mine file permit

CalMat
of Arizona
The CalMat Companies

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APR 27 1994
DIVISION OF OIL
GAS & MINING PRICE UTAH

April 13, 1994

ACT/015/007 #6

VIA FEDERAL EXPRESS

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APR 0 4 1994
DIV. OF OIL, GAS &

Lowell P. Braxton
STATE OF UTAH, NATURAL RESOURCES
OIL, GAS AND MINING
355 W. North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Dear Mr. Braxton:

Enclosed is the 1993 Annual Report for our Hidden Valley property.

Sincerely,

HIDDEN VALLEY COAL COMPANY

Lee Edmonson, Manager
Planning & Regulatory Affairs

LE/cn

Enclosures

1801 E. UNIVERSITY DRIVE / PHOENIX, AZ 85034 / P.O. BOX 52012, ZIP 85072 / (602) 254-8465

COAL MINING AND RECLAMATION OPERATIONS FOR 1993

(Must be submitted to the Division by April 15, 1994)

State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
3 Triad Center, Suite 350
355 West North Temple
Salt Lake City, Utah 84180-1203
(801) 538-5340

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DIV. OF OIL, GAS & MINING

Permittee: Hidden Valley Coal Company

Mine Name: Hidden Valley Mine

Mailing Address: 1801 E. University Drive, Phoenix, AZ 85034

Company Representative: Lee Edmonson

Resident Agent: United States Corporation Company

Permit Number: ACT/015/007

MSHA ID Number: None

Date of Initial Permanent Program Permit: December 11, 1986

Date of Permit Renewal: January 30, 1993

Quantity of Coal Mined (tonnage) 1993: None

Attach Updated Mine Sequence Map(s) showing mine development through December 31, 1993. (Same as Lease Royalty Payment Map and/or MSHA Progress Map)

All monitoring activities during the report period to be submitted with this report (including, but not limited to):

A. General

1. **Discuss anomalies, missing data and monitoring changes made throughout the year.**
2. **Summarize any corrective actions and the results that may have occurred during the year.**

**B. Water Monitoring Data:
Groundwater Summary**

1. **Mine Discharge**
   a. **Summarize the total annual discharge from mine water discharge points and breakdown on a monthly basis for each site.**
   b. **Discuss the past five years of data comparing changes in discharge. Elements such as mining rate, location of faults or large in-mine flows during the year should be discussed.**
   c. **Discuss trends and exceedence in water quality parameters. A correlation with flow could provide additional information.**

HIDDEN VALLEY MINE
1993 Annual Report
April 13, 1994

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DIV. OF OIL, GAS & MINING

A. Water monitoring results are attached.

B. The closest weather station data available is from Castle Dale, Utah.

Castle Dale Station, Emery County, Utah

Elevation 5.819 feet
Period of record: 1928-1992
Normal mean temperature: 47.4° F.
Normal annual precipitation: 7.52 inches

C. Subsidence monitoring is not required for this site.

D. Qualitative descriptions of revegetation monitoring are attached. Quantitative analysis was conducted in 1992 and submitted by letter dated December 11, 1992.

E. There are no impoundments on this site.

F. There are no over burden or spoil analysis data required for this site.

G. The report of officers of the company is attached.

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HIDDEN VALLEY MINE
OUTSTANDING ISSUES

1) There are no outstanding Division Orders or Notice of Violations.

2) During 1993 the locations of drill holes were verified in the field. Drill hole #6 was properly sealed on July 28, 1993, with verification by the Division.

HIDDEN VALLEY MINE
WATER MONITORING SUMMARY
FIELD MEASUREMENT SHEET

Date Sampled: September 20, 1993
Time Sampled: Site #1: 1200
Site #2: 1130
Samplers: Karla Knoop and Mark James, JBR Consultants

Location	Flow (cfs)	Temperature degrees C	pH	Conductivity (micromhos)	Dissolved Oxygen (mg/l)
#1 Ivie Ck (upper)	0.3	15	8.7	4,480	9.1
#2 Ivie Ck (lower)	0.3	14	8.8	4,620	9.1

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CHEMTECH

ANALYTICAL LABORATORY

6100 S. STRATLER
MURRAY, UTAH 84107
PHONE: (801) 262-7299
FAX: (801) 262-7378

DATE: 10-15-93

TO: JBR Consultants
8160 S. Highland Dr. STE A-4
Sandy, Utah 84093

DATE SAMPLED: 9-20-93

PROJECT: Hidden Valley

DATE SUBMITTED: 9-21-93

CERTIFICATE OF ANALYSIS

SAMPLE ID: LAB #: **PARAMETER**	Ivie-01 U099573	ANALYST/DATE/TIME/METHOD
TDS, mg/l	2,927	RG 9-27-93 @1530 EPA 160.1
Settleable Solids, ml/l	<.21	RG 9-21-93 @1330 EPA 160.5
TSS, mg/l	2.4	RG 9-21-93 @1500 EPA 160.2
Oil & Grease, mg/l	<5.5	RG 9-23-93 @1200 EPA 413.1
Sulfate as SO_4, mg/l	1,170	NW 9-30-93 @1600 SM17 4500C
Calcium as Ca, mg/l	166	JO 10-4-93 EPA 200.7
Magnesium as Mg, mg/l	179	JO 10-4-93 EPA 200.7
Potassium as K, mg/l	7.4	JO 10-4-93 EPA 200.7
Sodium as Na, mg/l	364	JO 10-4-93 EPA 200.7
Chloride as Cl, mg/l	123	RG 10-3-93 @1000 EPA 325.3
Bicarbonate as HCO_3, mg/l	306	RG 9-22-93 @1300 SM17 2320B
Carbonate as CO_3, mg/l	9.4	RG 9-22-93 @1300 SM17 2320B
Acidity, mg/l	<10	RG 10-2-93 @1330 EPA 305.1
Hardness as $CaCO_3$, mg/l	1,254	RG 9-22-93 @1100 EPA 130.2
pH Units	8.48	RG 9-23-93 @1630 EPA 150.1
Conductivity, uhmos/cm	3,280	RG 9-23-93 @1230 EPA 120.1
Manganese as Mn (T), mg/l	0.061	JO 10-20-93 EPA 200.7
Iron as Fe (Diss), mg/l	0.859	JO 10-2-93 EPA 200.7

NOTE: Sample temp. when submitted was 9.3°C on ice.

Joel Workman

Joel Workman

CHEMTECH
ANALYTICAL LABORATORY

6100 S. STRATLER
MURRAY, UTAH 84107
PHONE: (801) 262-7299
FAX: (801) 262-7378

DATE: 10-15-93

TO: JBR Consultants
8160 S. Highland Dr. STE A-4
Sandy, Utah 84093

DATE SAMPLED: 9-20-93

PROJECT: Hidden Valley

DATE SUBMITTED: 9-21-93

CERTIFICATE OF ANALYSIS

SAMPLE ID: LAB #: **PARAMETER**	Ivie-02 U099574	ANALYST/DATE/TIME/METHOD
TDS, mg/l	2,912	RG 9-27-93 @1530 EPA 160.1
Settleable Solids, ml/l	<.21	RG 9-21-93 @1330 EPA 160.5
TSS, mg/l	1.6	RG 9-21-93 @1500 EPA 160.2
Oil & Grease, mg/l	<5.9	RG 9-23-93 @1200 EPA 413.1
Sulfate as SO_4, mg/l	1,170	NW 9-30-93 @1600 SM17 4500C
Calcium as Ca, mg/l	164	JO 10-4-93 EPA 200.7
Magnesium as Mg, mg/l	176	JO 10-4-93 EPA 200.7
Potassium as K, mg/l	7.2	JO 10-4-93 EPA 200.7
Sodium as Na, mg/l	361	JO 10-4-93 EPA 200.7
Chloride as Cl, mg/l	123	RG 10-3-93 @1000 EPA 325.3
Bicarbonate as HCO_3, mg/l	312	RG 9-22-93 @1300 SM17 2320B
Carbonate as CO_3, mg/l	8.3	RG 9-22-93 @1300 SM17 2320B
Acidity, mg/l	<10	RG 10-2-93 @1330 EPA 305.1
Hardness as $CaCO_3$, mg/l	1,223	RG 9-22-93 @1100 EPA 130.2
pH Units	8.49	RG 9-23-93 @1630 EPA 150.1
Conductivity, uhmos/cm	3,220	RG 9-23-93 @1230 EPA 120.1
Manganese as Mn (T), mg/l	0.053	JO 10-20-93 EPA 200.7
Iron as Fe (Diss), mg/l	0.096	JO 10-2-93 EPA 200.7

NOTE: Sample temp. when submitted was 9.3°C on ice.

Joel Workman
Joel Workman

HIDDEN VALLEY MINE
WATER MONITORING SUMMARY
FIELD MEASUREMENT SHEET

Date Sampled — May 25, 1993
Time Sampled — Site #1: 1200
Site #2: 1000
Samplers — Karla Knoop and Mark James

Location	Flow (cfs)	Temperature degrees C	pH	Conductivity (micromhos)	Dissolved Oxygen (mg/l)
#1 Ivie Ck (upper)	16.9	17.5	8.1	1,100	*
#2 Ivie Ck (lower)	15.6	14.0	8.0	1,000	8.8

* Dissolved oxygen meter malfunctioned at this site, no measurement available.

Note: Streamflow was noticeably increasing during flow measurement at Site 1, Upper Ivie.

CHEMTECH

ANALYTICAL LABORATORY

6100 S. STRATLER
MURRAY, UTAH 84107
PHONE: (801) 262-7299
FAX: (801) 262-7378

DATE: 6-08-93

TO: JBR Consultants
8160 So. Highland Dr. STE A-4
Sandy, Utah 84093

SAMPLE ID: Lab #U095695 - Calmt-05, Ivie Lower, 5-25-93

DATE SUBMITTED: 5-26-93

CERTIFICATE OF ANALYSIS

PARAMETER	DETECTED	DATE ANALYZED	TIME	ANALYST	METHOD	MDL
pH Units	8.43	5-26-93	@ 1400	RG	150.1	0-14
Conductivity, umhos/cm	820	5-27-93	@ 1600	RG	120.1	1.0
TDS, mg/l	622	5-27-93	@ 0900	RG	160.1	1.0
TSS, mg/l	1,270	5-27-93	@ 0900	RG	160.2	1.0
Settleable Solids, ml/l	1.0	5-26-93	@ 1130	RG	160.5	0.2
Hardness as $CaCO_3$, mg/l	853	5-27-93	@ 1300	TM	130.2	0.02
Acidity as $CaCO_3$, mg/l	<100	6-03-93	@ 1500	RG	305.1	100
Bicarbonate as HCO_3, mg/l	348	6-02-93	@ 0900	RG	SM2320	1.0
Carbonate as CO_3, mg/l	<1	6-02-93	@ 0900	RG	SM2320	1.0
Calcium as Ca, mg/l	230	5-27-93	@ 1213	JO	200.7	1.0
Chloride as Cl, mg/l	23.6	5-26-93	@ 1100	TM	325.3	1.0
Iron as Fe (Diss), mg/l	1.91	5-27-93	@ 1100	JO	200.7	0.01
Magnesium as Mg (T), mg/l	66.7	5-27-93	@ 1100	JO	200.7	0.01
Manganese as Mn (T), mg/l	0.609	5-28-93	@ 1100	JO	200.7	0.01
Potassium as K (T), mg/l	5.29	5-27-93	@ 1100	JO	200.7	1.0
Sodium as Na (T), mg/l	56.7	5-27-93	@ 1100	JO	200.7	1.0
Sulfate as SO_4, mg/l	279	6-08-93	@ 0815	TM	SM174500	5.0
Oil & Grease, mg/l	<5.3	5-26-93	@ 1100	RG	413.1	5.3
Cation, meq/l	19.7					
Anion, meq/l	12.2					

