UMC 784.13 Reclamation Plan - West of the Price River

(a) The disturbed areas occupied by the Coal Cleaning Plant buildings, railroad tracks, roads and structures are projected for more than 30 years of future operation. It is probable that the plant area including the plant railroad track will continue as an industrial land use classification in the event the Operator abandons the area. However, the reclamation plan is based on a return of the disturbed area to the pre-disturbance land use of undeveloped land.

(b) (1) The execution of the reclamation plan will begin with the decision to terminate the operation of the coal cleaning facilities and a return of the disturbed land to the pre-disturbance land use is as follows:

Reclamation Timetable-West of Price River

Estimated Completion Time		Description
9 Months	(1)	Dismantle and remove surface facilities; dispose of demolished concrete in the track hopper, office basement and other areas below the reclaimed surface elevation.
3 Months	(1)	Grade to final contours and prepare the seedbed. If the completion of the preparation of the seedbed is not timely for fall seeding, the area will be seeded the following March-April.
Year 2	(1)	Reseed as necessary in the spring or fall planting seasons. Fill and level gullies and rills exceeding nine inches in depth.

Year 3 - 5	(1)	Monitor revegetation success.
	(2)	Measure success of revegetation.
	(3)	Remove sedimentation controls when adequate revegetation has been established. Revegetate disturbed areas in accordance with the Revegetation Plan for miscellaneous areas (see Appendix I of the Determination of Completeness Response).
	(4)	Regrade diversion ditch. Revegetate disturbed areas in accordance with the Revegetation Plan for miscellaneous areas.

What is capacity in reclamation criteria

East of the Price River

The execution of the plan to reclaim the refuse disposal area east of the Price River will begin with a determination that the area is filled to capacity or with the decision to terminate the operation of the Coal Cleaning Plant operations. The refuse disposal area is estimated to have a life exceeding 30 years. The pumphouse area will be required for the life of the Coal Cleaning Plant. The reclamation plan assumes that all facilities east of the Price River will be reclaimed concurrently with the facilities west of the Price River. The reclamation plan is based on returning all disturbed areas to a pre-disturbed land use of "undeveloped land".

Reclamation Timetable-East of Price River

Estimated Completion Time		Description
6 Months	(1)	Dismantle and remove surface facilities including pumphouse area, river water collection well, slurry pipeline, etc.
	(2)	Demolish and dispose of concrete in below

grade voids (pumphouse sump).

9 Months	(1)	Grade all areas to final contours as shown on Map E9-3342. Place a six inch soil cover on all areas covered by refuse and prepare the seedbed in accord with the revegetation plan.
	(2)	Seed all disturbed areas in accord with the revegetation plan in September-October. If the seedbed preparation is not timely for fall seeding, the areas will be seeded the following March-April seeding season.
Year 2	(1)	Reseed as necessary in the spring or fall.
	(2)	Fill rills and gullies that are more than nine inches deep.
Years 3 - 5	(1)	Monitor for revegetation progress.
	(2)	Remove clear water pond by grading the impounding structure against the lower refuse dike as shown on Map E9-3342. Revegetate the disturbed area in accordance with the revegetation plan for miscellaneous areas. Refer to Appendix I of the Determination of Completeness Response.

(2) Refer to Appendix D for estimated costs.

(3) Backfilling and Grading

As the refuse material is discharged from the slurry pipeline the coarser material (minus 1 1/4 - 1 1/2 inch) settles out of suspension immediately. this material is

then placed as required. It is estimated that over the remaining life of the plant the coarse slurry will completely cover the Upper Refuse Pond. During plant operation the coarse slurry will be graded to the final contours shown on Map E9-3342. The Upper Refuse Pond will be completely covered by coarse slurry at the time of reclamation and it will not be necessary to provide a capillary break to protect against upward salt migration. Refer also th Appendices I and II of the Determination of Completeness Response.

1. Refuse Disposal Area

The three refuse dike structures will be left in place permanently. The North Dike will be used to help prevent untreated runoff from precipitation events from leaving the refuse disposal area. The top of the Upper Refuse Dike will be graded even with the final surface contours to preclude the impoundment of any water following reclamation. The top of the Lower Refuse Dike will be graded even with the final surface contours to preclude impounding any water.

