

**Utah
power**
& LIGHT COMPANY
MINING DIVISION
P.O. Box 310
Huntington, Utah 84528

RECEIVED
OCT 20 1989

DIVISION OF
OIL, GAS & MINING

October 19, 1989

Mr. Rick Smith
Permit Supervisor
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Dear Mr. Smith:

Re: Amendment to Deer Creek Mine - Waste Rock Storage Site

The Bureau of Air Quality Permit requires that the haul road to the Deer Creek Waste Rock Site control dust emissions. Emissions are to be controlled through the use of water or dust suppressant.

Utah Power & Light proposes to use "Perma-Zyme" on this road as a dust suppressant. Literature regarding this product is attached.

A request to use this product has been sent to the Utah Bureau of Air Quality. Upon approval by the Bureau, the product will be used as required. No revisions to text or maps are required in the Permit Application Package. Approval letters by the Bureau will be forwarded to the Division.

Sincerely,



David Smaldone
Director of Permitting,
Compliance and Services

DS/do
Enclosure

**utah
power**
& LIGHT COMPANY
MINING DIVISION
P.O. Box 310
Huntington, Utah 84528

October 19, 1989

Mr. F. Burnell Cordner
Executive Secretary
Utah Division of Environmental Health
Bureau of Air Quality
288 North 1460 West
PO Box 16690
Salt Lake City, Utah 84116-0690

Dear Mr. Cordner:

Re: Air Quality Permit No. CDS B- Deer Creek Waste Rock
Storage Facility, Emery County

Utah Power & Light requests to use the product "Perma-Zyme"
to control dust at the Deer Creek Mine Waste Rock Storage
Site.

Literature concerning this product is attached. Upon
approval this product will be used as recommended and as
required instead of water.

Sincerely,



David Smaldone
Director of Permitting,
Compliance and Services

DS/do
Enclosure



State of Utah
DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

Norman H. Bangertter
Governor
Suzanne Dandoy, M.D., M.P.H.
Executive Director
Kenneth L. Alkema
Director

288 North 1460 West
P O Box 16690
Salt Lake City, Utah 84116-0690
(801) 538-6108

BAQE-733-88

December 9, 1988

RECEIVED

DEC 12 1988

David Smaldone
Utah Power & Light Company
P. O. Box 899
Salt Lake City, Utah 84110

MINING DIV. S.L.C.

Dear Mr. Smaldone:

Re: Approval Order for Waste Rock Storage Facility
Emery County, CDS B

The above-referenced project has been evaluated and found to be consistent with the requirements of the Utah Air Conservation Regulations (UACR) and the Utah Air Conservation Act. A 30-day public comment period was held and all comments received were evaluated. The conditions of this approval order reflect any changes to the proposed conditions which resulted from the evaluation of the comments received. This air quality approval order authorizes the project with the following conditions and failure to comply with any of the conditions may constitute a violation of this order:

1. Utah Power and Light shall operate the waste rock storage site in Emery County near the Huntington Power Plant according to the information submitted in the notice of intent dated August 2, 1988.
2. All unpaved roads and other unpaved operational areas in use shall be water sprayed and/or chemically treated to reduce fugitive dust. The application rate of water shall be a minimum of 0.5 gallons per square yard. Application shall be made at least once every two hours during all times the installation is in use unless daily rainfall exceeds .10 of an inch or the road is in a muddy condition or if it is covered with snow. If chemical treatment is to be used, the plan must be approved by the Executive Secretary. Records of water treatment shall be kept for all periods when the plant is in operation. The records shall include the following items:
 - A. Date
 - B. Number of treatments made
 - C. Rainfall received, if any, and approximate amount
 - D. Time of day treatments were made

Records of treatment shall be made available to the Executive Secretary upon request and shall include a period of two years ending with the date of the request.

3. The amount of disturbed area at any time shall not exceed 15 acres without prior approval in accordance with Section 3.1, UACR.
4. The moisture content of the material hauled shall be no less than seven percent by weight. The moisture content shall be tested at

the request of the Executive Secretary. The test method shall be determined by the Executive Secretary.

