lease rights-of-way which may be necessary and convenient in the exercise of the rights and privileges granted, subject to the conditions herein provided.

PART II. TERMS AND CONDITIONS

Sec. 1.(a) RENTAL RATE - Lessee shall pay lessor rental annually and in advance for each acre or fraction thereof during the continuance of the lease at the rate of \$3.00 for each lease year.

(b) RENTAL CREDITS - Rental shall not be credited against either production or advance royalties for any year.

Sec. 2.(a) PRODUCTION ROYALTIES - The royalty shall be 12% percent of the value of coal produced by strip or auger mining methods and 8 percent of the value of coal produced by underground mining methods. Royalties are due to lessor the final day of the months succeeding the calendar month in which the royalty obligation accrues.

(b) ADVANCE ROYALTIES - Upon request by the lessee, the authorized officer may accept for a total of not more than 10 years, the payment of advance royalties in lieu of continued operation, consistent with the regulations. The advance royalty shall be based on a percent of the value of a minimum number of tons determined in the manner established by the advance royalty regulations in effect at the time the lessee requests approval to pay advance royalties in lieu of continued operation.

Sec. 3. BONDS - Lessee shall maintain in the proper office a lease bond in the amount of \$5,000. The authorized officer may require an adjustment in the amount of the bond to reflect changed conditions.

Sec. 4. DILIGENCE - This lease is subject to the conditions of diligent development and continued operation, except that these conditions are excused when operations under the lease are interrupted by strikes, the elements, or casualties

not attributable to the lessee. The lessor, in the public interest, may suspend the condition of continued operation upon payment of advance royalties in accordance with the regulations in existence at the time of the suspension. Lessee's failure to produce coal in commercial quantities at the end of 10 years shall terminate the lease. If not submitted already, lessee shall submit an operation and reclamation plan pursuant to Section 7 of the Act not later than 3 years after the effective date of this lease readjustment.

The lessor reserves the power to assent to or order the suspension of the terms and conditions of this lease in accordance with, inter alia, Section 39 of the Mineral Leasing Act, 30 U.S.C. 209.

Sec. 5. LOGICAL MINING UNIT (LMU) - Either upon approval by the lessor of the lessee's application or at the direction of the lessor, this lease shall become a LMU or part of a LMU, subject to the provisions set forth in the regulations.

The stipulations established in a LMU approval in effect at the time of LMU approval will supersede the relevant inconsistent terms of this lease so long as the lease remains committed to the LMU. If the LMU of which this lease is a part is dissolved, the lease shall then be subject to the lease terms which would have been applied if the lease had not been included in an LMU.

Sec. 6. DOCUMENTS, EVIDENCE AND INSPECTION - At such times and in such form as lessor may prescribe, lessee shall furnish detailed statements showing the amounts and quality of all products removed and sold from the lease, the proceeds therefrom, and the amount used for production purposes or unavoidably lost.

Lessee shall keep open at all times for the inspection of any duly authorized officer of lessor, the leased premises and all surface and underground improvements, works, machinery, ore stockpiles, equipment, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or under the leased lands.

Lessee shall allow lessor access to and copying of documents reasonably necessary to verify lessee compliance with terms and conditions of the lease.

While this lease remains in effect, information obtained under this section shall be closed to inspection by the public in accordance with the Freedom of Information Act (5 U.S.C. 552).

Sec. 7. DAMAGES TO PROPERTY AND CONDUCT OF OPERATIONS - Lessee shall comply at its own expense with all reasonable orders of the Secretary, respecting diligent operations, prevention of waste, and protection of other resources.

Lessee shall not conduct exploration operations, other than casual use, without an approved exploration plan. All exploration plans prior to the commencement of mining operations within an approved mining permit area shall be submitted to the authorized officer.

Lessee shall carry on all operations in accordance with approved methods and practices as provided in the operating regulations, having due regard for the prevention of injury to life, health, or property, and prevention of waste, damage or degradation to any land, air, water, cultural, biological, visual, and other resources, including mineral deposits and formations of mineral deposits not leased hereunder, and to other land uses or users. Lessee

shall take measures deemed necessary by lessor to accomplish the intent of this lease term. Such measures may include, but not limited to, modification to proposed siting or design of facilities, timing of operations, and specification of interim and final reclamation procedures. Lessor reserves to itself the right to lease, sell, or otherwise dispose of the surface or other mineral deposits in the lands and the right to continue existing uses and to authorize future uses upon or in the leased lands, including issuing leases for mineral deposits, not covered hereunder and approving easements or rights-of-way. Lessor shall condition such uses to prevent unnecessary or unreasonable interference with rights of lessee as may be consistent with concepts of multiple use and multiple mineral development.