At the time of final reclamation, 12 inches of coarse (minus 1 1/4 - 1 1/2 inch) slurry refuse will be placed on top of the slurry in the Lower Refuse Pond. This layer of coarse slurry material will provide solid base on which to place a soil cover as well as helping to prevent an upward migration of salts from the fine slurry. The downstream face of the Upper Refuse Dike will be regraded to a 6:1 slope to reduce the potential for erosion. Upon completion of final grading, a ~~six inch soil~~ cover will be placed over all refuse.

The Clear Water Pond will be used to provide sedimentation control for the refuse disposal area during reclamation. Upon achieving adequate revegetation success, the Clear Water Dike will be graded against the Lower Refuse Dike and revegetated.

2. Pumphouse Area

The pumphouse areas will be regraded to smooth contours and cover concrete foundations with at least two feet of soil. When the River Water Collection Well was constructd, the material removed from the well was piled around the circumference. The surface portion of the well casing will be removed (at least two feet below final grade). The well will then be filled with soil from the pumphouse area.

3. Area West of the Price River

The main plant facilities area west of the Price River will be regraded as shown on Map E9-3342 following the removal of the surface facilities. The fills constructed for the plant railroad system and the ponds will be contoured to blend with the surrounding areas. The diversion ditch will be left in place until revegetation success has been acheived. At that time, the diversion will be filled and graded to blend with the surrounding areas.

4. Refuse Disposal Area West of Price River

The final contours of the refuse pile will be achieved as refuse is placed during plant operation. No grading will be required to achieve the final reclamation contours. A six-inch soil cover will be placed over the refuse pile to provide a medium for achieving revegetation success.

The required material volumes for all grading are included in Appendix D.

(4) Topsoil Handling

The revised Topsoil Handling Plan is included in Appendix K of this text.

(5) Revegetation Plan

The revised Revegetation Plan is included in Appendix J of this text. The revised plan also includes discussion on the installed test plots and revised seed mixes for contemporaneous

reclamation. It should be noted that Spoil Pile II has been reclaimed during 1986 with nonvegetative measures, including regrading and berming. The operator will inspect the site to monitor the effectiveness of the employed stabilization methods.

(6) Applies to underground mining.

(7) Information concerning noncoal waste is contained in Appendix G. The results of the coal seam analysis to detect any acid or toxic forming materials are also included in Appendix G. The Operator will supply analysis for individual seams processed on an annual basis if operations are resumed.

(8) Refer to paragraph (3) for a description of how the River Water Collection Well will be reclaimed.

(9) The activities during reclamation will include, removal of the plant buildings, structures and railroad, demolition of the concrete piers, and foundations, grading to the final surface contour, surface preparation for seeding and reseeding. The Operator will take the following actions during reclamation to comply with the requirements of the Clean Air Act and the Clean Water Act:

1. The materials that will result from demolition will be non-toxic and non-acid forming, will be suitable for burial and will not affect groundwater.

2. The Operator will water unpaved roads as necessary to control fugitive dust.

3. The speed of vehicles will be restricted to reduce fugitive dust caused by travel.

4. The travel of vehicles will be restricted to established roads.

5. The newly graded and seeded areas will be mulched.

ACT/007/012-87A
#15

KAISER COAL

KAISER COAL CORPORATION
Sunnyside Coal Mines
P.O. Box 10
Sunnyside, Utah 84539
Telephone (801) 888-4421

December 18, 1987

RECEIVED
DEC 21 1987
DIVISION OF
OIL, GAS & MINING

Mr. John J. Whitehead
Permit Supervisor
Utah Division of Oil, Gas & Mining
355 W. North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Dear Mr. Whitehead:

Re: Reclamation of Disturbed Area at the Wellington Prep. Plant, Ref. Violation No. N87-17-5-1

The area in question shall be reclaimed using the approved methodologies set forth in the Wellington ORP. The approved seed mix, Table 17, Appendix I, of the Wellington ORP shall be used. Revegetation of the disturbed area shall be completed by the fall of 1988.

As a stop-gap measure to treat the runoff from the disturbed area, a silt screen fence was erected; and if this meets your approval, it shall remain in place as a permanent sediment control structure. The disturbed area is approximately one and a half acres in size, and the silt screen fence should be adequate.

Enclosed is a copy of the permit area for the Wellington Prep. Plant. The map shows the general location of the disturbed area. At a later date (by January 8, 1987), a revised map of the exact location will be provided.

see maps 3339 3341

If you have any questions, please call.