5. The quantity of waste rock hauled to the site shall not exceed 30,000 tons per 12-month period without prior approval in accordance with Section 3.1, UACR. Compliance with the limitation shall be determined on a rolling monthly total. On the first day of each month a new 12-month total shall be calculated using the previous 12 months. Records of dumping shall be kept for all periods when the plant is in operation. Records of dumping shall be made available to the Executive Secretary upon request, and shall include a period of two years ending with the date of the request. The quantity of waste rock hauled to the site shall be determined by recording the number of trucks delivering waste rock to the site and multiplying that number by ten tons per truck. Records shall be maintained at the Deer Creek Mine office.
6. All installations and facilities authorized by this approval order shall be adequately and properly maintained.
7. The Executive Secretary shall be notified in writing upon start-up of the installation, as an initial compliance inspection is required.

Any future modifications to the equipment approved by this order must also be approved in accordance with Section 3.1.1, UACR.

This approval order in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including the Utah Air Conservation Regulations.

"Allowable emissions" as defined in Section 1.12, UACR, for this source (the entire plant) are currently calculated at 6.15 tons/yr for particulate, and 2.25 tons/yr for PM_{10} . These calculations are for the purposes of determining the applicability of PSD and nonattainment area major source requirements of the UACR. They are not to be used for purposes of determining compliance.

The fee for issuing this approval order is \$256.48. The amount is payable to the Bureau of Air Quality, sent to the Executive Secretary, Utah Air Conservation Committee, 288 North 1460 West, P.O. Box 16690, Salt Lake City, Utah 84116-0690 and is due within 30 days after receipt of this approval order.

Sincerely,


F. Burnell Cordner, Executive Secretary
Utah Air Conservation Committee

FBC/MK/cc

cc: EPA Region VIII, John Dale
Southeastern Utah District Health Department

Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor

Occupational Safety and Health Administration
(Non-Mandatory Form)

Form Approved

OMB No. 1218-0072



IDENTITY (As Used on Label and List)
PERMAZYME

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I

Manufacturer's Name

International Enzymes, Inc.

Address (Number, Street, City, State, and ZIP Code)

1706 Industrial Road

Las Vegas, NV 89102

Emergency Telephone Number

(702) 388-0145 (702) 795-8902

Telephone Number for Information

(702) 388-0145

Date Prepared

5 January 1988

Signature of Preparer (optional)

Section II - Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))

NONE

OSHA PEL

ACGIH TLV

Other Limits Recommended

% (optional)

Section III - Physical/Chemical Characteristics

Boiling Point

212 F

Specific Gravity (H₂O = 1)

1.05

Vapor Pressure (mm Hg.)

Same as

H₂O

Melting Point

N/A

Vapor Density (AIR = 1)

1

Evaporation Rate

(Butyl Acetate = 1)

Same as

H₂O

Solubility in Water

100%

Appearance and Odor

Brown color, not unpleasant odor, smell of ferment

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used)

N/A

Flammable Limits

LEL

UEL

Extinguishing Media

N/A

Special Fire Fighting Procedures

None

Unusual Fire and Explosion Hazards

None

Section V — Reactivity Data

Stability	Unstable		Conditions to Avoid Temperature above 120 F can reduce enzyme activity. Not as effective with strong acids or bases.
	Stable	X	

Incompatibility (Materials to Avoid) _____

Hazardous Decomposition or Byproducts None

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

Section VI — Health Hazard Data

Route(s) of Entry: N/A Inhalation? _____ Skin? _____ Ingestion? _____

Health Hazards (Acute and Chronic) None

Carcinogenicity: N/A NTP? N/A IARC Monographs? N/A OSHA Regulated? no

Signs and Symptoms of Exposure None

Medical Conditions Generally Aggravated by Exposure None

Emergency and First Aid Procedures Flush eyes with water

Section VII — Precautions for Safe Handling and Use

Steps to Be Taken in Case Material Is Released or Spilled Wash down with water

Waste Disposal Method Can be washed into sewage system. Can be absorbed by earth.