Sec. 8. PROTECTION OF DIVERSE INTERESTS, AND EQUAL OPPORTUNITY - Lessee shall: pay when due all taxes legally assessed and levied under the laws of the State or the United States; accord all employees complete freedom of purchase; pay all wages at least twice each month in lawful money of the United States; maintain a safe working environment in accordance with standard industry practices; restrict the workday to not more than 8 hours in any one day for underground workers, except in emergencies; and take measures necessary to protect the health and safety of the public. No person under the age of 16 years shall be employed in any mine below the surface. To the extent that laws of the State in which the lands are situated are more restrictive than the provisions in this paragraph, then the State laws apply.

Lessee will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended, and the rules, regulations, and relevant orders of the Secretary of Labor.

Neither lessee nor lessee's sub-contractors shall maintain segregated facilities.

Sec. 9.(a) TRANSFERS

This lease may be transferred in whole or in part to any person, association, or corporation qualified to hold such lease interest.

This lease may be transferred in whole or in part to another public body, or to a person who will mine the coal on behalf of, and for the use of, the public body or to a person who for the limited purpose of creating a security interest in favor of a lender agrees to be obligated to mine the coal on behalf of the public body.

This lease may only be transferred in whole or in part to another small business qualified under 13 CFR 121.

Transfers of record title, working or royalty interest must be approved in accordance with the regulations.

(b) RELINQUISHMENT - The lessee may relinquish in writing at any time all rights under this lease or any portion thereof as provided in the regulations. Upon lessor's acceptance of the relinquishment, lessee shall be relieved of all future obligations under the lease or the relinquished portion thereof, whichever is applicable.

Sec. 10. DELIVERY OF PREMISES, REMOVAL OF MACHINERY, EQUIPMENT, ETC.

- At such time as all portions of this lease are returned to lessor, lessee shall deliver up to lessor the land

leased, underground timbering, and such other supports and structures necessary for the preservation of the mine workings on the leased premises or deposits and place all workings in condition for suspension or abandonment. Within 180 days thereof, lessee shall remove from the premises all other structures, machinery, equipment, tools, and materials that it elects to or as required by the authorized officer. Any such structures, machinery, equipment, tools, and materials remaining on the leased lands beyond 180 days, or approved extension thereof, shall become the property of the lessor, but lessee shall either remove any or all such property or shall continue to be liable for the cost of removal and disposal in the amount actually incurred by the lessor. If the surface is owned by third parties, lessor shall waive the requirement for removal, provided the third parties do not object to such waiver. Lessee shall, prior to the termination of bond liability or at any other time when required and in accordance with all applicable laws and regulations, reclaim all lands the surface of which has been disturbed, dispose of all debris or solid waste, repair the offsite and onsite damage caused by lessee's activity or activities incidental thereto, and reclaim access roads or trails.

Sec. 11. PROCEEDINGS IN CASE OF DEFAULT - If lessee fails to comply with applicable laws, existing regulations, or the terms, conditions and stipulations of this lease, and the noncompliance continues for 30 days after written notice thereof, this lease shall be subject to cancellation by the lessor only by judicial proceedings. This provision shall not be construed to prevent the exercise by lessor of any other legal and equitable remedy, including waiver of the default. Any such remedy or waiver shall not prevent later

cancellation for the same default occurring at any other time.

Sec. 12. HEIRS AND SUCCESSORS - IN-INTEREST - Each obligation of this lease shall extend to and be binding upon, and every benefit hereof shall inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

Sec. 13. INDEMNIFICATION - Lessee shall indemnify and hold harmless the United States from any and all claims arising out of the lessee's activities and operations under this lease.

Sec. 14. SPECIAL STATUTES - This lease is subject to the Federal Water Pollution Control Act (33 U.S.C. 1151 - 1175); the Clean Air Act (42 U.S.C. 1857 et seq.), and to all other applicable laws pertaining to exploration activities, mining operations and reclamation, including the Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201 et seq.)