Sincerely,

B. Grosely
Mine Engineer

AMENDMENT TO
APPROVED Mining & Reclamation Plan
Approved, Division of Oil, Gas & Mining
by [signature] date 2/2/88

BG:th

Enclosure

UMC 784.14 Reclamation Plan: Protection of the Hydrologic Balance

(a)(1) The Operator does not discharge any water used in the coal cleaning process into the Price River. The plant water is a closed circuit system where refuse water is pumped to the slurry ponds for clarification then pumped back into the plant for re-use. Make up water is pumped into the ponds from the Price River, but no water is discharged from the ponds into the river.

Surface runoff patterns are shown on Drawing No. F9-177. Post-mining contours are shown on E9-3342. All surface runoff is either contained in ponds or channeled through sediment filters. A complete hydrologic evaluation is included in Appendix B.

A layer of Blue Gate Shale, separates the surface alluvials from the Ferron Sandstone. Drilling in the area indicates that the shale extends throughout the permit area, and as such, the surface activities in the plant area are not expected to impact this stratum.

(2) The holders of water rights in T15S 11E are listed as follows:

Upstream from Permit Area

Owner: Terry and James Holm WUC No. 91-4158
Location: Section 7 T15S R11E
Direct Source: Unnamed spring
Use: Volume: .25 cfs

Owner: Mariani Air Products Inc. WUC No. 91-117
Location: Section 7 T15S R11E
Direct Source: Underground water well
Use: Industrial Volume: .172 cfs

Owner: Mariani Air Products Inc. WUC No. 91-832
Location: Section 7 T15S R11E
Direct Source: Underground water well
Use: Industrial Volume: .28 cfs

Owner: Mariani Air Products Inc. WUC No. 91-202
Location: Section 7 T15S R11E
Direct Source: Underground water well
Use: Industrial Volume: .28 cfs

Owner: Mariani Air Products Inc. WUC No. 91-833
Location: Section 7 T15S R11E
Direct Source: Underground water well

Use: Industrial Volume: 0.146 cfs

Owner: Milton Wilson WUC No. 91-233
Location: Section 7 T15S R11E
Direct Source: Underground water well
Use: Dom. & Irr. Volume: 0.015 cfs

Owner: Donald & Janice A. Hamilton WUC No. 91-4122
Location: Section 8 T15S R11E
Direct Source: Price River
Use: Irrigation Volume: 60 af

Downstream from Permit Area

Owner: Arnel S. Milner WUC No. 91-402
Location: Section 16 T15S R11E Status: Dec.
Direct Source: Price River thru Farnham Ditch
Use: Irr. & Stock Volume: 0.177 cfs
Annual: 42.4 af

Owner: Leon and Dixie Thayne WUC No. 91-405
Location: Section 16 T15S R11E Status: Dec.
Direct Source: Price River thru Farnham Ditch
Use: Irr. & Stock Volume: 0.293 cfs
Annual: 8.57 af

Owner: AMCA Coal Leasing, Inc. WUC No. 91-4172
Location: Section 22 T15S R11E Status: Unapproved
Direct Source: Underground water well
Use: Volume: 5 cfs

Owner: Mont Blackburn WUC No. 91-4030
Location: Section 22T15S R11E Status: WUCS
Direct Source: Price River
Use: Volume: 5 cfs

Owner: D & RGW Railroad Co. Wuc No. 91-101
Location: Section 22 T15S R11E Status: Certificate
Direct Source: Price River
Use: Irr. & Stock Volume: 0.16 cfs

Owner: Price Water Improvement District
WUC 91-737
Location: Section 8 T15S R11E
Direct Source: Sewage Plant effluent
Use: Volume:

Within the Permit Area

Owner: Kaiser Coal Corporation WUC 91-371
Location: Section 16 T15S R11E
Direct Source: Price River and Underground well
Use: Irr. & Ind. Volume 5.197 cfs
Annual: 724.4 af

Owner: Kaiser Coal Corporation WUC 91-254
Location: Section 16 T15S R11E
Direct Source: Underground water sump
Use: Industrial Volume: 0.15 cfs

Owner: Kaiser Coal Corporation WUC 91-255
Location: Section 16 T15S R11E
Direct Source: Underground water sump
Use: Industrial Volume: 0.21 cfs

Owner: Kaiser Coal Corporation WUC 91-215
Location: Section 16 T15S R11E
Direct Source: Price River and Underground Well
Use: Irr. & Ind. Volume: 10 cfs
Ind. 2400 af
Irr. 90 ac

Owner: Kaiser Coal Corporation WUC 91-216
Location: Section 16 T15S R11E
Direct Source: Price River and Underground Well
Use: Irr. & Ind. Volume: 5.0 cfs
Ind. 3650 af
Irr. 90.112 ac

The Operator-owned Price River diversions Milner, Pumphouse and Farnham are shown on Map F9-177. The next known diversion is located downstream in Section 23 T17S R13E.