Joel Workman

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CHEMTECH

ANALYTICAL LABORATORY

6100 S. STRATLER
MURRAY, UTAH 84107
PHONE: (801) 262-7299
FAX: (801) 262-7378

DATE: 6-08-93

TO: JBR Consultants
8160 So. Highland Dr. STE A-4
Sandy, Utah 84093

SAMPLE ID: Lab #U095694 - Calmt-05, Ivie Upper, 5-25-93

DATE SUBMITTED: 5-26-93

CERTIFICATE OF ANALYSIS

PARAMETER	DETECTED	DATE ANALYZED		TIME	ANALYST	METHOD	MDL
pH Units	8.43	5-26-93	@	1400	RG	150.1	0-14
Conductivity, umhos/cm	821	5-27-93	@	1600	RG	120.1	1.0
TDS, mg/l	614	5-27-93	@	0900	RG	160.1	1.0
TSS, mg/l	1,320	5-27-93	@	0900	RG	160.2	1.0
Settleable Solids, ml/l	2.2	5-26-93	@	1130	RG	160.5	0.2
Hardness as $CaCO_3$, mg/l	378	5-27-93	@	1300	TM	130.2	0.02
Acidity as $CaCO_3$, mg/l	<100	6-03-93	@	1500	RG	305.1	100
Bicarbonate as HCO_3, mg/l	368	6-02-93	@	0900	RG	SM2320	1.0
Carbonate as CO_3, mg/l	<1	6-02-93	@	0900	RG	SM2320	1.0
Calcium as Ca, mg/l	87.3	5-27-93	@	1213	JO	200.7	1.0
Chloride as Cl, mg/l	30.6	5-26-93	@	1100	TM	325.3	1.0
Iron as Fe (Diss), mg/l	1.63	5-27-93	@	1100	JO	200.7	0.01
Magnesium as Mg (T), mg/l	40.6	5-27-93	@	1100	JO	200.7	0.01
Manganese as Mn (T), mg/l	0.127	5-28-93	@	1100	JO	200.7	0.01
Potassium as K (T), mg/l	5.01	5-27-93	@	1100	JO	200.7	1.0
Sodium as Na (T), mg/l	56.0	5-27-93	@	1100	JO	200.7	1.0
Sulfate as SO_4, mg/l	282	6-08-93	@	0815	TM	SM174500	5.0
Cation, meq/l	10.3						
Anion, meq/l	14.4						

Joel Workman

HIDDEN VALLEY COAL COMPANY

OFFICERS LIST CONTINUED:

Delbert H. Tanner	Vice President
H. James Gallagher	Chief financial Officer
Edward J. Kelly	Vice President
Lee Edmonson	Assistant Secretary
Brian W. Ferris	Assistant Secretary
Christine McVeigh	Assistant Secretary

ALL OFFICERS LISTED ABOVE ARE LOCATED AT: 3200 San Fernando Road
Los Angeles, CA 90065

STATE OF UTAH
DEPARTMENT OF COMMERCE
DIVISION OF CORPORATIONS AND COMMERCIAL CODE

PROFIT CORPORATION ANNUAL REPORT

The following information is on file in this office. All profit corporations must file their annual reports and corrections within the month of their anniversary date. Failure to do so will result in dissolution of the corporate charter.

THIS BOX MUST BE COMPLETED

CORPORATE NAME, REGISTERED AGENT, REGISTERED OFFICE, CITY, STATE & ZIP

CORPORATION # 070948
D 12/07/76

1. HIDDEN VALLEY COAL COMPANY
2. UNITED STATES CORP COMP.
3. 500 DES PALZA 15 E 1ST S
4. SALT LAKE CITY UT 84111

MAKE ALL CORRECTIONS IN THIS COLUMN

UTAH

5. INCORPORATED IN THE STATE AND UNDER THE LAWS OF: UTAH

6. ADDRESS OF THE PRINCIPAL OFFICE IN THE HOME STATE.

7. BUSINESS PURPOSE: MANAGEMENT SERVICES

OFFICERS (DOMESTIC, PROFIT CORPORATIONS ARE REQUIRED TO LIST A CORPORATE OFFICER)

8. PRESIDENT A. FREDERICK GERSTELL
   ADDRESS 3200 SAN FERNANDO ROAD
   CITY, STATE & ZIP LOS ANGELES, CA 90065
9. VICE PRESIDENT SCOTT J. WILCOTT
   ADDRESS 3200 SAN FERNANDO ROAD
   CITY, STATE & ZIP LOS ANGELES, CA 90065
10. SECRETARY PAUL STANFORD
   ADDRESS 3200 SAN FERNANDO RD
   CITY, STATE & ZIP LOS ANGELES, CA 90065
11. TREASURER FREDERICK T. SAUER
   ADDRESS 3200 SAN FERNANDO RD
   CITY, STATE & ZIP LOS ANGELES, CA 90065

DIRECTORS (If you have less than 3 shareholders you may list less than 3 directors.)

12. DIRECTOR PAUL STANFORD
   ADDRESS 3200 SAN FERNANDO RD
   CITY, STATE & ZIP LOS ANGELES, CA 90065
13. DIRECTOR A. FREDERICK GERSTELL
   ADDRESS 3200 SAN FERNANDO ROAD
   CITY, STATE & ZIP LOS ANGELES, CA 90065
14. DIRECTOR SCOTT J. WILCOTT
   ADDRESS 3200 SAN FERNANDO ROAD
   CITY, STATE & ZIP LOS ANGELES, CA 90065

Under penalties of perjury and as an authorized officer, I declare that this annual report and, if applicable, the statement change of registered office and/or agent, has been examined by me and is, to the best of my knowledge and belief, true, correct, and complete.

15. BY Christine McNeil (signature)
16. Assistant Secretary
17. January 29 1993

IF THERE ARE NO CHANGES FROM THE PREVIOUS YEAR, PLEASE DETACH THE COUPON BELOW AND RETURN IT IN THE ENCLOSED ENVELOPE WITH YOUR PAYMENT. YOU MAY KEEP THE ABOVE REPORT FOR YOUR RECORDS

DO NOT WRITE ON THE COUPON. MAKE ALL CORRECTIONS ON THE FORM ABOVE

NOTE: PLEASE DO NOT FOLD THIS COUPON

CORPORATION NUMBER: 070948

CORPORATION NAME: HIDDEN VALLEY COAL COMPANY
UNITED STATES CORP COMP.
600 DES PALZA 15 E 1ST S
SALT LAKE CITY UT 84111

DATE DUE: 12/31/93

AMOUNT DUE: $15.00

IF AFTER DUE DATE: $25.00

⑆50700080006705000000010407094600000000000000015003⑆

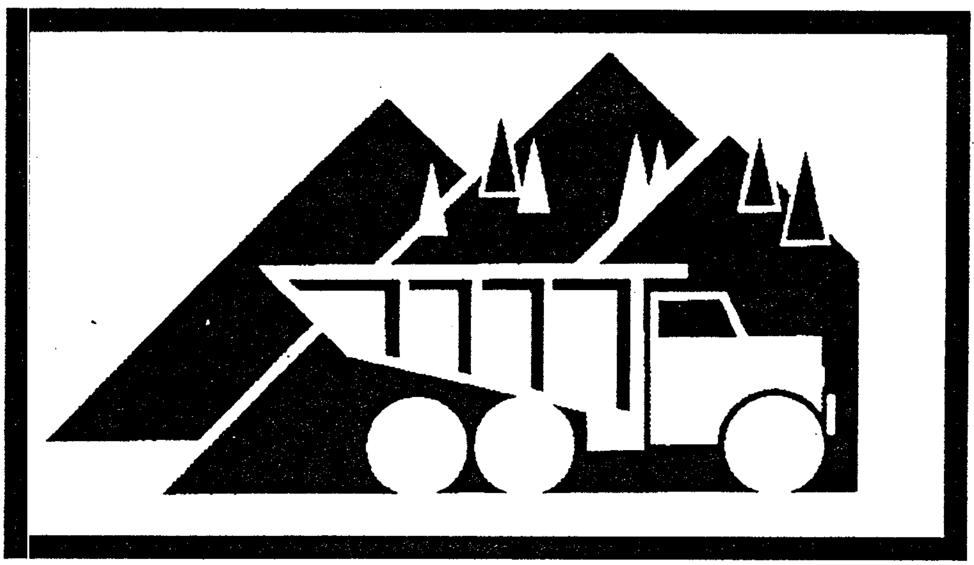
UTAH DEPARTMENT OF COMMERCE

Make check payable to:
State of Utah

Copy "A" Tom

DRAFT

State of Utah
Nonpoint Source Best Management Practices for Mining Operations



PREPARED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER QUALITY

AUGUST 1993

TABLE OF CONTENTS

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design, construction, maintenance and monitoring which should be addressed in conjunction with a particular management practice.

References

Identifies the source of detailed information about the management practice or other references where the practice is further documented.

The management practices suggested in this manual represent the best knowledge of agencies and individuals at this time (August, 1993). These practices should be reviewed and updated annually by the Nonpoint Source Mining Subcommittee to assess their ability to control nonpoint source pollution from mining, incorporate emerging technology and refinements to existing methods.

the contour along regraded areas mine waste topsoiled area and revegetated areas. Open-top culverts or road dips are spaced along the length of a road to intercept and convey water flowing along the road surface to the cut slope ditch. Water bars are employed during road closure to control runoff. Culverts transport flow from a road ditch under the road to a downdrain installed down the fill slope. Terracing can be used on mine waste dumps, along the outslope of a head-of-hollow fill. Downdrains are employed to safely deliver concentrated flow down a steep incline.

Design and Implementation Guidelines: Many different types and configurations of diversion and conveyance structures may be employed at a mine site. Over the range of possible applications, the need for detailed engineering designs will vary. For example, construction of a diversion berm along the upslope end of a small mining site will require considerably less technical considerations then the permanent diversion of an intermittent stream channel. Generally, when used as temporary water handling structures, diversions may not require a formal design. However, when permanent structures are installed, a design will usually be required.

All diversion and conveyance structures must be adequately sized to convey the required flows and remain stable during the design storm event. They must be designed to result in flow velocities that are non-erosive or a protective layer of rock riprap or other protective material should be applied.

Proper design of diversion structures relies on a well developed base of information about the characteristics of the site. Information required for diversion design may be grouped into the following categories: topographic, hydrologic, hydraulic, geotechnical and ecological.

- Topographic data on slopes, contours, distances, areas, etc., are essential to any diversion design.

- Hydrologic data are required for the analysis and estimation of the design discharge. For minor structures such as temporary diversion ditches, an estimate of a peak discharge for a given frequency is sufficient for design.

- Hydraulic data are used to size the structure required to carry the design discharge. The basic principals of open-channel flow are used to determine specific parameters such as flow depth, velocity, energy dissipation requirements, etc.

- Geotechnical considerations govern the stability of the soils where the diversion will be located. In steep slope areas, these considerations are essential in providing for a stable channel.

- Ecological considerations are necessary to assess any potential adverse environmental impact resulting from a given design.

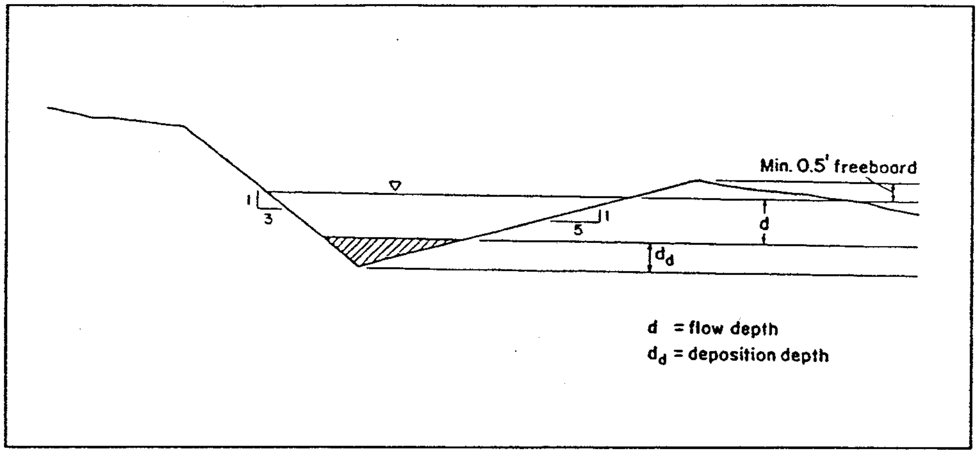


Figure 2.2 Typical Excavated Diversion Ditch

2.2 Interceptor Dike/Berm or Swale

Description: These structures are compacted or excavated ditches (swales) used to intercept storm runoff from drainage areas above areas disturbed by mining operations and direct it to a stabilized outlet.