Precautions to Be Taken in Handling and Storing None required

Other Precautions None

Section VIII — Control Measures

Respiratory Protection (Specify Type) None required

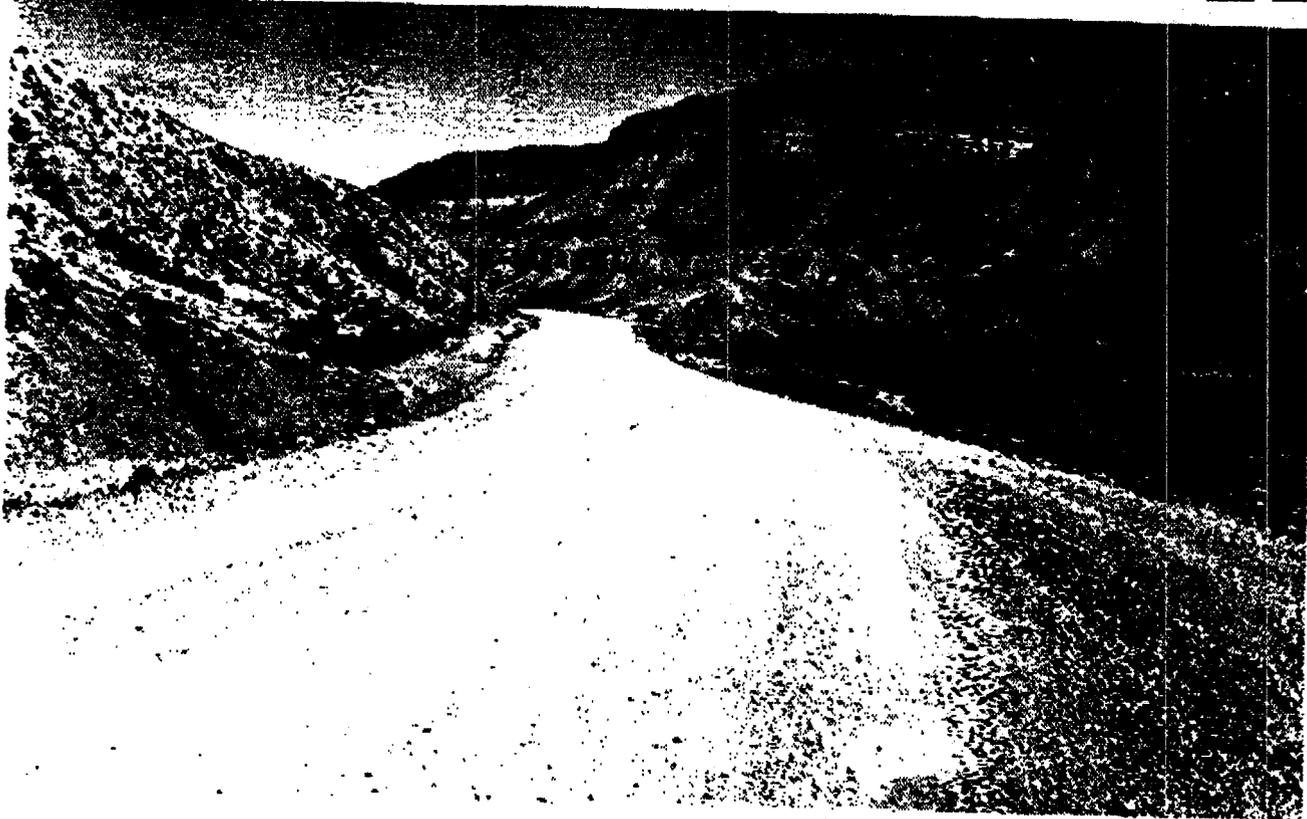
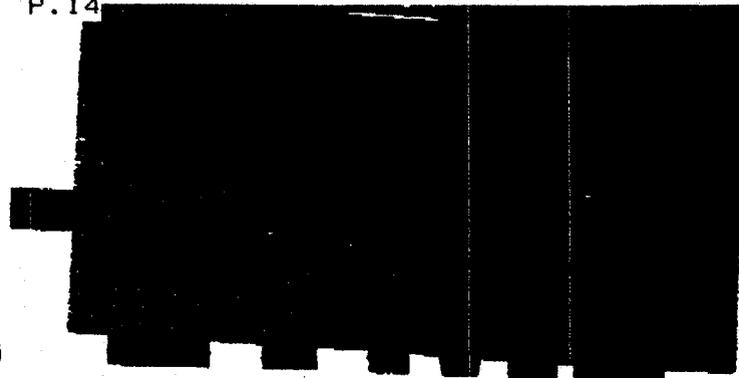
Ventilation	Local Exhaust	Not required	Special	N/a
	Mechanical (General)	Not required	Other	

Protective Gloves Not required Eye Protection N/a

Other Protective Clothing or Equipment None

Work/Hygienic Practices Normal good hygienic practices

PERMA



The Most Effective Way To Stabilize Roads And Seal Ponds

For Less Cost!