(3) The Cleaning Plant is a surface facility and as such there is no potential for diminution or interruption of river water.

The worst case impact of the Cleaning Plant's effect on the Price River would be if the slurry pipeline ruptured and discharged into the river. The consequences of this unlikely event are considered insignificant. Flow volumes in the Price River from gaging station data indicate a high and low flow to be 42 and 19 cfs during April and July, 1981 respectively. The Operator's water sample test results at monitoring station A are shown below and the influence of a slurry sample evaluated.

**STOCK WATERING ON PRICE RIVER T15S R11E

WUC No.	Owner	Location	Diversion Allowed (AC FT)	Use
2335	WE & Joan Snyder	Sec. 7	1.46	50 cattle 2 horses
2333*	JJ Thayne	Sec. 7	1.40	50 cattle
619*	Mont Blackburn	Sec. 8	2.1	70 cattle 2 horses
620+	Leslie Blackburn	Sec. 7-8	-	70 cattle 5 horses
2337	EC & Annie Snyder	Sec. 7	1.46	50 cattle 2 horses
2336	Jack Hanna	Sec. 7	0.73	20 cattle 6 horses
2334	Melville Branch	Sec. 7	.84	30 cattle
2487*	JJ Thayne	Sec. 7	-	50 cattle
2488*	USA - BLM	Sec. 7	7.56	1350 sheep
3883*	US Steel Corp.	Sec. 8	4.20	150 cattle
3759*	US Steel Corp.	Sec. 9	-	150 cattle
3882*	US Steel Corp.	Sec. 16	-	150 cattle
381	AS Milner	Sec. 22	5.60	100 cattle 1000sheep
2340*	Mont Blackburn	Sec. 22	-	70 cattle 5 horses
404*	Mont Blackburn	Sec. 26	-	70 cattle 5 horses
2558+	Leslie Blackburn	Sec. 26	-	70 cattle 5 horses
2489*	USA - BLM	Sec. 22	-	1720 sheep
401*	WC & Joan Dause	Sec. 26	8.57	300 cattle 6 horses
406*	Mont Blackburn	Sec. 26	-	70 cattle 5 horses
400*	WC & Joan Dause	Sec. 35	-	300 cattle 6 horses
2342*	Mont Blackburn	Sec. 26	-	70 cattle 5 horses
3760*	USA - BLM	Sec. 26	-	1720 sheep

**Source Data: Proposed Determination of Water Rights in the Price River and Lower Green River Drainage.

*Total diversion amount allowed for all claims listed for a specific user.

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

September 19, 1989

Mr. Phillip Gray
Genwal Coal Company
P.O. Box 1201
Huntington, Utah 84528-1201

Dear Mr. Gray

RE: Modification of Water Monitoring Plan, Genwal Coal Company, Wellington Preparation Plant, ACT/007/012-89B, Folders #3 & #7

Please find enclosed approval for your September 5, 1989 request to modify the water monitoring schedule at the Wellington Preparation Plant. The approval is effective September 19, 1989.

If you have any questions concerning this amendment approval, please feel free to contact myself or Rick Summers of my staff.

Sincerely,

Susan C. Linner

Susan C. Linner
Reclamation Biologist/
Permit Supervisor

Enclosure
cc: Harold Sandbeck
Rick Summers

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

September 19, 1989

TO: Sue Linner, Permit Supervisor

FROM: Rick P. Summers, Reclamation Hydrologist RPS

RE: Modification of Water Monitoring Plan, Amendment Number ACT/007/012-89B, Received September 7, 1989, Genwal Coal Company, Wellington Preparation Plant, ACT/007/012, Folders #2 & #8

SUMMARY:

The applicant requested modification of the approved surface and groundwater monitoring plan for the Wellington Preparation Plant. The modification consists of reduction of the parameter list for analysis from the Division's current baseline parameters to operational parameters.