Conditions Where the Practice Applies: Where the volume and velocity of runoff from exposed or disturbed areas must be reduced. When an interceptor dike/ditch is located around the perimeter of a disturbed area, it prevents runoff from entering this area and also prevents sediment-laden water from leaving the disturbed area. When it is placed horizontally across a disturbed slope to follow the contours, it reduces the velocity of runoff flowing down the slope by reducing the distance that the runoff can flow directly downhill.

Design and Implementation Guidelines: Runoff channeled by a berm or swale should be directed to an adequate sediment trapping area or stabilized outfall. Care should be taken to provide enough slope for drainage, but not enough to cause erosive velocities.

Recommended design criteria are found in Table 2.2

Special Considerations: The berm should be adequately compacted to prevent failure. If the berm is to remain in place for greater than 30 days, it should be stabilized with temporary or permanent vegetation.

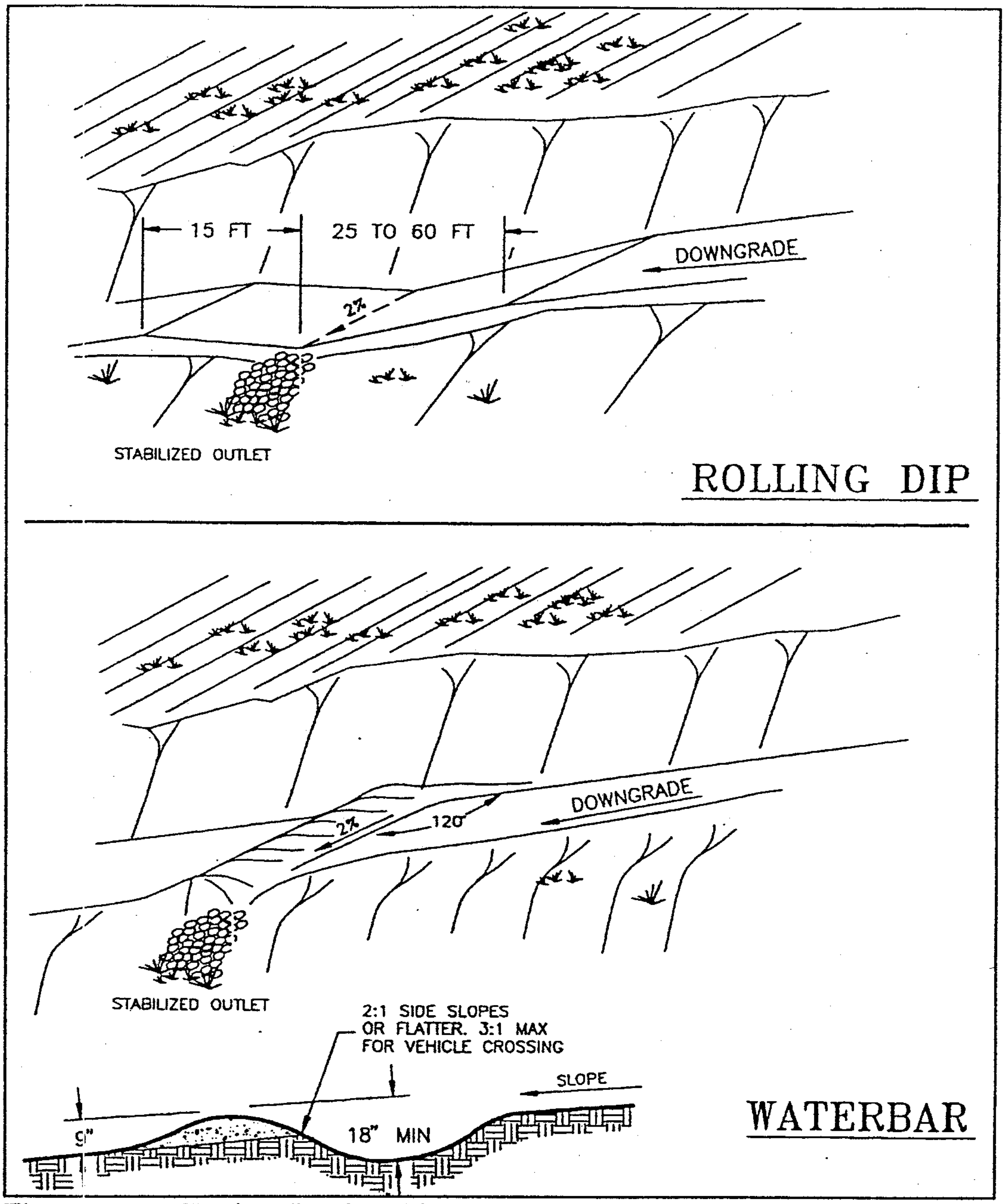


Figure 2.3 Typical Rolling Dip and Waterbar (Western Shasta Resource Conservation District, 1992)

Design and Implementation Guidelines: Roads concentrate runoff. Gully formation may be especially severe in tire tracks and ruts. To prevent gullying, runoff can be diverted by using small waterbars or rolling dips.

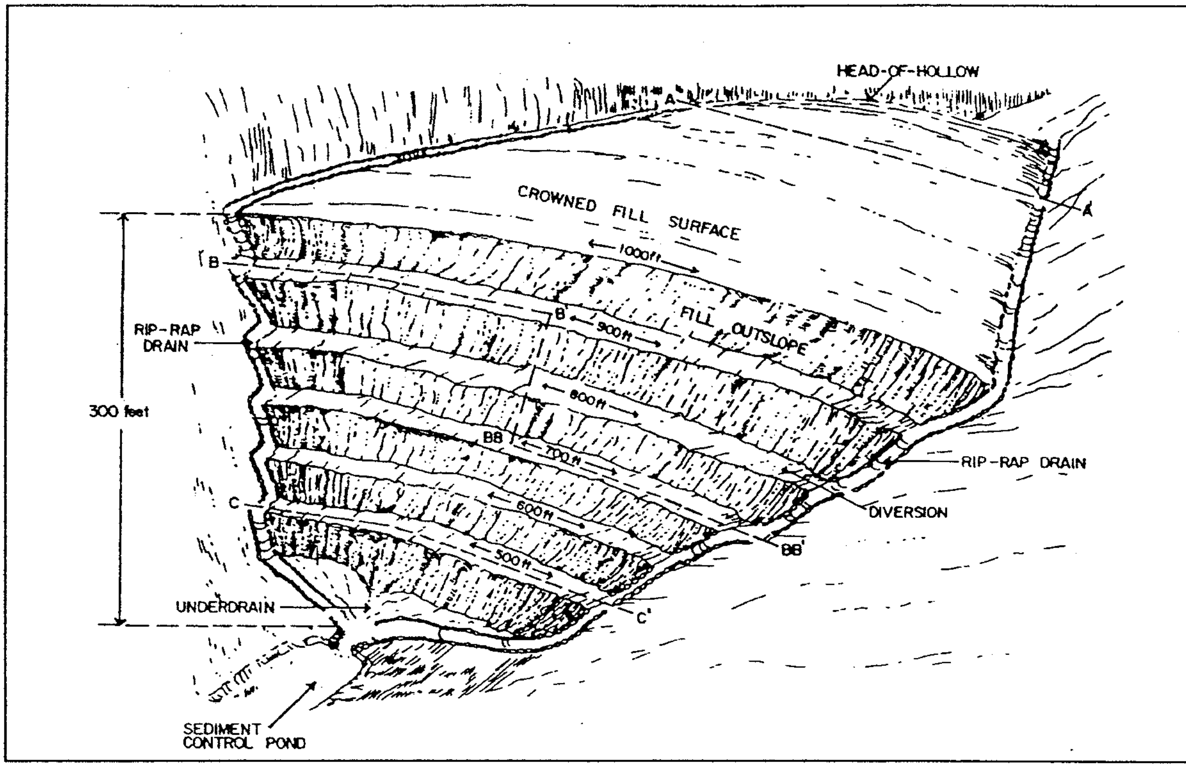


Figure 2.4 Schematic of a head-of-hollow fill (Robins and Hutchins, 1979)

3. Determine channel cross-section and hydraulic parameters. A triangular channel shape is recommended since it is easily constructed using standard reclamation equipment such as small dozers. Recommended side slopes are 3H:1V and 5H:1V.

4. Determine the sediment transport capacity of the terrace.

5. Determine the total sediment yield from the channel and the average settleable solids concentration.

6. Compute the deposition depth of the sediment in the channel.

7. Size the channel on the basis of the flow depth at peak flow plus the deposition depth, plus a minimum 0.5 foot freeboard.

The general concept for the design of terraces for sediment control is to provide channels which run nearly perpendicular to the slope. Depending on their slope roughness and amount of sediment delivered to them, terraces may provide a good means of trapping sediment eroded from overland flow areas.

Terrace spacing depends on many factors including slope, condition, size, and length of the overland flow area contributing to each channel.

Special Considerations: Terraces should be mulched and seeded to produce a good stand of vegetation as soon as possible. In some cases small check dams or channel lining may be required for conveyance channels which move the runoff from the terrace system to downstream controls. Terraces should be inspected regularly at least once a year and after major storms.

2.5 Check Dams

Description: A check dam is a small, temporary or permanent dam constructed across a drainage ditch, swale, or channel to lower the velocity of concentrated flows. Reduced runoff speed reduces erosion and gullying in the channel and allows sediments and other pollutants to settle out. Typical check dam designs are shown in Figure 2.6.

Conditions Where The Practice Applies: Check dams should be installed in steeply sloped drainages where channel erosion is of concern, or in swales where adequate vegetation cannot be established. Check dams should be used only in small open channels that drain 10 acres or less.

Design and Implementation Guidelines: A check dam may be built from logs, stone, or pea gravel-filled sandbags. Recommended design criteria and construction specifications for check dams are outlined in Table 2.3.

Effectiveness: The use of check dams to stop erosion on steep channels is very effective. Applications of check dams in the field has shown that they can remove approximately five percent of the incoming sediment load (Reed, 1978). The portion of the sediment removed is large particles and additional measures must be used to remove the smaller particles if required.

Special Considerations: The center section of the dam should be lower than the edges. Dams should be spaced so that the toe of the upstream dam is at the same elevation as the top of the downstream dam. It is very important the dam is adequately keyed into the banks of the channel. Check for erosion at edges and repair promptly as required. After each significant rainfall, check dams should be inspected for sediment and debris accumulation. Sediment should be removed when it reaches one half the original dam height.