Distributed By

ENZYMES

(208) 324-3642

1010 West Main • Jerome, Idaho 83338

PERMA-ZYME

WHAT IS PERMA-ZYME?

One of the worlds finest products for road stabllization and pond sealing.

PERMA-ZYME is a proprietary liquid multi-enzymatic formulation. It alters the properties of earth materials to produce superior road base stabilization compared to all other road treatment materials now in use.

Developed and proven through years of field testing, PERMA-ZYME provides additional advantages to road builders, communities and the ecology by being non-toxic, non-corrosive and environmentally safe.

When mixed with water and applied, PERMA-ZYME combines the inorganic and organic materials in the soil through a catalytic bonding process, producing a strong "cementation" action. Unlike inorganic or petroleum

based products which temporarily hold soil materials together, PERMA-ZYME actually fuses them together to create a very dense and permanent base which resists water penetration, weathering and wear.

In addition to creating a new and better way of building and maintaining roads, PERMA-ZYME is being used successfully in the construction of lake beds, mine leach pads, ponds, building foundations and leak-proof earth enclosures for toxic waste containment — wherever there is a need to increase the load-bearing capacity of the soil and to reduce plasticity and permeability.

PERMA-ZYME IS VERSATILE!

- PERMA-ZYME is used to stabilize roads inside the deepest mines to the highest mountains.
- PERMA-ZYME is used to seal ponds for everything from pure spring water to toxic waste.
- PERMA-ZYME is used from near freezing to hot summer and from rainy season to dry desert.

PERMA-ZYME IS ENVIRONMENTALLY SAFE!

- PERMA-ZYME will not harm humans, animals, fish or vegetation and is biodegradable.



PERMA-ZYME stabilized double chip and seal asphalt road. Jerome, Idaho. Road was under water for 20 days in Spring of 1985. Right photo taken Spring of 1989. Still no breaks or cracks 4 years later.

Cover Photo - PERMA-ZYME treated gravel road up Ferron Canyon, Emery County, Utah. No maintenance for 12 months.

PERMA-ZYME'S ADVANTAGES

Increases Soil Density

PERMA-ZYME lowers the surface tension of water which promotes fast and thorough penetration and dispersal of moisture. This action causes hydrated clay particles to be pressed into and to fill the voids throughout the soil, thus forming a tight, dense permanent stratum.

Reduces Compaction Effort

The increased lubricity of soil particles allows the designated soil density to be reached with less compactive effort.

Requires Less Water

PERMA-ZYME reduces, by as much as 25%, the amount of water required to reach the optimum moisture level of the soil because it promotes rapid saturation and inhibits surface evaporation.

Better Load Bearing Capacity

The PERMA-ZYME "cementation" action increases the soil bearing characteristics by promoting a closer binding of soil particles. This reduces the tendency of the soil to expand after compaction and results in a strong, stable earth layer.

Lowers Permeability

The joining together of the inorganic soil materials closes the passageways between them, preventing the migration of water. A properly treated PERMA-ZYME base becomes almost impervious to water penetration and much more resistant to frost heaving.

Eliminates Need For Importing Aggregate

Road builders can now construct a new road base using existing soil materials — without trucking in additional aggregate (if sufficient non-granular fines are present). Mixing PERMA-ZYME with the top 4 or 5 inches of soil will produce a road base that has more strength and less permeability than can be attained with any other treatment.

Use Less Expensive Dirty Aggregate

If new material is needed, less expensive, dirty aggregate is a requirement. The dirty fines are needed to bond the material together.

Weather and Locale Compatible

PERMA-ZYME can be used over a wide weather range. From near freezing to hot summer, from rainy season to dry desert, from lake bottom to earthen dam, from mountain top to deepest mine.

Reduces Labor And Maintenance

New or existing roads treated with PERMA-ZYME to the recommended depth will retain a tough, rupture-resistant surface that requires minimal maintenance, often requiring no additional "dressing" for up to three years.

Easy To Store

PERMA-ZYME is sold in liquid concentrate form. This eliminates the bulk storage, pre-mixing and handling of large amounts of materials. It will not corrode equipment.