Sec. 15. SPECIAL STIPULATIONS -

1. The Regulatory Authority shall mean the State Regulatory Authority pursuant to a cooperative agreement approved under 30 CFR Part 745 or in the absence of a cooperative agreement, Office of Surface Mining. The authorized officer shall mean the State Director, Bureau of Land Management. The authorized officer of the Surface Management Agency shall mean the Forest Supervisor, Forest Service. Surface Management Agency for private surface is the Bureau of Land Management. For adjoining private lands with Federal minerals and which primarily involve National Forest Service issues, the Forest Service will have the lead for environmental analysis and, when necessary, documentation in an environmental assessment or environmental impact statement.

2. The authorized officers, of the Bureau of Land Management, Office of Surface Mining (Regulatory Authority), and the Surface Management Agency (Forest Service) respectively, shall coordinate, as practical, regulation of mining operations and associated activities on the lease area.

3. In accordance with Sec. 523(b) of the "Surface Mining Control and Reclamation Act of 1977," surface mining and reclamation operations conducted on this lease are to conform with the requirements of this Act and are subject to compliance with Office of Surface Mining Regulations, or as applicable, a Utah program equivalent approved under cooperative agreement in accordance with Sec. 523(c). The United States Government does not warrant that the entire tract will be susceptible to mining.

4. Federal Regulations 43 CFR 3400 pertaining to Coal Management make provisions for the Surface Management Agency, the surface of which is under the jurisdiction of any Federal agency other than the Department of Interior, to consent to leasing and to prescribe conditions to insure the use and protection of the lands. All or part of this lease contain lands the surface of which are managed by the United States Department of Agriculture, Forest Service Manti-LaSal National Forest.

The following stipulations pertain to the lessee responsibility for mining operations on the lease area and on adjacent areas as may be specifically designated on National Forest System lands.

5. Before undertaking activities that may disturb the surface of previously undisturbed leased lands, the lessee may be required to conduct a cultural resource inventory and a paleontological appraisal of the areas to be disturbed. These studies shall be conducted by qualified professional cultural resource specialists or qualified paleontologists, as appropriate, and a report prepared itemizing the findings. A plan will then be submitted making recommendations for the protection of, or measures to be taken to mitigate impacts for identified cultural or paleontological resources.

If cultural resources or paleontological remains (fossils) of significant scientific interest are discovered during operations under this lease, the lessee prior to disturbance shall, immediately bring them to the attention of the appropriate authorities. Paleontological remains of significant scientific interest do not include leaves, ferns, or dinosaur tracks commonly encountered during underground mining operations.

The cost of conducting the inventory, preparing reports, and carrying out mitigating measures shall be borne by the lessee.

6. If there is reason to believe that threatened or endangered (T&E) species of plants or animals, or migratory bird species of high Federal interest occur in the area the lessee shall be required to conduct an intensive field inventory of the area to be disturbed and/or impacted. The inventory shall be conducted by a qualified specialist and a report of findings will be prepared. A plan will be prepared making recommendations for the protection of these species or action necessary to mitigate the disturbance.

The cost of conducting the inventory, preparing reports, and carrying out mitigating measures shall be borne by the lessee.

7. The lessee shall be required to perform a study to secure adequate baseline data to quantify the existing surface resources on and adjacent to the lease area. Existing data may be used if such data is adequate for the intended purposes. The study shall be adequate to locate, quantify, and demonstrate the inter-relationship of the geology, topography, surface hydrology, vegetation, and wildlife. Baseline data will be established so that future programs of observation can be incorporated at regular intervals for comparison.

8. Powerlines used in conjunction with the mining of coal from this lease shall be constructed so as to provide adequate protection for raptors and other large birds. When feasible, powerlines will be located at least 100 yards from public roads.

9. The limited area available for mine facilities at the coal outcrop, steep topography, adverse winter weather, and physical limitations on the size and design of the access road, are factors which will determine the ultimate size of the surface area utilized for the mine. A site specific environmental analysis will be prepared for each new mine site development and for major modifications to existing developments to examine alternatives and mitigate conflicts.

10. The lessee shall be required to establish a monitoring system to locate, measure, and quantify the progressive and final effects of underground mining activities on the topographic surface, underground and surface hydrology and vegetation. The monitoring system shall utilize techniques which will provide a continuing record of change over time and an analytical method for location and measurement of a number of points over the lease area. The monitoring shall incorporate and be an extension of the baseline data.