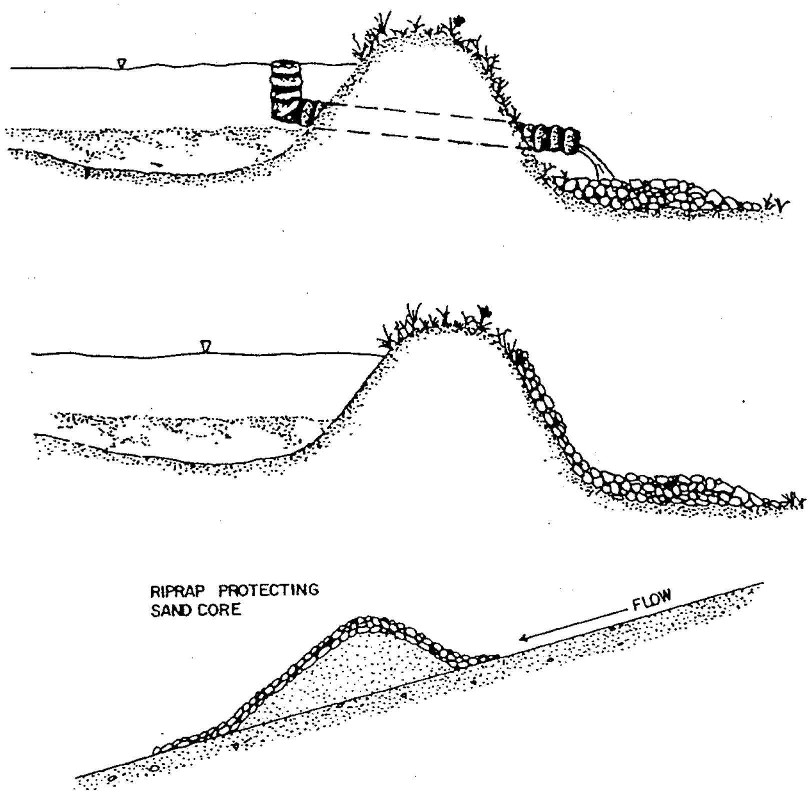


Figure 7.27. Alternative check dam designs.

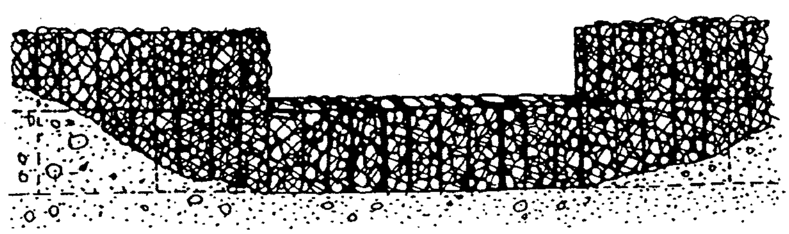


Figure 7.28. Gabion check dam construction.

Figure 2.6 Typical Check Dam Designs (Barfield, Warner and Haan, 1981)

2.6 Drop Structures

Description: The use of drop structures permit adjustment of a channel slope which is too steep for design conditions. The structures can be either vertical drops or sloped drops and can range in complexity from rock riprap type structures to concrete structures with baffled aprons and stilling basins. Considering the range of flow conditions expected at mine sites, and considering construction techniques typically employed, this BMP is limited to rock riprap type structures.

perform better then one large structure, but would require more structures to achieve the same overall elevation drop. This may increase the construction costs depending on the location of available sires, and the rock riprap and excavation quantities at each site. The number of drop structures needed to achieve the required slope is based on analyzing the total drop height required and the height of the individual drop structures. The combined height of all the drop structures must equal the total drop height.

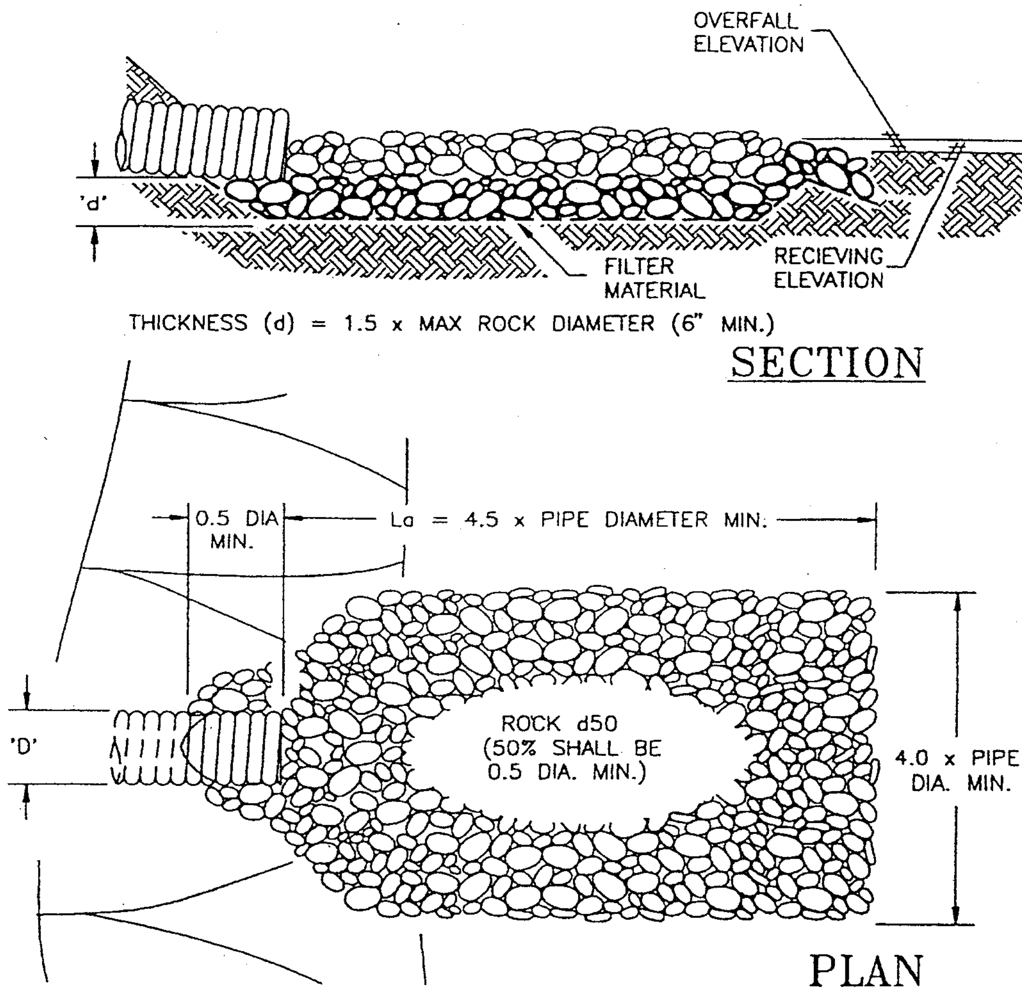
Table 2.4 Summary of Drop Structure Design Procedure (OSM, 1982)

1.	Based on an evaluation of feasible site locations, available construction material, excavation quantities required, and drop height, determine the height, number and spacing of drop structures.
2.	Determine the slope of the drop structure and the median diameter of the riprap lining.
3.	Determine riprap gradation and thickness.
4.	Evaluate filter requirements.
5.	Evaluate downstream normal flow depth
6.	Determine the length of the drop structure (Figure).
7.	Evaluate freeboard requirements.

Special Considerations: The velocity of flow on the downstream side of a drop structure can be quite high, creating the potential for local scour at the toe and possible undercutting of the structure. Consequently, protection is required in a transition length between the steep slope of the riprapped drop structure and the mild sloped channel. Protection is also required at the entrance to the drop structure, due to the drawdown and increased velocity that results at the transition from the mild to steep sloped channel.

2.7 Outlet Protection

Description: Outlet protection reduces the speed of concentrated storm water flows from culverts, channels, and other conveyance structures, and therefore reduces erosion and scouring at outlets. This type of protection can be achieved through a variety of techniques, including riprap, gabions, concrete aprons, stilling basins and downdrains.



NOTES:

1. 'La' = LENGTH OF APRON. DISTANCE 'La' SHALL BE OF SUFFICIENT LENGTH TO DISSIPATE ENERGY. APRON SHALL BE SET AT A ZERO GRADE AND ALIGNED STRAIGHT.
2. FILTER MATERIAL SHALL BE FILTER FABRIC OR 6" THICK (MIN.) GRADED GRAVEL LAYER.

Figure 2.8 Typical Riprap Apron outlet Protection (Western Shasta Resource Conservation District, 1992)

- shorelines subject to wave action.

Design and Implementation Guidelines: Riprap is a versatile, highly erosion-resistant material that can be used effectively in a variety of ways to control erosion on mine sites.

Riprap Experience has shown that the usual causes of riprap failure are generally undersized individual rocks, improper riprap gradation, thickness of the riprap, and bedding material. One study showed that approximately 80% percent of all riprap failures they studied were directly attributed to bedding failure (OSM, 1982a). Proper installation of riprap on fine bank material requires that a gravel or filter be placed on the bank before riprap is installed.

Riprap is classed as either graded or uniform. Graded riprap includes a wide mixture of stone sizes. Uniform riprap consists of stones nearly all the same size. Graded riprap is preferred because it forms a dense, flexible cover. Uniform riprap is more open an cannot adjust as effectively to the movement of the stones.

Riprap sizes are designated by either the mean diameter or the weight of the stones. The diameter specification is often misleading since the stones are usually angular. However, common practice is to specify stone size by the diameter of an equivalent size of round stone. A method commonly used for specifying the range of stone sizes in graded riprap is to designate a diameter for which some percentage, by weight, will be smaller. For example, d_{85} specifies a mixture of stones in which 85% of the stone by weight would be smaller then the diameter specified. Most designs are based on a d_{50} or median stone size.

<u>Gradation</u> - Riprap should be a well-graded mixture with 50% by weight larger than the specified design size. The diameter of the largest stone size in such a mixture should be 1.5 times the d_{50} size with smaller sizes grading down to 1 inch.

<u>Size</u> - the designer should determine the riprap size that will be stable for design conditions. Having determined the design stone size, the designer should select the size or sizes that equal or exceed that minimum size based on riprap gradations commercially available in the area.

<u>Thickness</u> - Construction techniques, dimensions of the area to be protected, size and gradation of the riprap, the frequency and duration of flow, difficulty and cost of maintenance, and consequence of failure should be considered when determining the thickness of riprap linings. The minimum thickness should be 1.5 times the maximum stone diameter, but in no case less than 6 inches.

<u>Quality of Stone</u> - Stone for riprap should be hard, angular, and of such quality that it will not break down on exposure to water or weathering. The specific gravity of the individual stones should be at least 2.5.

- The developed anchor roots provide both sheer and tensile strength to the soil, thereby providing protection to the soil mantle during the time when flows are receding and pore pressure is high in the saturated bank.

- The root mat provides a living filter in the soil mantle which allows for the natural release of water after the high flows have receded.

- The combined root system consolidates soil particles in the bank and serves to protect the soil structure from collapsing and falling.

- The vegetative cover provides immediate protection during high flows by laying flat against the bank and covering the soil like a blanket.

U.S. Forest Service, Black Hills National Forest. 1985. Best Minerals Management Practices.

Virginia Soil and Water Conservation Commission. 1980. Virginia Erosion and Sediment Control Handbook, Second Edition, Virginia Soil and Water Conservation Commission, Richmond, Virginia.

Western Shasta Resource Conservation District. 1992. Erosion and Sediment Control Standards Design Manual.

