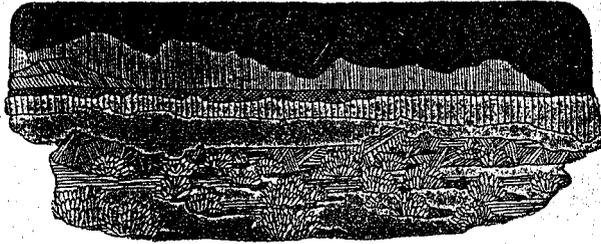


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Utah State University · Logan, Utah 84322

Institute for Land Rehabilitation
UMC 52
Phone (801) 752-4100 x7266



College of Natural Resources
Agricultural Experiment Station

October 23, 1979

Class file
ACT/007/006

Mr. Mike Dimitrich
UNC, Plateau Mining Co.
P.O. Drawer PMC
Price, Utah 84501

Dear Mr. Dimitrich:

Enclosed is a preliminary proposal for revegetation work on disturbed areas and spoil disposal piles at the Plateau Mine. Please review the proposed plan of work and comment as necessary to ensure that it satisfies the needs of the company in meeting regulations and proper resource management: as necessary we will revise the budget.

We look forward to working with Plateau Mining, especially yourself and Mark Adkins.

Sincerely,

C. M. McKell
Director

cc: Gordon Van Epps
Don Dwyer

PRELIMINARY PROPOSAL

"Rehabilitation Studies of Disturbed Slopes
and Spoil Disposal Piles"

by

INSTITUTE FOR LAND

REHABILITATION

Utah State University

to

UNC PLATEAU MINING

PRICE, UTAH

Personnel:

C. M. McKell Director, Inst. for Land Rehabilitation
and Professor, Range Science

Gordon Van Epps Supt. Snow Field Station and
Assoc. Prof. Range Science

_____ Graduate Research Assistant
Range Science Dept.

Time Period: Five years beginning October 1979.

Justification

Rehabilitation of slopes disturbed by road construction and facilities development is a necessary activity, not only for meeting current mining regulations but also a long-term expression of corporate responsibility to good resource management. There is good justification in studying ways of restoring wildlife habitat, ameliorating scenic disturbance and reducing the damage to the watershed because these issues, if not satisfied, would create operational and environmental problems for the company. Research information in the region of the arid and difficult environment of the Plateau Mine is lacking or is not specific for the problems that are encountered there. A plan of research and advisement is proposed that would examine the specific land rehabilitation problems of the mine and its operations. Results from the studies and technical assessments would serve as the basis for rehabilitation plans that could be used directly by the company. In addition the results of the studies would also be of value to the mining industry in general and add to the fund of knowledge needed by the industry to solve its rehabilitation problems. 1/

Previous Work

A more detailed description of previous work in the area of land rehabilitation would be provided in a formal study proposal. However the following references provide information that is available as background to the problem and studies need not be repeated to validate what is generally known. Our own work provides much helpful information:

- A. Institute for Land Rehabilitation. 1978. Rehabilitation potential of the Henry Mountains Coal Field. US Bureau of

Land Management EMRIA Study No. 15.

- B. Institute for Land Rehabilitation 1979. Selection propagation and field establishment of native plant species on disturbed arid lands. Utah Agric. Exp. Stn. Bulletin 500.
- C. Van Epps, Gordon and C. M. McKell. 1979. Major criteria and procedures for selecting and establishing range shrubs as rehabilitations of disturbed lands. Proc. of First International Rangeland Congress. Denver, Co. p. 352-354.

Proposed Research

Based on a site visit, discussions with mine personnel, and a chemical analysis of mine spoils taken during the site visit (see analysis in appendix I) a series of technical studies and consultations is proposed:

- A. Ameliorating Impacts of
New Road Construction

A two-phased approach to this problem is proposed. One would be to prepare a general rehabilitation plan based on known information and best available technology. Second would be a series of long-term individual test plots that would incorporate the following factors.

1. Site preparation - including soil/no soil and surface treatments for water harvesting.
2. Cultural practices - mulch, fertilization.
3. Plant materials - selection and propagation of local plants and other adapted species.
4. Planting methods - establishment of plants in islands vs broadcast planting, to obtain best rehabilitation results in plant succession.