11. The lessee shall provide for the suppression and control of fugitive dust on haul roads and at coal handling and storage facilities. On Forest Development Roads (FDR), lessees may perform their share of road maintenance by a commensurate share agreement if a significant degree of traffic is generated that is not related to their activities.

12. Except at specifically approved locations, underground mining operations shall be conducted in such a manner so as to prevent surface subsidence that would: (1) cause the creation of hazardous conditions such as potential escarpment failure and landslides, (2) cause damage to existing surface structures, and (3) damage or alter the flow of perennial streams. The lessee shall provide specific measures for the protection of escarpments, and determine corrective measures to assure that hazardous conditions are not created.

13. In order to avoid surface disturbance on steep canyon slopes and to preclude the need for surface access, all surface breakouts for ventilation tunnels shall be constructed from inside the mine, except at specifically approved locations.

14. The coal contained within, and authorized for mining under this lease, shall be extracted only by underground mining methods.

15. Existing Forest Service owned or permitted surface improvements will need to be protected, restored, or replaced to provide for the continuance of current land uses.

16. In order to protect big game wintering areas, elk calving and deer fawning areas, sagegrouse strutting areas, and other critical wildlife habitat and/or activities, specific surface uses outside the mine development area may be curtailed during specific periods of the year.

17. Support facilities, structures, equipment, and similar developments will be removed from the lease area within 2 years after the final termination of use of such facilities. This provision shall apply unless the requirement of Section 10 of the lease form is applicable. Disturbed areas and those areas previously occupied by such facilities will be stabilized and rehabilitated, drainages reestablished, and the areas returned to a premining land use.

18. The lessee at the conclusion of the mining operations, or at other times as surface disturbance related to mining may occur, will replace all damaged, disturbed, or displaced corner monuments (section corners, quarter corners, etc.)

their accessories and appendages (witness trees, bearing trees, etc.), or restore them to their original condition and location, or at other locations that meet the requirements of the rectangular surveying system. This work shall be conducted at the expense of the lessee, by a professional land surveyor registered in the State of Utah and to the standards and guidelines found in the manual of surveying instruction, U.S. Department of Interior.

19. The lessee at his expense will be responsible to replace any surface water identified for protection, that may be lost or adversely affected by mining operations, with water from an alternate source in sufficient quantity and quality to maintain existing riparian habitat, fishery habitat, livestock and wildlife use, or other land uses.

20. The lessee must comply with all the rules and regulations of the Secretary of Agriculture set forth at Title 36, Chapter II, of the Code of Federal Regulations governing the use and management of the National Forest System (NFS) when not inconsistent with the rights granted by the Secretary of the Interior in the lease. The Secretary of Agriculture's rules and regulations must be complied with for (1) all use and occupancy of the NFS prior to approval of a permit/operation plan by the Secretary of Interior, (2) uses of all existing improvements, such as Forest Development Roads, within and outside the area licensed, permitted or leased by the Secretary of Interior, and (3) use and occupancy of the NFS not authorized by a permit/operation plan approved by the Secretary of the Interior.

All matters related to this stipulation are to be addressed to:

Forest Supervisor
Manti-LaSal National Forest
599 West Price River Drive
Price, Utah 84501

Telephone No.: 801-637-2817

who is the authorized representative of the Secretary of Agriculture.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Serial Number U-024318

Lease Date May 1, 1958

COAL LEASE READJUSTMENT

Part I. LEASE RIGHTS GRANTED

This lease, entered into by and between the United States of America, hereinafter called the lessor, through the Bureau of Land Management, and

C. O. P. Coal Development Company
53 West Angelo Avenue
Salt Lake City, UT 84115

hereinafter called lessee, is readjusted, effective May 1, 1988, for a period of 10 years and for so long thereafter as coal is produced in commercial quantities from the leased lands, subject to readjustment of lease terms at the end of each 10 year lease period.

Sec. 1. This lease readjustment is subject to the terms and provisions of the:

Mineral Lands Leasing Act of 1920, Act of February 25, 1920, as amended, 41 Stat. 437, 30 U.S.C. 181-287, hereinafter referred to as the Act;

Mineral Leasing Act for Acquired Lands, Act of August 7, 1947, 61 Stat. 913, 30 U.S.C. 351-359;

and to the regulations and formal orders of the Secretary of the Interior which are now or hereafter in force, when not inconsistent with the express and specific provisions herein.