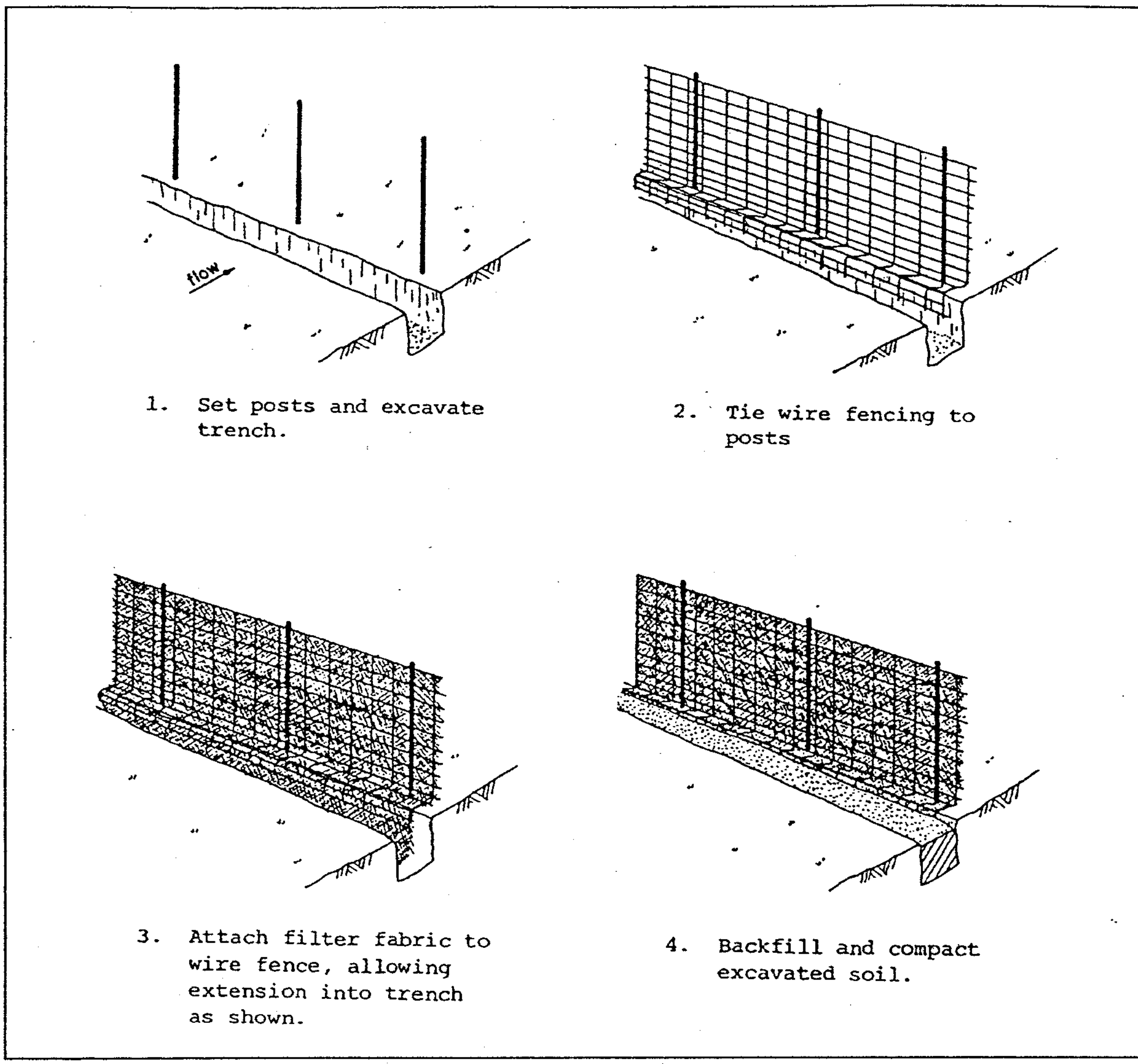


Figure 3.1 Silt Fence Installation Procedures (Office of Surface Mining, 1983)

Table 3.1 Filter Fence Installation (OSM, 1983)

In most cases, the filter fabric should not extend to a height greater than 36 inches; higher heights may back up volumes of water sufficient to cause failure of the structure.

1. Set wood or steel posts securely at intervals no greater than 10 feet apart. Wood posts should be at least 3 inches in diameter; with steel, only T-shaped posts should be used.
2. Fasten fence wire securely to the upstream side of the posts. Wire should extend into the soil a minimum of 2 inches, and be a minimum of 36 inches high.
3. excavate a trench 6 inches wide by 6 inches deep along the upstream base of the wire.
4. Staple or wire the filter cloth to the fence, allowing the fabric to extend into the trench. The fabric should not extend over 36 inches above the original ground on the wire fence.
5. Backfill and compact the soil over the fabric extending into the trench.
6. If a filter fence is to be constructed across a ditch line or drainageway of low flow, the barrier should be of sufficient length to contain the design storm volume of the upland area.
7. The fence should be constructed parallel to the contours of the slope. The ends of the fence should bend upslope a sufficient distance to eliminate endflow.

3.2 Straw Bale Barrier

Definition: Straw bale barriers are used as a temporary sediment filter consisting of a row of entrenched and anchored straw bales. The bales are placed to reduce flow velocities resulting in sediment deposition.

Conditions Where Practice Applies: Straw bale barriers are used as temporary sediment filters placed in areas of low overland flow, usually parallel to the contour. They may also be used as a barrier to divert or direct flows to a slope drain, sediment trap or other control measure. Straw bale barriers can be successfully used only in areas of un-concentrated flow. Straw bales used as check points in ditches have had high failure rates.

The proper installation of straw bale barriers is critical to the performance of this filtering structure. Straw bale barriers are best used in areas of low un-concentrated flow and are effective in reducing the levels of suspended solids when constructed properly.

Design and Implementation Guidelines: The installation procedure for straw bale barriers as outlined by OSM, (1983), is given in Table 3.1, Table 3.2 and diagrammed in Figure 3.3.

Table 3.2 Installation of Straw Bale Barriers (OSM, 1982)

Installation of Straw Bale Barrier	
1.	Excavate a trench the width of a bale and the length of the proposed barrier to a minimum depth of four inches.
2.	Place bales tightly together in the trench. Drive two sturdy wooden stakes or steel rods through each bale and into the ground to a depth sufficient to securely anchor the bales.
3.	Wedge loose straw tightly between the bales after staking.
4.	Backfill and compact the excavated soil against the barrier. Backfill soil should conform to ground level on the downstream side and should be built up 4 inches against the upstream side of the barrier.
5.	The straw bale barrier should be constructed parallel to the contour of the slope. The ends of the barrier should bend upslope a sufficient distance to eliminate end flow.
6.	Straw bales should be removed when not needed or maintained.

3.3 Filter Berms

Description: A filter berm is a linear permeable barrier constructed parallel to the slope to intercept overland flow and trap some of the sediment in suspension.

Applicability: Filter berms are used in the control of sediment in areas that receive overland flow with suspended solids and where the passage of water through the barrier is acceptable or required.

Design and Implementation Guidelines: The filter berm is constructed in the same manner as an impervious berm with the exception that the berm is constructed of materials designed to permit the passage of water, and at the same time, slowing and filtering waters transporting suspended sediments.

Effectiveness: Filter berms are, by nature, less effective at sediment removal then filter fence structures and impermeable berms. They remove sediment by slowing the water and by filtering through the embankment.

3.4 Detention Berm with Permeable Outlet

Description: A detention structure is a ridge of compacted soil located at the base of a disturbed area. It is constructed on the contour of a slope and provides a linear sediment trapping area.

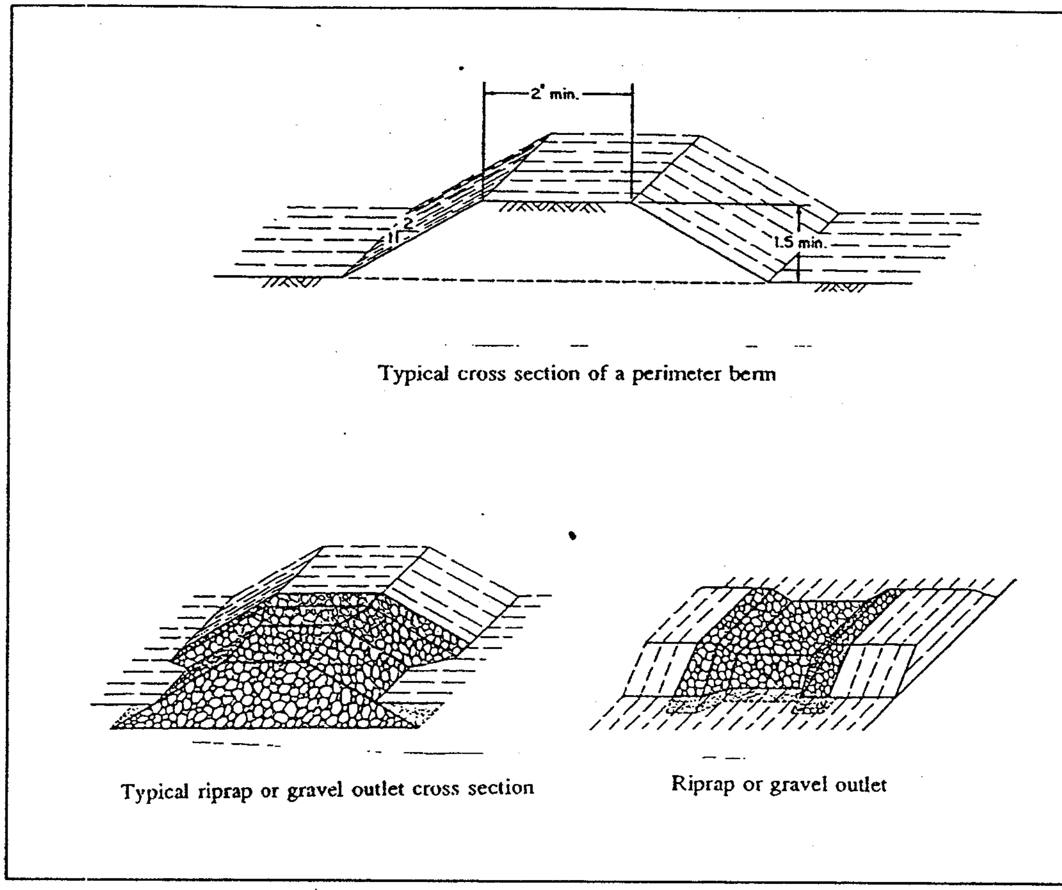


Figure 3.4 Typical perimeter berm and Permeable Rock Outlet (OSM, 1983)

Special Considerations: The perimeter berm should be adequately compacted to prevent failure. If the berm is to remain in place for greater than 30 days, the berm should be stabilized with temporary or permanent vegetation. The lateral slope of the berm should be nearly zero for maximum ponding. It is desirable to maintain a slight gradient toward the rock outlet to facilitate drainage. Deposited sediment should be removed from behind the detention structure after major storms or when one-third of the pond volume has been filled with sediment. The detention structure should be designed with adequate room behind the structure to allow for easy access by equipment for cleaning. Detention structures should not be installed in locations where access by maintenance equipment is difficult.

embankments should be free of roots or other woody vegetation, organic material, large stones, and other objectionable material. The embankment should be compacted in 12 inch layers by traversing with construction equipment. Earthen embankments should be seeded with temporary or permanent vegetation sand mulch as soon as possible. All cut and fill slopes should be 2:1 or flatter.

By using natural depressions and the existing topography for storage areas and treating only the on-site runoff, it is often possible to construct several small traps and avoid construction of the more expensive large structures.

Special Considerations: Sediment traps are fairly maintenance intensive. Because of this characteristic, they are often constructed adjacent to roadways. Sediment should be removed when it has accumulated to one half the design volume of the trap.

3.6 Sedimentation & Storm Water Retention Ponds

Description: These ponds are moderate to large engineered pollution control structures. Normally they are connected to a series of diversion and conveyance channels draining the mine site and represent the final opportunity for mine operators to treat runoff before it leaves the mine area.

Sedimentation and stormwater retention ponds differ from the majority of the preceding BMP's in this section in that they are normally used to treat concentrated flow from diversion and conveyance channels. They are include as BMP's because of their widespread use in controlling suspended sediment from minelands.

Dams proposed for the creation of sedimentation ponds are generally small earthfill dams with a homogenous section. This discussion of embankment dams is intended to describe current practice in the design of small embankment dams and is not intended to be used as a manual on dam safety.

Conditions Where the Practice Applies: Sedimentation and stormwater retention ponds are used on mine lands where upslope management practices have not reduced sediment or other pollutants to levels acceptable for discharge. Many erosion and sedimentation controls measures are available to mine operators. Of these various methods, sedimentation ponds are the most widely used and required structures. Sedimentation ponds are typically the last treatment measure applied before runoff leaves the mine area. However, it should be understood that sedimentation ponds are not the only means of sediment and erosion control, but may simply be an integral part of the overall plan.