Additionally, the existing plan called for flow measurements at two stations (up and downstream) on the Price River. The applicant proposes to measure flow at the downstream station on the Price River and delete the flow measurement at the upstream station. The flow measurement is time intensive and inherent error in the technique would mask any likely detection in flow impacts to the stream.

The deletion of flow measurement for the upstream station is considered approvable based upon: 1) the volume of water in the Price River and the unlikely occurence/detection of flow impacts to the stream due to the nature of plant activities and, 2) the applicant's operation plan does not include the discharge of water to the treatment impoundments on the Eastern portion of the permit. The applicant must continue to collect quality measurements from both stations.

The proposal is approvable as submitted. The applicant should be aware that if the operational plan changes in the future to include use of the slurry ponds, the plan must be revised to include the measurement of flow at both stations. The format is not in a form for direct insertion to the existing MRP. However, the change is logical for the forthcoming permit renewal.

cc: Harold Sandbeck
BT6005/167

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

January 3, 1990

Mr. Bradley Paul, Ph.D.
Coal Systems, Inc.
P. O. Box 17117
Salt Lake City, Utah 84117

Dear Mr. Paul:

Re: Final Approval, Amendment, Operational Water Monitoring Plan, Genwal Coal Company, Wellington Preparation Plant, ACT/007/012-89D, Folder #3, Carbon County, Utah

The submitted materials received December 26, 1989, regarding the above noted permitting action were reviewed and found to be complete and adequate by Rick Summers of the Division's technical staff.

The Division hereby approves the above referenced action. The approved amendment will apply to the First Quarter 1990 sampling, to be accomplished prior to March 31, 1990.

If you have any questions, please call Rick Summers or me.

Sincerely,

Susan C. Linner

Susan C. Linner
Permit Supervisor/
Reclamation Biologist

djh
cc: D. Schwehr, NEICO
J. Helfrich, DOGM
H. Sandbeck, DOGM
R. Summers, DOGM
BT45/373

	Price River High Flow 5/82	Slurry Constant Flow 6/83	Combined	Net Effect
Conductivity (umhos/cm)	930	3500	975	5 %
Dissolved Iron (mg/l)	6.800	0.020	6.68	(2%)
Dissolved Solids (mg/l)	516	2280	547	6%
Flow (gpm)	167,402	3000	170,402	2%
	7/81	6/83		
Conductivity (umhos/cm)	2850	3500	3019	6%
Dissolved Iron (mg/l)	0.660	0.020	0.493	(25%)
Dissolved Solids (mg/l)	2050	2280	2110	3%
Flow (gpm)	8527	3000	11,527	35%

(4) Does not apply.

(b) (1) Surface drainage through the permit area is described in Appendix B and referenced on F9-177. During reclamation, surface drainage from the reclaimed Upper and Lower Refuse Pond areas will be coursed into the Clear Water Pond for sedimentation control. When a suitable stand of vegetation is established on the reclaimed pond surfaces upstream, the clear water dike will be removed and graded to the configuration shown on Drawing No. E9-3342. A sediment filter, such as silt fence or straw bales, will be placed at the upstream end of the culvert which goes beneath the county road. The pavement diversion ditch adjacent to the North Dike will not be affected during reclamation. When the River Pumphouse area is reclaimed, the structures shown (and proposed) on F9-177 will be maintained until a stand of vegetation is established, then removed.

(2) With the sedimentation control structures described in Appendix B and in item (b) (1) of this section, surface waters will be protected from contamination without further treatment.

(3) Surface water will be monitored on a quarterly basis for points SW-1 to SW-8. The location of these points is shown on Map E9-3451 in Appendix I. The quality parameters to be tested are those in DOGM guidelines for operationsl

TABLE 1

SURFACE WATER BASELINE, OPERATIONAL AND POSTMINING WATER QUALITY PARAMETER LIST

Field Measurements:

*	-	Water Levels or Flow
*	-	pH
*	-	Specific Conductivity (umhos/cm)
*	-	Temperature (C^o)
*	-	Dissolved Oxygen (ppm) (perennial streams only)

Laboratory Measurements: (mg/l) (Major, minor ions and trace elements are to be analyzed in total and dissolved forms.)