B. Transmission Slopes

As needed the project personnel would evaluate the specific problems of the slopes of the conveyor line from the mine to the cleaning and loading area. A rehabilitation plan would be developed according to the soil physical/chemical conditions, available plant materials and best methods for plant establishment. Long-term study-reference plots would be designed for an appropriate location on the conveyer line slopes.

C. Spoil Piles

The raw spoil piles consisting of shale and other non-coal trash removed from the coal in the washing process represents a problem in rehabilitation that must be solved. Placement of a thick layer (4 ft) of top soil may not be the best alternative because of non-availability, or the surface scar that would be created by removal. A study is proposed that would develop information for the best methods for direct rehabilitation. Based on further chemical and physical studies of the spoils a series of treatments would be applied in a research area on a regraded spoil pile. Treatments proposed for the research area would be as follows.

1. Ammendments to improve chemical-physical condition.
2. Mulches of various types compared with topsoiling.
3. Surface manipulation to create opportunities for water harvesting - as contrasted with drip irrigation to plants.
4. Plant species for best adaptation to growth on spoil piles.

A plot area of 2 acres or more is envisioned at this point that would be prepared (graded and fenced) by the company.

Interaction with the Company

We anticipate carrying out this project with the participation and interaction of interested company personnel, such as Mr. Mark Adkins and Mr. Mike Dimitrich. Considerable savings can be obtained by Mr. Adkins carrying our day-to-day (or as appropriate) monitoring of plots and plant responses. Such cooperation would be a valuable asset to both the researchers and the company by referring problems of the company to the research group and the research group responding directly or by modifying the research plan to include a test for unanswered questions.

In addition the research team would agree to be available to the company for extra contractual services in matters of rehabilitation consultations. Interpretation of direct results of the research and its application, however would be a contractual responsibility of the research team.

The company would provide equipment and operations for on-site soil/spoil manipulation of any magnitude not possible by the research team using hand equipment. Such requirements for plot development however would be worked out with mutual agreement by the research group and company personnel.

Reporting

An annual report would be provided in December of each year. A minimum of one tour of the research plots and studies would be scheduled at the peak of plant growth, probably June which could even take the form of a field-day after results with plots and studies are evident.

Direct contact with the research team by company personnel would be invited and welcome at any appropriate time.

Budget (Yearly Basis)Personnel

1. Sr. Staff (McKell, Van Epps)	5,200	
2. Graduate Student Assistant	<u>5,000</u>	
Sub Total	10,200	10,200
3. Staff benefits (24% of Sr. Staff)		1,248
<u>Travel and Perdiem</u>		1,500
<u>Current Expenses</u>		1,000
<u>Overhead (60% of salaries & wages)</u>		<u>6,120</u>

\$ 20,608

Footnote

1/ University policy as a public institution requires that all information generated by research projects be available to the general public. We would respect any proprietary information provided to us by the company as long as it is so designated. Availability of information to the general public would occur after review by company personnel for accuracy and technical applicability.



UTAH STATE UNIVERSITY · LOGAN, UTAH 84322

SOIL, PLANT and WATER
ANALYSIS LABORATORY
UMC 48

October 1, 1979

C.M. McKell
UMC 52

Data report on soil samples received 8/20/79.

<u>Log #</u>	<u>Ident</u>	<u>pH</u>	<u>mmhos/cm</u> <u>E_ce</u>	<u>ppm</u>		<u>NH₄ OAC</u> <u>meq/100g</u> <u>Ca</u>	<u>ppm</u> <u>NO₃-N</u>	<u>ppm</u> <u>Fe</u>	<u>ppm</u> <u>Zn</u>	<u>ppm</u> <u>B</u>	<u>SP*</u>
				<u>P</u>	<u>K</u>						
79-											
3820	old pit	7.0	8.0	5.1	98	1.3	4.3	52	6.0	2.8	46
3821	road sur- face	7.0	6.1	3.1	118	1.6	3.0	60	4.4	3.1	42

*Saturation per cent.