Second Annual Meeting

American Society for Surface Mining and Reclamation

"Bridging the Gap Between Science, Regulation, and the Surface Mining Operation"

October 8-10, 1985
Clarion Hotel
Denver, Colorado
Second Annual Meeting
American Society for
Surface Mining and
Reclamation

"Bridging the Gap Between Science, Regulation, and the Surface Mining Operation"

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Clarion Hotel
Denver, Colorado

Co-Chairmen

Dean Williams
Utah International
550 California Street
San Francisco, CA 94104

and

Scott E. Fisher, Jr.
Office of Surface Mining, DOI
1020 15th Street
Denver, CO 80202

American Society for Surface Mining and Reclamation
Atlantic Richfield Company
Montana State University – Reclamation Research Unit
Northern Energy Resource Company
Peabody Coal Company
Reclamation Research Group
Rocky Mountain Energy Company
U.S. Forest Service
Utah International, Inc.
Utah State University – Institute for Land Rehabilitation
Western Reclamation Group
Western Soil and Overburden Task Group
Note from the Chairmen

This publication contains the proceedings of the Second Annual Meeting of the American Society for Surface Mining and Reclamation. Reprinting of any part of these proceedings without the written permission of the authors is prohibited.

Speakers were asked to submit camera-ready copy for this publication. Because of the schedule for printing, the chairmen were unable to edit the texts and apologize for any errors in the copy or poor reproduction of figures or tables.

Several papers were not received in time to be included in this publication; thus, the lack of conformity between the Agenda of the Symposium and this published proceedings was unavoidable.

Additional copies of the proceedings are available from Bill Plass, 21 Grandview Drive, Princeton, West Virginia 24740.

Dean Williams
Co-Chairman
Acknowledgments

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Revex
Rocky Mountain Energy Company
Rotoclear
Sharp Brothers Seed Company
Traux Company
University of Wisconsin, student chapter of ASSMR
Utah International, Inc.
### Coal Reclamation

**Queen City North and Central Rooms**

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<td>Reclamation of Prime Farmland in Kentucky</td>
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<td>Reclamation Research in the Pockhills/Mountains Region of Alberta: A Case Study</td>
<td>T. M. Macyk</td>
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<td>Sod-Seeding Low Maintenance Plant Species into Coastal Bermudagrass Sod on Lignite Overburden in Texas</td>
<td>J. G. Skousen and C. A. Call</td>
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<td>1:40 to 2:00 pm</td>
<td>Illinois Agricultural Land Productivity Formula</td>
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<td>Selection of Grass and Legume Species and Varieties for Reclamation of Mined Land</td>
<td>R. I. Barnhisel, J. L. Powell, M. L. Ellis, J. R. Armstrong, F. A. Craig, and S. K. Laue</td>
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### Acid Materials

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<td>Characterization of the Forms of Sulfur in Overburden Materials of the Western United States</td>
<td>L. L. Jackson, R. C. Severson, and E. E. Engleman</td>
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<td>The Effects of Particle Size Distribution on the Rate of Mine Acid Formation and its Mitigation by Bacterial Inhibitors</td>
<td>M. A. Shellhorn, A. A. Sobeck and V. Rastogi</td>
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<td>3:20 to 3:40 pm</td>
<td>Development of a Computerized Automated Rapid Weathering Apparatus for Determining Total Lime Requirement for Acid Mine Soils</td>
<td>K. C. Harvey and D. J. Dollhopf</td>
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<td>Development of a Bioassay for Acid Producing Potential in Mine Spoils and Overburden</td>
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<td>Recent Concerns in Assessing Revegetation Success and Releasing Bond Liability</td>
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<td>Inherent Similarity of Vegetation Types as a Standard for Revegetation Success</td>
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<td>1:40 to 2:00 pm</td>
<td>Development of Revegetation Success Standards for La Plata Coal Mine in Northwestern New Mexico</td>
<td>R. Edgar, W. Ruzzo, B. Bailey, C. Berry and F. Samson</td>
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<td>The Utilitarian Concept for Determining Mined Land Reclamation Success</td>
<td>B. W. Sindelar and S. Murdock</td>
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TUESDAY OCTOBER 8