#	*	-	Total Settleable Solids
#	*	-	Total Suspended Solids
	*	-	Total Dissolved Solids
	*	-	Total Hardness (as $CaCO_3$)
	*		Acidity ($CaCO_3$)
		-	Aluminum (Al)
		-	Arsenic (As)
		-	Barium (Ba)
		-	Boron (B)
	*	-	Carbonate (CO_3^{-2})
	*	-	Bicarbonate (HCO_3^-)
		-	Cadmium (Cd)
	*	-	Calcium (Ca)
	*	-	Chloride (Cl^-)
		-	Chromium (Cr)
		-	Copper (Cu)
		-	Fluoride (F^-)
	*	-	Iron (Fe)
		-	Lead (Pb)
	*	-	Magnesium (Mg)
	*	-	Total Manganese (Mn)
		-	Mercury (Hg)
		-	Molybdenum (Mo)
		-	Nickel (Ni)
		-	Nitrogen: Ammonia (NH_3)
		-	Nitrite (NO_2)
		-	Nitrate (NO_3^-)
	*	-	Potassium (K)
		-	Phosphate (PO_4^{-3})
		-	Selenium (Se)
	*	-	Sodium (Na)
	*	-	Sulfate (SO_4^{-2})
		-	Sulfide (S^-)
		-	Zinc (Zn)
	*	-	Oil and Grease
	*	-	Cation-Anion Balance

Sampling Period:

-Baseline

*Operational, Postmining

#Construction

TABLE 3

GROUND WATER BASELINE, OPERATIONAL AND
POSTMINING WATER QUALITY PARAMETER LIST

Field Measurements:

*	-	Water Levels or Flow
*	-	pH
*	-	Specific Conductivity (umhos/cm)
*	-	Temperature (C^o)

Laboratory Measurements: (mg/l) (Major, minor ions and trace elements are to be analyzed in dissolved form only.)

*	-	Total Dissolved Solids
*	-	Total Hardness (as $CaCO_3$)
	-	Aluminum (Al)
	-	Arsenic (As)
	-	Barium (Ba)
	-	Boron (B)
*	-	Carbonate (CO_3^{-2})
*	-	Bicarbonate (HCO_3^-)
	-	Cadmium (Cd)
*	-	Calcium (Ca)
*	-	Chloride (CL^-)
	-	Chromium (Cr)
	-	Copper (Cu)
	-	Fluoride (F^-)
*	-	Iron (Fe)
	-	Lead (Pb)
*	-	Magnesium (Mg)
*	-	Manganese (Mn)
	-	Mercury (Hg)
	-	Molybdenum (Mo)
	-	Nickel (Ni)
	-	Nitrogen: Ammonia (NH_3)
	-	Nitrite (NO_2)
	-	Nitrate (NO_3^-)
*	-	Potassium (K)
	-	Phosphate (PO_4^{-3})
	-	Selenium (Se)
*	-	Sodium (Na)
*	-	Sulfate (SO_4^{-2})
	-	Sulfide (S^-)
	-	Zinc (Zn)

Sampling Period:

-Baseline
*Operational, Postmining

See 1/3/89 revision

	Price River High Flow 5/82	Slurry Constant Flow 6/83	Combined	Net Effect
Conductivity (umhos/cm)	930	3500	975	5 %
Dissolved Iron (mg/1)	6.800	0.020	6.68	(2%)
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	7/81	6/83		
Conductivity (umhos/cm)	2850	3500	3019	6%
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Flow (gpm)	8527	3000	11,527	35%

(4) Does not apply.

(b) (1) Surface drainage through the permit area is described in Appendix B and referenced on F9-177. During reclamation, surface drainage from the reclaimed Upper and Lower Refuse Pond areas will be coursed into the Clear Water Pond for sedimentation control. When a suitable stand of vegetation is established on the reclaimed pond surfaces upstream, the clear water dike will be removed and graded to the configuration shown on Drawing No. E9-3342. A sediment filter, such as silt fence or straw bales, will be placed at the upstream end of the culvert which goes beneath the county road. The permanent diversion ditch adjacent to the North Dike will not be affected during reclamation. When the River Pumphouse area is reclaimed, the structures shown (and proposed) on F9-177 will be maintained until a stand of vegetation is established, then removed.

(2) With the sedimentation control structures described in Appendix B and in item (b) (1) of this section, surface waters will be protected from contamination without further treatment.

(3) The surface water monitoring program has been modified from quarterly to biannual (high and low flow) for points SW-1 to SW-8 exclusive of point SW-3 which remains quarterly. The quality parameters are in accordance with Division guidelines for operational monitoring (see attached table).