Sec. 2. Lessor, in consideration of any rents and royalties to be paid, and the conditions and covenants to be observed as herein set forth, hereby grants to lessee the exclusive right and privilege to drill for, mine, extract, remove or otherwise process and dispose of the coal deposits in, upon, or under the following described lands:

T. 16 S., R. 7 E., SLM, Utah, Emery County
Sec., 26, E $\frac{1}{2}$ NW $\frac{1}{4}$.

containing 80.00 acres, more or less, together with the right to construct such works, buildings, plants, structures, equipment and appliances and the right to use such on-lease rights-of-way which may be necessary and convenient in the exercise of the rights and privileges granted, subject to the conditions herein provided.

PART II. TERMS AND CONDITIONS

Sec. 1.(a) RENTAL RATE - Lessee shall pay lessor rental annually and in advance for each acre or fraction thereof during the continuance of the lease at the rate of \$3.00 for each lease year.

(b) RENTAL CREDITS - Rental shall not be credited against either production or advance royalties for any year.

Sec. 2.(a) PRODUCTION ROYALTIES - The royalty shall be 12% percent of the value of coal produced by strip or auger mining methods and 8 percent of the value of coal produced by underground mining methods. Royalties are due to lessor the final day of the months succeeding the calendar month in which the royalty obligation accrues.

(b) ADVANCE ROYALTIES - Upon request by the lessee, the authorized officer may accept for a total of not more than 10 years, the payment of advance royalties in lieu of continued operation, consistent with the regulations. The advance royalty shall be based on a percent of the value of a minimum number of tons determined in the manner established by the advance royalty regulations in effect at the time the lessee requests approval to pay advance royalties in lieu of continued operation.

Sec. 3. BONDS - Lessee shall maintain in the proper office a lease bond in the amount of \$5,000. The authorized officer may require an adjustment in the amount of the bond to reflect changed conditions.

Sec. 4. DILIGENCE - This lease is subject to the conditions of diligent development and continued operation, except that these conditions are excused when operations under the lease are interrupted by strikes, the elements, or casualties

not attributable to the lessee. The lessor, in the public interest, may suspend the condition of continued operation upon payment of advance royalties in accordance with the regulations in existence at the time of the suspension. Lessee's failure to produce coal in commercial quantities at the end of 10 years shall terminate the lease. If not submitted already, lessee shall submit an operation and reclamation plan pursuant to Section 7 of the Act not later than 3 years after the effective date of this lease readjustment.

The lessor reserves the power to assent to or order the suspension of the terms and conditions of this lease in accordance with, inter alia, Section 39 of the Mineral Leasing Act, 30 U.S.C. 209.

Sec. 5. LOGICAL MINING UNIT (LMU) - Either upon approval by the lessor of the lessee's application or at the direction of the lessor, this lease shall become a LMU or part of a LMU, subject to the provisions set forth in the regulations.

The stipulations established in a LMU approval in effect at the time of LMU approval will supersede the relevant inconsistent terms of this lease so long as the lease remains committed to the LMU. If the LMU of which this lease is a part is dissolved, the lease shall then be subject to the lease terms which would have been applied if the lease had not been included in an LMU.

Sec. 6. DOCUMENTS, EVIDENCE AND INSPECTION - At such times and in such form as lessor may prescribe, lessee shall furnish detailed statements showing the amounts and quality of all products removed and sold from the lease, the proceeds therefrom, and the amount used for production purposes or unavoidably lost.

Lessee shall keep open at all times for the inspection of any duly authorized officer of lessor, the leased premises and all surface and underground improvements, works, machinery, ore stockpiles, equipment, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or under the leased lands.

Lessee shall allow lessor access to and copying of documents reasonably necessary to verify lessee compliance with terms and conditions of the lease.

While this lease remains in effect, information obtained under this section shall be closed to inspection by the public in accordance with the Freedom of Information Act (5 U.S.C. 552).

Sec. 7. DAMAGES TO PROPERTY AND CONDUCT OF OPERATIONS - Lessee shall comply at its own expense with all reasonable orders of the Secretary, respecting diligent operations, prevention of waste, and protection of other resources.

Lessee shall not conduct exploration operations, other than casual use, without an approved exploration plan. All exploration plans prior to the commencement of mining operations within an approved mining permit area shall be submitted to the authorized officer.