LABORATORY TECHNIQUES

Prospector's Hall

12:40 to 1:00 pm Evaluation of the NH4HCO3 – DTPA (AB-DTPA) Soil Test For Identifying Seleniferous Soils
   R. K. Jump and B. R. Sabey

1:00 to 1:20 pm Western Soil and Overburden Task Group Round Robin Analyses in 1984-1985
   R. C. Severson and S. E. Fisher Jr.

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<td>E. C. Doll and N. C. Wollenhaupt</td>
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<td>Plant Analysis - A Measure of Successful Reclamation</td>
<td>P. J. Smith and D. Y. Boon</td>
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<td>Estimating Components of Plant Community Diversity on Mined Lands</td>
<td>T. J. Hatton, S. L. Durham and N. E. West</td>
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<td>9:20 to 9:40 am</td>
<td>Revegetation Technology and Issues at Western Surface Coal Mines</td>
<td>J. Bunin and D. L. Buckner</td>
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<td>A New Instrument for Measuring Ground Cover Based on the Point-Hit Technique - The Optical Point Bar</td>
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<td>Tracking and Evaluating Revegetation Success With a Microcomputer</td>
<td>W. R. Keammerer and B. Gibbs</td>
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<td>McKinley Mine: Vegetation Bond Release Criteria Based on Soil Conservation Service Technical Guide Range Site Descriptions</td>
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<td>M. Abernathy, D. J. Morris and R. Van Wormer</td>
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<td>J. D. Friedlander and F. R. Van Ryn</td>
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WEDNESDAY OCTOBER 9

NON-COAL RECLAMATION

Queen City South Room

8:20 to 8:40 am Reclamation of Abandoned Mica, Feldspar, and Kaolin Surface Mines and Associated Tailings Disposal Sites in Western North Carolina

J. A. Muncy

8:40 to 9:00 am An Innovative Approach to Reclaiming Processed Oil Shale

D. C. Anderson, W. K. Ostler, C. M. McKell, and V. Isaman

9:00 to 9:20 am ASARCO's Revegetation of Mill Tailings and Overburden Wastes From Open-Pit Copper Mining Operations in Arizona

S. A. Bengson

9:20 to 9:40 am Grass Root Penetration in Tosco II Processed Oil Shale

D. L. Buckner

10:00 to 10:20 am Edaphic and Crop Production Changes Resulting from Pipeline Installation in Semiarid Agricultural Ecosystems

S. D. Zellmer, J. D. Taylor, and R. P. Carter

10:20 to 10:40 am A Field Survey of Reclamation Practices in the Overthrust Belt

W. K. Ostler, K. L. Allred, and D. J. Hansen

10:40 to 11:00 am The Use of Manual Surface Seeding, Liming and Fertilization in The Reclamation of Acid, Metal-Contaminated Land in the Sudbury, Ontario Mining and Smelting Region of Canada

K. Winterhalder

11:00 to 11:20 am Lime and Tillage Effects on Extractable Metal Levels in an Acid Contaminated Agricultural Soil

W. M. Schafer

NA= not available
WEDNESDAY OCTOBER 9

HYDROLOGY

Queen City South Room

2:40 to 3:00 pm  Effect of Crusting on Runoff and Erosion from Reshaped Spoil  S. A. Schroeder  Page 205

3:00 to 3:20 pm  Watershed Reconstruction During The Rehabilitation of Surface Mined Disturbances  E. A. Stieg and D. L. Law  211

3:20 to 3:40 pm  Vegetation and Soil Water Response to Contour Furrows, Dozer Basins, and Surface Additions of Topsoil or Power Plant Ash on Arid Coal Spoils  D. G. Scholl  217

3:40 to 4:00 pm  The Purpose and Design of Water Quality Monitoring Networks at Minesites  C. S. Joy  220

4:00 to 4:20 pm  Hydrologic Parameters of Surface Mine Spoils in the Southwest  E. F. Aldon  228
**WEDNESDAY OCTOBER 9**

**SOIL AND OVERBURDEN ANALYTICAL PARAMETERS**

Prospector's Hall

The papers presented in this session will be published at a later date by the Soil Conservation Society of America.