Safe Handling

PERMA-ZYME is non-toxic. It requires no special handling equipment and no special containment procedures as required with toxic and/or corrosive agents. It does not irritate skin tissue and causes no rash or burn. It will not impair vision.

Non-Flammable

PERMA-ZYME contains no combustible materials, is non-explosive and can be used near open flame. It is non-gaseous and can be stored in poorly ventilated areas.

Environmentally Safe

PERMA-ZYME will not harm humans, animals, fish or vegetation and is biodegradable.

**Remember, there are other enzyme products,
but only one PERMA-ZYME!**

PERMA-ZYME IS EASY TO APPLY

ROAD BUILDING

PERMA-ZYME is easy to apply and requires no special equipment or application procedures. It can be used with recycle machines right on the job site, when sufficient non-granular fines are involved, or mixed with water and applied with regular equipment using established road building procedures. Below is an example of a typical application to stabilize a 6-inch base for a new or existing road.

1. Blade the existing bed to a depth of 4 - 5 inches and windrow loose material. No need to bring in any new aggregate, unless needed to meet grade or wearing surface requirements. If new aggregate is needed, use less expensive, dirty material.

2. Add 1 gallon of **PERMA-ZYME** concentrate to the required amount of water needed to treat each 15 cubic yards of the base material. Three drums (165 gallons) of **PERMA-ZYME** will treat one mile of road base 25 feet wide 6 inches deep.

Mix the **PERMA-ZYME** with the water and spray both bladed surface and windrow to obtain optimum moisture. Blend the **PERMA-ZYME** mixture into the soil with a blade or pulverizer.

If you misjudge the water and get it too wet, blade to dry. If too dry, add plain water. After thoroughly mixing this material can be left in the windrow over night to promote total moisture absorption of every soil molecule. This will result in better compaction with less effort.

3. Extend and crown the surface (to promote water drainage) and dress the surface with a blade. Compact with a sheepfoot, pneumatic or other type compactor during this process.

Even while laying and compacting, if your material dries too fast on a hot day, a light mist of **PERMA-ZYME** treated water (1 - 1000 gallon) can be applied. Continue to compact until desired density is reached. Vibratory rollers may be used for the first and second pass, but after that turn the vibrator off so that no fracturing occurs. The road is now ready for use.

4. If an asphalt or other permanent wearing surface is to be added, a better bond can be obtained by moistening

the surface with a spray of **PERMA-ZYME** and water solution (1 - 1000 gallon). This permanent surface can be applied any time after a 3 day curing period.

FOR SEALING LAKES & PONDS

New Pond Construction

Add **PERMA-ZYME** to water used to obtain optimum moisture. Use one gallon of **PERMA-ZYME** for each 15 cubic yards of soil to be compacted. Mix with top 10 to 12 inches for best results. Use a blade or disc for mixing and uniform moisture. Grade and shape pond and compact with compactor, tractor or truck. This method will give the best results.

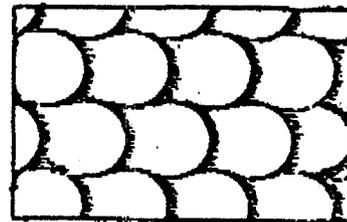
Existing Ponds

If pond is dry, you may use the same method as for new ponds.

When pond is filled with water and less than 8 feet in depth, use one gallon of **PERMA-ZYME** for every 800 square feet of surface area. Stir up silt from the bottom of pond, any way possible, and pour **PERMA-ZYME** into the water from windward side or around perimeter getting it out several yards. Do not add water for 3 days. In 10 days to 2 weeks, loss by seepage will stop or be greatly reduced.

PERMA-ZYME will not harm fish life if used properly.

PERMA-ZYME is effective in sealing soils for ponds when at least 25% of the material will pass a 200 screen and is not granular.



Clay and Colloidals

PERMA-ZYME compaction disperses clay and colloidal material, fills the voids between each grain of soil and causes a catalytic bonding process, creating a strong, tightly compacted stratum that resists water penetration.

OTHER ENZYMES AVAILABLE FOR

Odor Control - Sewage - Waste Water Treatment - Agricultural Use

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- Distributed By -

IDAHO ENZYMES

Eugene A. Nutsch

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