Lessee shall carry on all operations in accordance with approved methods and practices as provided in the operating regulations, having due regard for the prevention of injury to life, health, or property, and prevention of waste, damage or degradation to any land, air, water, cultural, biological, visual, and other resources, including mineral deposits and formations of mineral deposits not leased hereunder, and to other land uses or users. Lessee

shall take measures deemed necessary by lessor to accomplish the intent of this lease term. Such measures may include, but not limited to, modification to proposed siting or design of facilities, timing of operations, and specification of interim and final reclamation procedures. Lessor reserves to itself the right to lease, sell, or otherwise dispose of the surface or other mineral deposits in the lands and the right to continue existing uses and to authorize future uses upon or in the leased lands, including issuing leases for mineral deposits, not covered hereunder and approving easements or rights-of-way. Lessor shall condition such uses to prevent unnecessary or unreasonable interference with rights of lessee as may be consistent with concepts of multiple use and multiple mineral development.

Sec. 8. PROTECTION OF DIVERSE INTERESTS, AND EQUAL OPPORTUNITY - Lessee shall: pay when due all taxes legally assessed and levied under the laws of the State or the United States; accord all employees complete freedom of purchase; pay all wages at least twice each month in lawful money of the United States; maintain a safe working environment in accordance with standard industry practices; restrict the workday to not more than 8 hours in any one day for underground workers, except in emergencies; and take measures necessary to protect the health and safety of the public. No person under the age of 16 years shall be employed in any mine below the surface. To the extent that laws of the State in which the lands are situated are more restrictive than the provisions in this paragraph, then the State laws apply.

Lessee will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended, and the rules, regulations, and relevant orders of the Secretary of Labor.

Neither lessee nor lessee's sub-contractors shall maintain segregated facilities.

Sec. 9.(a) TRANSFERS

This lease may be transferred in whole or in part to any person, association, or corporation qualified to hold such lease interest.

This lease may be transferred in whole or in part to another public body, or to a person who will mine the coal on behalf of, and for the use of, the public body or to a person who for the limited purpose of creating a security interest in favor of a lender agrees to be obligated to mine the coal on behalf of the public body.

This lease may only be transferred in whole or in part to another small business qualified under 13 CFR 121.

Transfers of record title, working or royalty interest must be approved in accordance with the regulations.

(b) RELINQUISHMENT - The lessee may relinquish in writing at any time all rights under this lease or any portion thereof as provided in the regulations. Upon lessor's acceptance of the relinquishment, lessee shall be relieved of all future obligations under the lease or the relinquished portion thereof, whichever is applicable.

Sec. 10. DELIVERY OF PREMISES, REMOVAL OF MACHINERY, EQUIPMENT, ETC. - At such time as all portions of this lease are returned to lessor, lessee shall deliver up to lessor the land

leased, underground timbering, and such other supports and structures necessary for the preservation of the mine workings on the leased premises or deposits and place all workings in condition for suspension or abandonment. Within 180 days thereof, lessee shall remove from the premises all other structures, machinery, equipment, tools, and materials that it elects to or as required by the authorized officer. Any such structures, machinery, equipment, tools, and materials remaining on the leased lands beyond 180 days, or approved extension thereof, shall become the property of the lessor, but lessee shall either remove any or all such property or shall continue to be liable for the cost of removal and disposal in the amount actually incurred by the lessor. If the surface is owned by third parties, lessor shall waive the requirement for removal, provided the third parties do not object to such waiver. Lessee shall, prior to the termination of bond liability or at any other time when required and in accordance with all applicable laws and regulations, reclaim all lands the surface of which has been disturbed, dispose of all debris or solid waste, repair the offsite and onsite damage caused by lessee's activity or activities incidental thereto, and reclaim access roads or trails.

Sec. 11. PROCEEDINGS IN CASE OF DEFAULT - If lessee fails to comply with applicable laws, existing regulations, or the terms, conditions and stipulations of this lease, and the noncompliance continues for 30 days after written notice thereof, this lease shall be subject to cancellation by the lessor only by judicial proceedings. This provision shall not be construed to prevent the exercise by lessor of any other legal and equitable remedy, including waiver of the default. Any such remedy or waiver shall not prevent later

cancellation for the same default occurring at any other time.