See 1/3/90 revision

TABLE 1

SURFACE WATER BASELINE, OPERATIONAL AND POSTMINING WATER QUALITY PARAMETER LIST

Field Measurements:

✓	*	-	Water Levels or Flow
	*	-	pH
	*	-	Specific Conductivity (umhos/cm)
✓	*	-	Temperature (C^o)
✓	*	-	Dissolved Oxygen (ppm) (perennial streams only)

Laboratory Measurements: (mg/l) (Major, minor ions and trace elements are to be analyzed in total and dissolved forms.)

#	*	-	Total Settleable Solids ✓
#	*	-	Total Suspended Solids
	*	-	Total Dissolved Solids
	*	-	Total Hardness (as $CaCO_3$)
	*		Acidity ($CaCO_3$)
		-	Aluminum (Al)
		-	Arsenic (As)
		-	Barium (Ba)
		-	Boron (B)
	*	-	Carbonate (CO_3^{-2})
	*	-	Bicarbonate (HCO_3^-)
		-	Cadmium (Cd)
	*	-	Calcium (Ca)
	*	-	Chloride (Cl^-)
		-	Chromium (Cr)
		-	Copper (Cu)
		-	Fluoride (F^-)
	*	-	Iron (Fe)
		-	Lead (Pb)
	*	-	Magnesium (Mg)
	*	-	Total Manganese (Mn)
		-	Mercury (Hg)
		-	Molybdenum (Mo)
		-	Nickel (Ni)
		-	Nitrogen: Ammonia (NH_3)
		-	Nitrite (NO_2)
		-	Nitrate (NO_3^-)
	*	-	Potassium (K)
		-	Phosphate (PO_4^{-3})
		-	Selenium (Se)
	*	-	Sodium (Na)
	*	-	Sulfate (SO_4^{-2})
		-	Sulfide (S^-)
		-	Zinc (Zn)
	*	-	Oil and Grease ✓
	*	-	Cation-Anion Balance ✓

Sampling Period:
-Baseline
*Operational, Postmining
#Construction

See 1/30/90 revision

The following parameters have been added to the monitoring schedule during the fourth quarter 1986 surface water sampling:

(1) Oil and Grease (as Applicable)
(2) Settleable Solids
(3) Field Temperature
(4) Dissolved Oxygen
(5) Cation-Anion Balance
(6) Flow Measurements

The above schedule is per DOGM's letter of May 21, 1986.

It should be noted during 1986 that point SW-3 had no flow. Point BCW monitors flow below the Clear Water Pond while SW-3 monitors seepage from the Upper Refuse Pond (see Map E9-3451, Appendix I).

The 1986 surface water monitoring data is included in pages 784 - 28IV to 784 - 28XII.

The ground water monitoring has remained on a quarterly basis through November 1986. The quality parameters sampled are in accordance with the attached table and include the above points except Dissolved Oxygen. The 1986 ground water sampling data is submitted on pages 784 - 28XIV to 784 - 28XXVII.

This completes the two year baseline monitoring program. Accordingly the operator requests a modification to the groundwater monitoring program s follows:

(1) Sample wells GW-3, GW-6, GW-7, and GW-12 on a semi-annual basis. The remaining points GW-1, GW-2, GW-4, GW-5, GW-8, GW-9, GW-10, GW-11, GW-13 and GW-14 will be sampled on an annual basis.

(2) The quality parameters would be consistent with current Division guidelines for operational monitoring (see attached table).

(c) With the sedimentation control structures described in Appendix B and in item (b) (1) of this section, the quality and quantity of water in the Price River is not expected to be affected. The worst case impact of slurry discharge described in item (a) (3) of this