Design and Implementation Guidelines: Several states, as well as the U.S. Office of Surface mining, have issued regulations which require that the sizing of sediment detention structures be based on either watershed disturbed area, detention storage time, size of storm to be stored, or an effluent standard. The design method used depends on the goal wished to be attained. If the

Table 3.4 Generalized Sedimentation Basin Design Procedure (after Simons, Li and Associates, 1981)

Design Component	Activity
Site Selection	The sediment basin should be located to obtain the maximum storage benefit from the terrain and for ease of clean-out of trapped sediment. Sedimentation ponds must be constructed in locations where it will be possible to direct or divert all surface runoff from disturbed areas into the pond throughout the life of the mining operation.
Hydrology	The peak inflow rate and runoff volume for the design storm event are determined.
Influent sediment size distribution	Obtain the size distribution of the inflowing sediment.
Sediment yield	Determine the annual sediment yield and the design storm sediment yield.
Inflow suspended solids concentration	Using the storm sediment yield and the storm runoff volume, determine the average influent suspended solids concentration.
Settleable solids concentration	Develop the settleable sediment size distribution (particles <0.001 mm) from the influent sediment size distribution. Select a particle size to be removed in the pond.
Available storage volume	Develop stage-storage curve for sedimentation pond location. Determine the required sediment storage volume and the corresponding depth. Determine the available detention storage depth. Determine the available detention storage volume above the sediment storage depth from the stage-storage curve.
Required Storage Volume	Determine the required storage volume. Compare the required storage volume to the available storage volume.
Principal spillways	Select principal spillway type and design for the peak outflow rate and the corresponding head.
Emergency spillway	Select emergency spillway type and design the spillway system to pass the peak discharge from the selected event.
Erosion control below the spillways	Size the riprap below the principal spillway.

The purpose of spillways on sedimentation dams is to provide detention time to settle sediments and protect the dam from failure due to overtopping. Three basic types of spillways are generally used on sedimentation dams: drop inlet, culvert and chute spillway. A drop inlet spillway consists of a vertical standpipe connected to a horizontal barrel. A culvert spillway, as the name implies, is a closed conduit similar to a highway culvert that is placed at a pre-determined elevation along the abutment of a dam to serve as a spillway. A chute spillway is an open

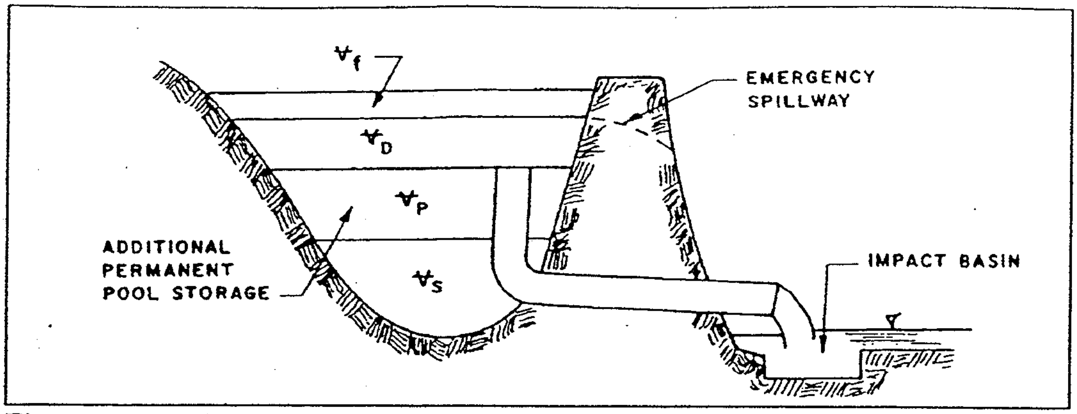


Figure 3.7 . **Permanent pool type sediment detention structure illustrating the additional permanent pool storage (Barfield, Warner and Haan, 1981).**

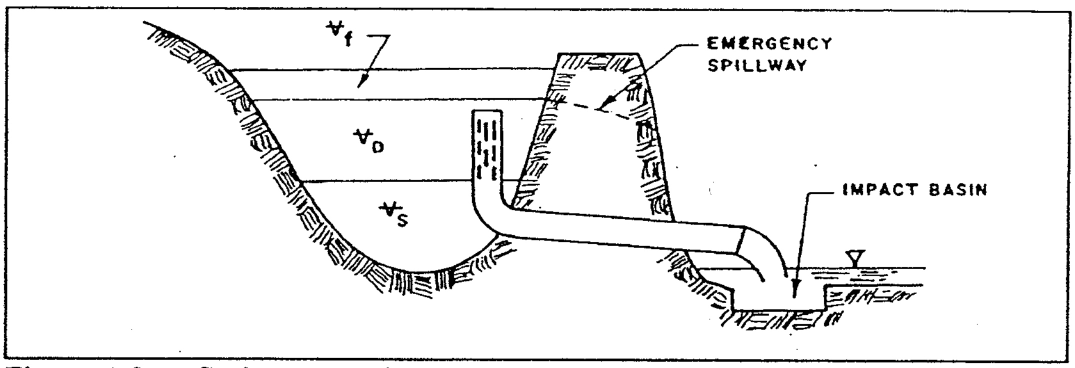


Figure 3.8 **Self de-watering type sedimentation basin with slotted princi pal spillway (Barfield, Warner and Haan, 1981).**

U.S. Forest Service, Black Hills National Forest. 1985. Best Minerals Management Practices.

Virginia Soil and Water Conservation Commission. 1980. Virginia Erosion and Sediment Control Handbook, Second Edition, Virginia Soil and Water Conservation Commission, Richmond, Virginia.

Western Shasta Resource Conservation District. 1992. Erosion and Sediment Control Standards Design Manual.

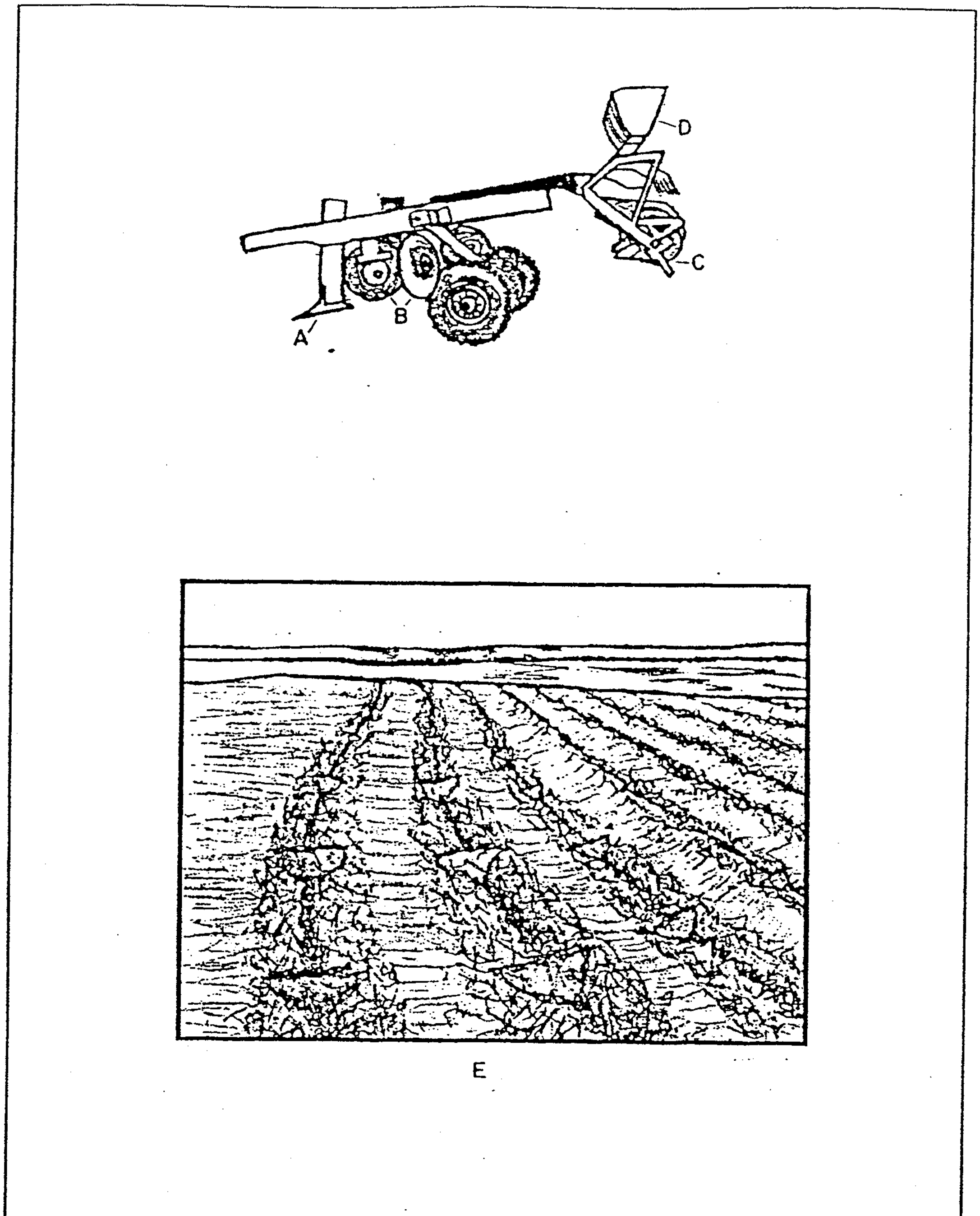


Figure 4.1. Contour Furrowing Implement and Land Pattern (OSM, 1983)

A. ripper tooth to rip soil about 2 inches below furrow depth
B. standard disks that open furrow
C. damming device
D. broadcast seeder
E. surface pattern of dammed furrow system

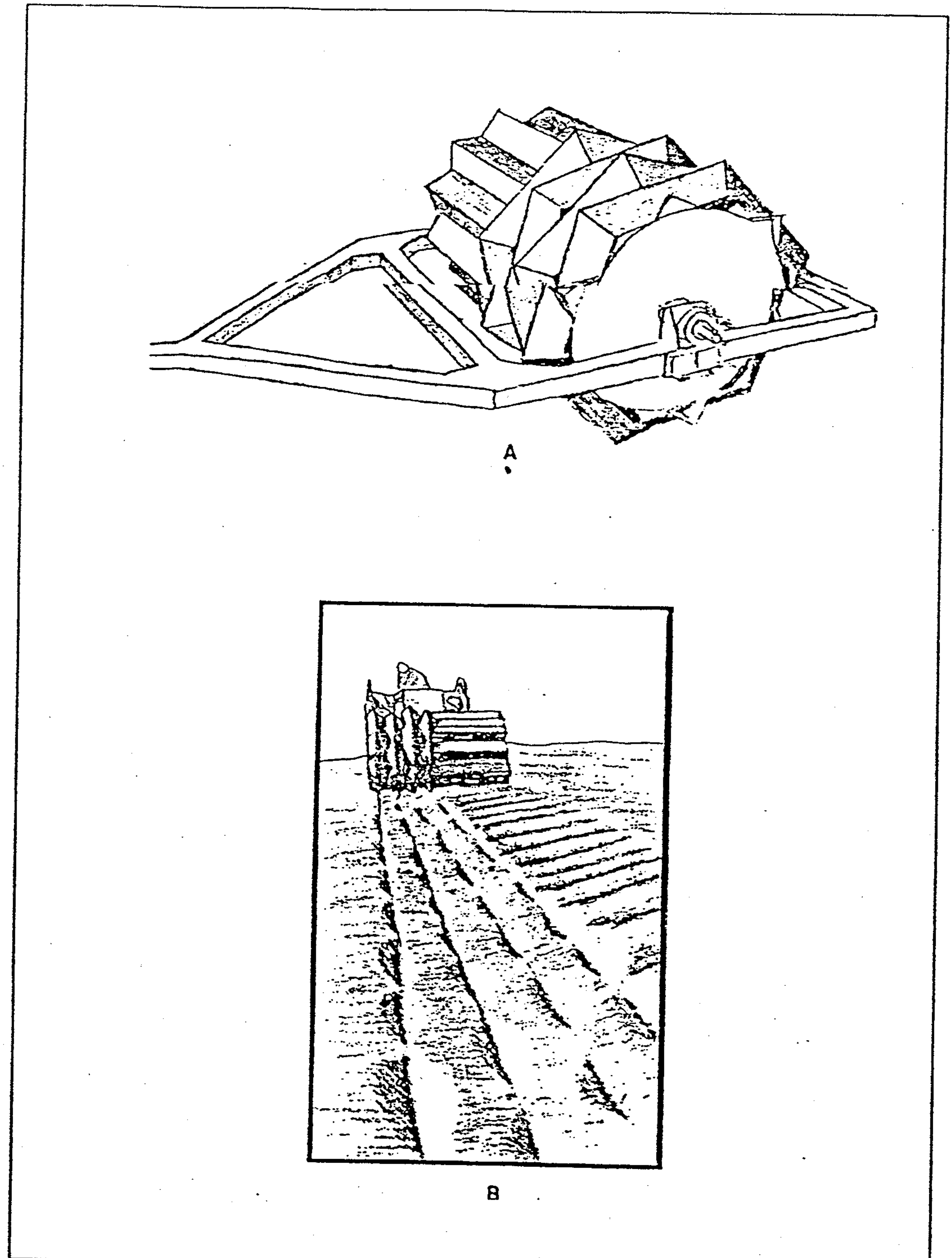


Figure 4.2 Land Imprinting Implement and Land Surface Pattern (OSM, 1983)

A. Standard imprinter consists of a single moving part: a compound roller having angle irons on its external surface.

B. Mechanically formed geometric pattern. "V" furrows (RH) collect and shed runoff to microbasins (LH) where runoff is collected and absorbed.