Sec. 12. HEIRS AND SUCCESSORS - IN-INTEREST - Each obligation of this lease shall extend to and be binding upon, and every benefit hereof shall inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

Sec. 13. INDEMNIFICATION - Lessee shall indemnify and hold harmless the United States from any and all claims arising out of the lessee's activities and operations under this lease.

Sec. 14. SPECIAL STATUTES - This lease is subject to the Federal Water Pollution Control Act (33 U.S.C. 1151 - 1175); the Clean Air Act (42 U.S.C. 1857 et seq.), and to all other applicable laws pertaining to exploration activities, mining operations and reclamation, including the Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201 et seq.)

Sec. 15. SPECIAL STIPULATIONS -

The following stipulations made part of this lease may be waived or amended with the mutual consent of the lessor and lessee.

1. In accordance with Sec. 523(b) of the "Surface Mining Control and Reclamation Act of 1977," surface mining and reclamation operations conducted on this lease are to conform with the requirements of this act and are subject to compliance with Office of Surface Mining regulations, or as applicable, a Utah program equivalent approved under cooperative agreement in accordance with Sec. 523(c). The United States Government does not warrant that the entire tract will be susceptible to mining.

2. The permitting of any mining operations on the lease will be subject to the possible designation of any portion of the lease as unsuitable for some or all kinds of surface mining under the regulations of the Department under the Surface Mining Control and Reclamation Act of 1977 (SMCRA) in effect at the time of action on the mine plan permit.

3. Before undertaking activities that may disturb the surface of previously undisturbed leased lands, the lessee may be required to conduct a cultural resource inventory of the areas to be disturbed. These studies shall be conducted by qualified professional cultural resource specialists and a report prepared

itemizing the findings. A plan will then be submitted making recommendations for the protection of, or measures to be taken to mitigate impacts for identified cultural resources.

If significant cultural resources are discovered during operations under this lease, the lessee shall immediately bring them to the attention of the authorized officer who shall evaluate or have evaluated such discoveries and, within 5 working days, shall notify the Lessee what action shall be taken with respect to such discoveries.

The cost of conducting the inventory, preparing reports, and carrying out necessary protective mitigating measures shall be borne by the lessee.

4. Before undertaking activities that may disturb the surface of previously undisturbed leased lands, the lessee may be required to conduct a paleontological appraisal of the areas to be disturbed. The appraisal shall be conducted by qualified paleontologists and a report prepared itemizing the findings. A plan will then be submitted making recommendations for the protection of, or measures to be taken to mitigate impacts for identified paleontological resources.

If paleontological remains (fossils) of significant scientific interest are discovered during operations under this lease, the lessee shall immediately bring them to the attention of the authorized officer who shall evaluate or have evaluated such discoveries brought to his attention and, within 5 working days, shall notify the lessee what action shall be taken with respect to such discoveries. Paleontological remains of significant scientific interest do not include leaves, ferns, or dinosaur tracks commonly encountered during underground mining operations.

The cost of conducting the inventory, preparing reports, and carrying out necessary protective mitigating measures shall be borne by the lessee. The cost of salvage of paleontological remains (fossils) shall be borne by the United States.

5. If there is reason to believe that threatened or endangered (T&E) species of plants or animals, or migratory species of high Federal interest occur in the area, the lessee shall be required to conduct an intensive field inventory of the area to be disturbed and/or impacted. A listing of migratory birds of high Federal interest in Federal coal producing regions is published by the Fish and Wildlife Service, Migratory Bird Management Office, Washington, D.C. The inventory shall be conducted by qualified specialist and a report of findings will be prepared. A plan will be prepared making recommendations for the protection of these species or action necessary to mitigate the disturbance.

The cost of conducting the inventory, preparing reports, and carrying out necessary protective mitigating measures shall be borne by the lessee.

6. The lessee shall be required to perform a study to secure adequate baseline data to quantify the existing surface resources on and adjacent to the lease area. Existing data may be used if such data is adequate for the intended purposes. The study shall be adequate to locate, quantify, and demonstrate the inter-relationship of the geology, topography, surface hydrology, vegetation, and wildlife. Baseline data will be established so that future programs of observation can be incorporated at regular intervals for comparison.

7. Powerlines on the lease area used in conjunction with the mining of coal from this lease shall be constructed so as to provide adequate protection for raptors and other large birds. When feasible, powerlines will be located at least 100 yards from public roads.