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<td>G. Tucker, W. Berg and D. Gentz</td>
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<td>8:40 to 9:00 am</td>
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<td>G. Halvorson, J. Kramer, J. Mclean and N. Safaya</td>
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<td>9:00 to 9:20 am</td>
<td>Copper and Molybdenum</td>
<td>J. Schrack, D. Newman and L. Gough</td>
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<td>9:20 to 9:40 am</td>
<td>Acid-base Potential and Sulfur Forms</td>
<td>A. Sobek, L. Hossner, D. Fransway, D. Sorenson, L. Lagaki and D. Naftz</td>
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ANALYTICAL PARAMETERS

Prospector's Hall

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10:00 to 10:20 am  Impact Assessment of Mercury in Soils and Overburden in the Western United States: A Review
                    R. Funston, S. Williams and W. Swain

10:20 to 10:40 am  Organic Matter
                    R. Smith, E. Redente and E. Hooper

10:40 to 11:00 am  Nitrate and Ammonium Nitrogen
                    G. Wendt, B. Sabey and R. Lawton

11:00 to 11:20 am  Saturation Percentage
                    S. Merrill, J. Deutsch and M. Pole

11:20 to 11:40 am  Coarse Fragments - Their Effects in the Soil Profile
                    D. McGirr, L. Munn, C. Scott and N. Harrington

12:40 to 1:00 pm  Particle Size
                    J. Herron, J. Bokich and D. Scholl

1:00 to 1:20 pm  Electrical Conductivity
                    F. Samson, T. Portal and J. Bowden

1:20 to 1:40 pm  Boron
                    R.C. Barth, G. Weiler and C. Severson

1:40 to 2:00 pm  Selenium
                    S. Fisher, F. Munshower and F. Parady

2:00 to 2:20 pm  Management of Sodium Affected Minesoils
                    M.G. Carlstrom, F. Amendola, D.A. Shay and D.J. Dollhoph
THURSDAY OCTOBER 10

RECLAMATION OF SOILS

Queen City North and Central Rooms

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8:20 to 8:40 am  Collection and Use of Overburden Chemical Data in Australia  S. Miller  242

8:40 to 9:00 am  Spacial Variability of Rosebud Mine Spoils  K. J. Lang, H. P. Knudsen, and R. Sheldon  NA

9:00 to 9:20 am  Carbonaceous Materials Problems Associated With Reclamation  D. Y. Boon and P. J. Smith  242

9:20 to 9:40 am  Soil and Overburden Management in Western Surface Coal Mine Reclamation - Findings of a Study Conducted for the Congress of the United States - Office of Technology Assessment  J. P. Walsh  251

RECLAMATION TECHNOLOGY

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10:20 to 10:40 am  Bare-Plot Analysis as a Tool for Diagnosing Impediments to Revegetation at Surface Coal Mines  C. C. Reith and L. D. Potter  268

10:40 to 11:00 am  Advanced Reclamation Technology in Grading  W. E. Hilgedick  275

11:00 to 11:20 am  A Seeding Technique to Enhance Species Diversity  S. G. Long  279

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<td>Impact of Surface Mining Sediment Control Regulations on the Hydrologic Balance of Dryland Streams</td>
<td>D. O. Doehring, J. R. Hinton, and R. W. Micsak</td>
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<td>Alternate Methods of Surface Mining Sediment Control and Measuring Water Quality in Streams</td>
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<td>Upward Migration of Vadose Zone Contaminants, as Indicated by Lysimeter Sampling</td>
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