1983 are given in Table 4.3 Pitting implements and the resultant land surface pattern are given in Figure 4.2, Figure 4.3 and Figure 4.4

Table 4.3 Specifications for Pitting (OSM, 1983).

ITEM	COMMON SPECIFICATIONS
Equipment	Lister-type gouging pitters; eccentric cutaway, or cam shaped disk pitters; modified brushland, wheatland standard disk, tandem disk, or moldboard plow
General Components	Pit former creating pit with ridges or check dams separating the pits; mechanical structure (e.g. modified tripping action) or hydraulic device to control spacing (depending on equipment)
Number of Pits	3 to 5 depending on equipment
Pit Spacing	15" to 40"
Pits Per Acre	Approximately 5,000
Width	8" to 18"
Depth	4" to 10"
Length	2' to 5" (8' maximum)
Power Requirement	30 to 45 hp

Effectiveness: The water holding capacity of the pits was observed to be relatively low ranging from 0.03 to 0.6 inches the first year and decreasing to approximately 0.08 during the next 3 to 5 years. Infiltration was found to double and runoff decreased by 13 to 24 percent the first year, and by 4 to 16 percent the third year.

Special Considerations: Best results with the method are achieved in areas with annual precipitation exceeding 8 inches and where the pits are placed on contour in areas with slopes not exceeding 10 percent in moderately dry, medium textured soil. Pitting is not recommended for use in clayey, sandy, shallow or rocky soil.

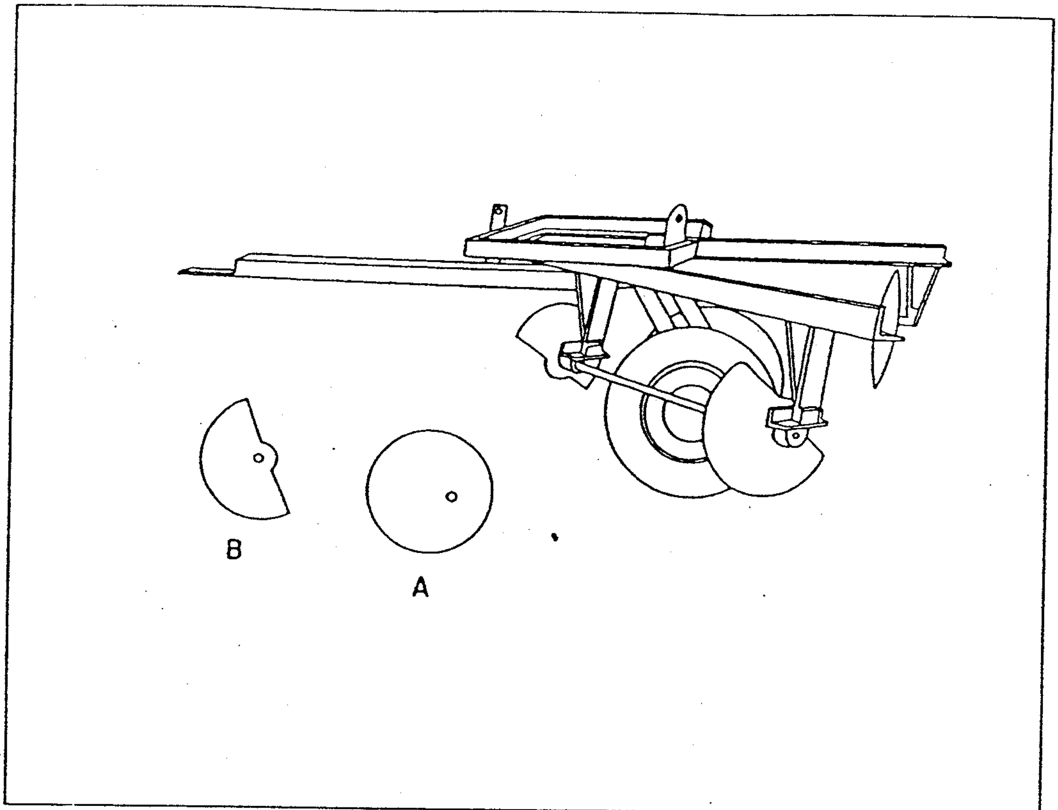


Figure 4.4 Disk Type Pitting Machine (Vallentine, 1971).

4.4 Ripping

Description: Ripping or deep chiseling is a mechanical treatment measure used to break compacted layers, heavy clays, and soil-minesoil interface. The treatment loosens and mixes subsoil. Benefits include increased surface roughness, detention storage, infiltration and root penetration and subsurface water storage.

Applicability: Ripping is used to treat the subsoil before topsoiling an area or , if topsoil is not available, to prepare the subsoil for revegetation. The purpose of subsoil ripping is to loosen the subsoil to allow root penetration and also to increase water infiltration rate into the subsoil strata.

Design and Implementation Guidelines: Specifications for ripping as outlined by Simon et al., 1983, are given in Table 4.4 Schematics of ripping implements and the resultant land surface patterns are shown in Figure 4.5.

Effectiveness: Ripping produces a significant decrease in runoff and soil loss from small areas if applied under conditions given above. The effects normally begin decrease within three years. Ripping under optimum conditions will last 7 to 12 years.

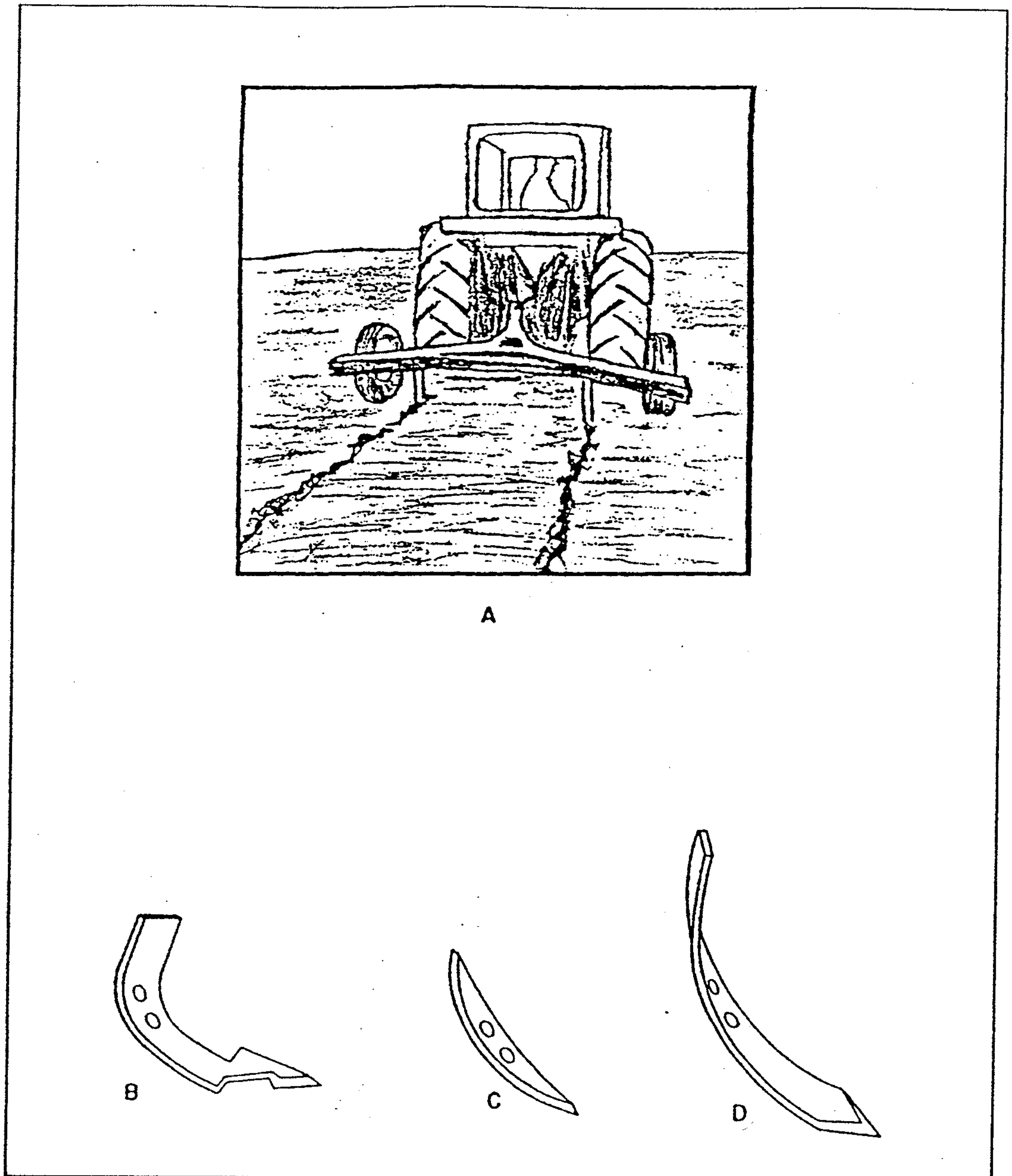


Figure 4.5 Soil Ripping Implement and Land Surface Pattern (OSM, 1983).

A. Soil ripper is pulled through the soil and a temporary slot is formed.
B. Standard ripper (chisel).
C. Spike ripper point.
D. Twisted ripper point.

Operator has made a major project redo on
A&B seam
Road - twice

1991--
Violation Issues
- Not seeding all disturbed area as required by plan
(Another violation was issued on the same matter i.e. road & not outslope)
- Not properly signing all exterior boundaries of the disturbed area.
- Erosion on road outslope & road upslope.
- Why did he challenge / bond clock

1992 Court decision favored permittee
Division vacated
(1) NOV -- MY
(2) NOV -- SUSANS

After 1992

- Concerns about halogeton
- Concern about ~~degraded~~ vegetation lack thereof } general statement
- Concern about erosion
- Vehicles encroachment on reclaimed road
- statement - need to seed again this fall

What has operator done

- ~~Halogeton - nothing~~
- Seeding areas not previously seeded - plan commitment - regulatory req
- Repaired headcut in ~~upper~~ gully #1
- Installed barriers to

Current Situation
- Looks like a ~~[illegible]~~ situation

C- Reclamation Critique

- Strong Points...
  - ▲ Didnt drag on -- decision not to mine/economics (road const.
    -- immediately reclaimed
  - ▲ Fencing pastures -- Roo
  - ▲ ~~Hudriet threeng~~
- Weak Points
  - ▲ Some backbone grading not done ie., cutslope road. 40'-50' wide
  - ▲ Runoff control.. didnt consider runoff from undist. slick rock areas that interfaced with dist.
    -- approved runoff to be directed off the road over fill outslope & water Bars (without benefit of ... [illegible]) further acted to concentrate runoff
  - ▲ Insufficient lag time between grading topsoiling & seeding. Seeded on a loose seed bed. dry & had the consistency of flour.
  - ▲ leaving upper portion outside of prot. fence
    2 T of alfalfa hay
    winter/spring grazing - camped on seeding.
  - ▲ leaving road bed first for sale enhancement to reduce costs and

Lowell's Memo

Par #1, Clarification support facilities – No.