8. The lessee shall provide for the suppression and control of fugitive dust on haul roads and at coal handling and storage facilities on the lease area. The migration of road surfacing and subsurface materials into streams and water courses shall be prevented.

9. The lessee shall be required to establish a monitoring system to locate, measure, and quantify the progressive and final effects of underground mining activities on the topographic surface, underground and surface hydrology and vegetation. The monitoring system shall utilize techniques which will provide a continuing record of change over time and an analytical method for location and measurement of a number of points over the lease area. The monitoring shall incorporate and be an extension of the baseline data.

10. Except at specifically approved locations, underground mining operations shall be conducted in such a manner so as to prevent surface subsidence that would: 1) cause the creation of hazardous conditions such as potential escarpment failure and landslides, 2) cause damage to existing surface structures, and 3) damage or alter the flow of perennial streams.

11. In order to avoid surface disturbance on steep canyon slopes and to satisfy the need for surface access, all surface breakouts for ventilation tunnels shall be constructed from inside the mine, except at specifically approved locations.

12. Support facilities, structures, equipment, and similar developments will be removed from the lease area within 2 years after the final termination of use of such facilities. This provision shall apply unless the requirement of Section 10 of the lease form is applicable. Disturbed areas and those areas occupied by such facilities will be stabilized and rehabilitated, drainages reestablished, and the areas returned to a premining land use.

METHODOLOGY

Phase 1 - Earth Moving

The pad down slopes will be brought back to a reasonable configuration by implementation of a crawler tractor. The actual method will involve smooth contouring of the existing soil and walking the crawler up and down the slope attempting to minimize compaction while at the same time creating small indentations by the grouser on the track. This methodology creates an enhanced micro-climate for the establishment of seed and guarantees sufficient compaction as to assure integrity and stability of embankment and prohibit failure.

Phase 2 - Seeding and Mulching

The entire disturbed area will be hydroseeded during the mid fall season with a Target completion date of 15 October. The seed mix and rate of application for interim reclamation is shown in Table 3G-1. Hydro-seeding and mulching will be carried out in conjunction with the earth work of Phase 1. All hydroseeded or hand seeded areas will be lightly raked to insure adequate soil/seed contact. Recommendations for the hydroseeding and mulching operation are shown in Table 3G-2.

the slope.

- h. Topsoil will be spread over the disturbed areas after the grading and ripping is complete as defined in Chapter 8.
- i. Upon completion of the above, the area will be reseeded as defined in Chapter 9.

3.6.4.1 Recontouring

The cut slopes will be constructed in a manner to achieve physical stability with a safety factor equal to or greater than 1.3. This design will prevent slides and other related erosional damage. Steep slopes and highwalls are inaccessible to conventional equipment, and thus, cannot be reduced or flattened appreciably during reclamation. Stability analysis on these areas have confirmed that they have a factor of safety greater than 1.3 as they presently exist (Appendix 3-F). Stability and the designated post-mining land use can be achieved without extensive backfilling.

3.6.4.2 Removal or Reduction of Highwall

Due to the proven stability, highwalls shown on Plate 3-2 will remain after reclamation. In Feb 1981, a slope stability analysis (Appendix 3-F) was performed by Dames & Moore on the Bear Canyon Mine access road. The purpose of this study was to analyze the static safety factor of the side-cast cut and fill slopes along

Mine Operational System Removal. Systems such as domestic water will be phased out and removed or buried. All structures, tanks and lines will be removed and properly disposed. Buried lines will be removed where feasible; otherwise, lines will be severed and left in place beneath a min of 4 ft of fill. Leaving lines in place will cause less disturbance than digging them up in some cases.

Excess Spoil Disposal. Any excess spoil on-site at the time of reclamation will be placed and compacted against the highwalls and covered with a min of 4 ft of non-toxic, non-acid material. Highwalls to be partially left or reduced are shown on Plate 3-2. The placement of spoil material at these sites will add to the amount of material available for backfilling. Excess spoil includes coal waste, contaminated material and development waste.

Solid (Non-Coal) Waste Disposal. The following are solid waste items expected during reclamation, and methods of disposal:

- a. Concrete. All concrete (estimated at approx 800 cu yds) and asphalt material will be broken up into pieces not to exceed 3 ft x 3 ft and placed against the highwalls mentioned above, and covered with at least 3 ft of backfill material. (This category also includes cinder blocks);
- b. Culverts and Pipe. All such material will be removed, and