[illegible] certain facts

- Explosives Remote non permitted site
- (All Machinery non permitted site
- [illegible] non permitted

Com[illegible]

- [illegible]
- [illegible]
- [illegible]

His respo[illegible]

- Sta[illegible] [illegible]ness
- Tra[illegible] explosive storage

[illegible] [illegible]te, not cottonwood

[illegible] at

all the[illegible]

- Mi[illegible] without central [illegible]

warehousing

- Ownership of the facility?

Yesterday

- Response To Info Summary seizing real propert[y]
- State Tax Comm
  - Jerry Shrader
  - County Official
  - Deputy Sheriff
- Served served seizure document on mine office at Sunny[side] on all personal property including longwall.
- Advised them they have not lived up to contract to pay current & back taxes!
- Biggest tax of 421 000 is on personal property
- Tax sale in April
- Gerry Frading SE Utah Title went breakdown on taxes on 51 parcels.

Lowells Memo

Par #1, Clarification support facilities - No.

~~Premise~~ certain facts

- Explosives Remote non permitted site
- Old Machinery non permitted site
- New machinery and equipment non permitted site

compliance issue

- NOV
- Permitting
- Air Weather

His response

- Staging area for all three mines
- Trail Mtn, Deer Creek, have explosive storage facilities at the mine site, not Cottonwood. There caps & powder are stored at

- all three Mine cannot operate ~~[illegible]~~ without central warehousing
- Ownership of the facility?

Hidden Valley Mine
Briefing Report Highlights

I Why: ~~Business~~ Several reasons for this briefing report
- Business as usual isnt going to accomplish either Div. nor operator Goals
- Things seem to be at a standstill since 1991 when violation was issued on the following issues. No followup action on the ground.
- Inspection reports have generalized conditions at the reclaimed mine site. Operator said he is getting conflicting info reports from consultant & Division. See example
- ~~Consultant Knopp stated~~
-

II WHAT

(A) Background
- Reclaimed In fall of 1986
- Never mined a pound of coal
- Looking to sell the property
- 10 yr liability period since precip is under 25"

~~Long Range Goals~~
~~Operator~~

(B) Goals

	Permittee	Div
Long Range	Phase III Bond Release Sale of Property	Phase III Bond Release
Short Range	Phase II Bond Release	~~Correct On Site & Records Problems~~ Phase II Bond Release Identify, reconfirm items that do not [illegible] with reg. records / field situation

Determine how success or failure will be determined for insp ~~Veg success~~ & meeting Short & long range goals
- ~~Erosion~~
- Vegetation - AV vs voids
- Sedimentation/Erosion -
- ~~Other~~
- Runoff Control.

are described as follows

(1) Erosion on the reclaimed road remains a problem.

(2) ~~Islands~~ Areas which were not seeded as required in the approved plan remains a problem. 3 Areas where seeding of vegetation has not been successful and such areas invaded by Halogeton ~~and~~ a poisonous plant

(3) Disturbed areas ~~[illegible]~~ lacking sediment control

Problem #1

Discussion,

Erosion on the reclaimed road outslope remains a problem.

The core of the problem in my opinion resulted wheare:

(a) The applicant reclamation plan and approved by DIV in substance provided for uncontrolled runoff to discharge over an fill type road outslope without ~~[illegible]~~ protected ~~[illegible]~~ designed ~~and~~ protected diversions

(b) The ~~outslope~~ unprotected outslope has an average grade of about 50% or 2:1 slope.

(c) The approved ~~road~~ bars acted to further concentrated the runoff on the reclaimed road

(d) The source of the runoff ~~[illegible]~~ consists of both disturbed and undisturbed areas with no ~~[illegible]~~ calculations on volume.

(e) The current drainage ~~pattern is~~ a dendritic pattern is materially different from the adjoining opposite slope and as described in the approved MRP.

To: Joe Helfrich

From: Wm. S.M.

Re: Hidden Valley.

Also, there have been other issues that have been discussed without any ~~for~~ resolution. Believe it is in the interest of good management to discuss problems with the permittee rather than wait for enforcement action, and or disapproval of ~~bond release~~ bond release application. The permittee may believe all problems associated with 91.26-8-2 11/20/91 have been resolved by contradiction at the time of bond release

Erosion, ~~other~~ the reclaimed road outslopes ~~was~~ along with other issues were the subject of recent court decision. The court decision favored the permittees position and as a result thereof the Division vacated NOV.

Since I am again assigned to inspect this mine, believe the matter of erosion/potential erosion on the outslopes needs to be reconsidered. Two approaches come to mind, to wit:

(1) Continue to monitor conditions, runoff and ~~erosion on~~ or erosion on the outslope or

(2) Revaluate with the permittee what appears to be a permittee deficiency

~~Recommend~~

Facts

Starting in April 1994, have again been assigned to inspect the Hidden Valley Reclamation Mine. On April 1, 1994, performed a partial inspection.

There are several matters of concern which

(f) The reclaimed road bed ~~about~~ at the cutslope area is 50' ~~feet~~ in width, was approved ~~as a~~ for livestock/game ~~access area~~ ingress & egress. Portion of the road bed

This resulted in the cutslope and upslope being ~~ste~~ considerably steeper than the natural adjoining areas and original physiography. Further retention of the roadbed ~~and complicated the~~ unnecessarily complicated the reclamation efforts. Not more than about 5' would have been need for livestock/game ~~access~~ trail

Alternative Solutions

I- Monitor erosion by taking repetitive measurements of the erosion together with visual document of unstable ~~erosion~~ conditions such as tension cracks adjacent to erosion channels etc. Take enforcement action when sufficient foundation exists for a prima facie case is established.

II Issue a Division Order on a permit defect.

Recommendation: Alternative II

~~The record will show that the operator did recognize the erosion problem and performed some erosion protection when Harold Sandbeck was the Div mine inspector.~~

~~Base~~ This recommendation is based on the following:

A. The operator reluctance, in my opinion, to do erosion abatement on the ~~[illegible]~~ vacated NOV was interwoven into the matter of restarting the bond clock, which was not part of the referenced NOV, but was the result of a DIV letter sent to the permittee during this same period.

During the Sanbeck inspection era, the records will show the permittee did some erosion control work on the reclaimed road outslope. Should such erosion work not involve starting the bond clock over, perhaps ~~they~~ would be amenable to take some corrective action as required under a Division Order.

B. Taking only the erosion issue without ~~consideration~~ of ~~other~~ defects will result in a piece meal approach. As an example if there are better ways to controll the undisturbed runoff from interfacing with the disturbed runoff then it is obvious the current ~~[illegible]~~ problem will be reduced.

C. The 1/26/94 report states "evidence of erosion is still on site".

D. While there is in my opinion continued erosion on the outslope, nevertheless, the Division approved discharging runoff over a unprotected outslope, further the reclamation problem was magnified when the 50'-~~[illegible]~~ road bed was left intact for a livestock access and also ~~[illegible]~~ bars on the road bed acted to concentrate runoff. The disturbed area contains 7 acres. The grazing capacity is per the permittees report (is ~~Saleratus Allotment~~) 10 acres per AUM. Therefore when the area can be grazed again based on this formula the disturbed area ~~[illegible]~~ will be capable of supporting 1 cow for 3 weeks or 3 cows for 1 week and a reasonable wildlife forage allowance as designated in the Saleratus Allotment. Even with grazing the undisturbed adjoining areas leaving a road bed with such a width in my opinion relates to the possibility of ~~cost~~ utilizing the reclaimed road should the mine be sold and become operational rather than ~~a livestock~~ the purported trail.

As a minimum would suggest the Division confront the permittee with all these issues and if an ~~agreement~~ understanding can be reached the permittee ~~at~~ as a minimum ~~on this issue the following~~ be required ~~to~~:

(1) Update the MRP. – Road Pg 4, 0.5 miles / about half outslope cont

(a) Provide Calculations on drainage disturbed and undisturbed that are interfacing and currently discharging over the reclaimed road outslope

(b) Design diversions with protection as necessary on the road outslope at each water bar terminus and also where the potential of uncontrolled runoff discharge on the outslope is evident.

- Including the identification of individual goals permittee and DOGM.
- Current and potential impediments to attain each goal
- Develop initiatives how ~~current~~
  - current impediments can be resolved
  - brain storm possible future impediments in the interest of laying all cards on the table
  - clarify misconceptions
  - develop an action plan to pave the way to reach the defined goals.

4 Combination of 3 and 2 with a ~~preference if~~ a staged approach. Item Alternative 3 provides the base for a compliance program that centers on perceptive problem identification, solutions and implementation

	Pros	and Cons Of Each Alternative
Some ~~Primary Goal~~ Final Bond Release		

In my opinion a ~~My~~ thumbnail ~~highlight/analysis~~ retrospect critique of Hidden Valley Mine (1) regarding reclamation, (2) inspection, compliance & ~~and~~ problem ~~would as a critique would indicate~~ solving post reclamation (3) Unfavorable final court decision on NOV ~~and~~ (4) future perceceived potential problems ~~and (5) and~~ would help find the

Hawait
9a.14

Some

	Pros	Cons.
Alternate I	Assumes time will solve current and future issues associated with phase II & III bond release.	Understandings don't square ~~Some problems are easier to solve at that time if fact would have been more timely in 1991.~~
Alternative II ~~placements~~	Takes problems in bite size current situation and incremental approach ~~without looking at long term goals & objectives~~ short range approach	Doesn't look at the long range approach and pave for long term goals
Alternative III	~~Placing~~ laying all cards on the table pointed toward identifying long term goals ~~& how to~~ current & future impediments resolution of conflicts and developing an action plan.	~~Failure would~~ may result ~~in the permittee opinion~~ that ~~such a mgt~~ meeting is ~~being~~ It takes time, requires parties to [illegible] situations and impediments to achieving defined goals Items on the ground that do not meet expectations ~~regulatory~~ bond release
Alternative IV	Structured properly known problems can be identified, ~~solved~~ best joint efforts to solve same and to be perceptive on future problems all pointed to reaching joint and individual objectives	Requires more time than 3 because

	Page	P	#	Comments
Blasting - 40-10-3	10	40-10-17	o	
Loading Coal	2	40-10-3	17	Only define surface coal mining
Enter any property	3	40-10-6	(2)	
Application Fee	3	40-10-6	(5)	
	5	40 10 -10	(1)	
Performance Bond	3	40-10-6	(7)	
More Stringent Rules ~~40-10-6.5~~	2	40-10-6.5	(2)	
Hearings Board	4	40-10-6.6	(2)	Quorum - conflict of Interest Rebuttal 95-87
Rules Remain In Force ie. Rescission	2	40-10-6.6	(2)	
Exploration	4	40-10-8	~~4~~	
Permit Protest Burden Of Proof	4-	40-10-9	4a	
Roads	11	40-10-17	(q) r	
Veg.	11	40-10-17	(s) (t)	
Change In Landuse	11 & 12	40-10-17	(6)	
Disturbance Above Highwall No. Unless Finding By Div	12-	40-10-17	c	
		40-10-18		

Correct misleading statements in the current plan | Page 21a | pages 21, 21a 24, 24a 24b, 27, 56

c. Refer to MRP page: ~~P~~ 21 ^24^ bottom line "This reclamation process on the road will restore the natural drainage pattern and erosion control.

Pg 24a "In its current configuration x x "

"The road bed

Pg 24b

Pg 27, 81?, 106

Pg. 56

Discharged into a natural rock fill —