KAISER COAL COPRORATION - WELLINGTON PREPARATION PLANT - ACT/007/012
1986 WATER MONITORING DATA

SAMPLE LOCATION: SW-1

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Flow (cfs)			200.		300.							<100.
pH			8.15		8.3							8.81
Temp. (^{o}C)												3.
Conductiv.			970.		765.							1700.
Aluminum			7.21		1.05							
Arsenic			0.010		0.001							
Barium			0.26		0.10							
Bicarbon.			279.		246.							454.
Boron			0.19		0.06							
Cadmium			<0.001		<0.005							
Calcium			82.		79.							98.2
Carbonate			<0.01		0.							0.
Chloride			24.7		16.							60.1
Chromium			0.040		<0.01							
Copper			0.06		<0.01							
Fluoride			0.19		0.25							
Hardness			366.		366.							1220.
Iron			16.30		7.10							0.68
Lead			0.013		<0.02							
Magnesium			38.60		41.							151.
Manganese			0.63		0.15							0.35
Mercury			<0.0002		<0.0002							
Molybdenum			0.03		<0.05							
Nickel			<0.01		<0.02							
Ammonia			0.49		0.21							
Nitrate			0.69		0.40							
Nitrite			0.02									
Oil & Grease												<0.5
Phosphate			0.08		0.06							
Potassium			4.16		2.							8.0
Selenium			<0.001		0.001							
Sodium			75.		48.							330.
Sulfate			269.		177.							1270.
Sulfide			<0.10		<0.2							
TDS			630.		514.							2550.
TSS			918.		438.							6.0
Sett. Solids												<0.1
Zinc			0.215		0.01							
C-A Balance					2.16							

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1986 WATER MONITORING DATA

SAMPLE LOCATION: SW-2

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Flow (cfs)			200.		300.							<100.
pH			8.15		8.3							8.73
Temp. (°C)												3.
Conductiv.			924.		765.							1900.
Aluminum			9.63		1.01							
Arsenic			0.004		0.001							
Barium			0.27		0.10							
Bicarbon.			282.		242.							509.
Boron			0.30		0.05							
Cadmium			<0.001		<0.005							
Calcium			58.		73.							87.9
Carbonate			<0.01		0.							0.
Chloride			24.1		15.							74.7
Chromium			0.030		<0.01							
Copper			0.06		<0.01							
Fluoride			0.19		0.55							
Hardness			372.		355.							1190.
Iron			19.10		6.70							0.72
Lead			0.168		<0.02							
Magnesium			54.50		42.							158.
Manganese			0.70		0.14							0.30
Mercury			<0.0002		<0.0002							
Molybdenum			0.05		<0.05							
Nickel			<0.01		<0.02							
Ammonia			0.49		0.14							
Nitrate			0.67		0.32							
Nitrite			<0.01									
Oil & Grease												<0.5
Phosphate			0.07		0.05							
Potassium			4.86		2.							8.9
Selenium			<0.001		0.002							
Sodium			60.		53.							320.
Sulfate			237.		189.							1260.
Sulfide			<0.10		<0.2							
TDS			585.		526.							2680.
TSS			1066.		370.							6.0
Sett. Solids												<0.1
Zinc			0.102		0.01							
C-A Balance					1.34							

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1986 WATER MONITORING DATA

SAMPLE LOCATION: SW-3

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Flow (gpm)			0		0							0
pH												
Temp. (°C)												
Conductiv.												
Aluminum												
Arsenic												
Barium												
Bicarbon.												
Boron												
Cadmium												
Calcium												
Carbonate												
Chloride												
Chromium												
Copper												
Fluoride												
Hardness												
Iron												
Lead												
Magnesium												
Manganese												
Mercury												
Molybdenum												
Nickel												
Ammonia												
Nitrate												
Nitrite												
Oil & Grease												
Phosphate												
Potassium												
Selenium												
Sodium												
Sulfate												
Sulfide												
TDS												
TSS												
Sett. Solids												
Zinc												
C-A Balance												

KAISER COAL CORPORATION - WELLINGTON PREPARATION PLANT - ACT/007/012
1986 WATER MONITORING DATA

SAMPLE LOCATION: SW-4

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Flow (gpm)			187.		112.							40.
pH			7.80		8.3							8.08
Temp. (°C)												4.
Conductiv.			6900.		1680.							2600.
Aluminum			0.42		0.72							
Arsenic			0.002		0.001							
Barium			<0.01		0.04							
Bicarbon.			539.		282.							581.
Boron			0.78		0.22							
Cadmium			<0.001		<0.005							
Calcium			400.		133.							134.
Carbonate			<0.01		0.							0.
Chloride			90.2		29.							79.6
Chromium			0.030		<0.01							
Copper			0.03		<0.01							
Fluoride			0.29		0.31							
Hardness			2115.		681.							2170.
Iron			0.54		1.75							0.03
Lead			<0.001		<0.02							
Magnesium			267.6		85.							292.
Manganese			0.62		0.10							0.17
Mercury			<0.0002		<0.0002							
Molybdenum			0.05		<0.05							
Nickel			<0.01		<0.02							
Ammonia			0.55		0.03							
Nitrate			0.45		0.03							
Nitrite			0.02									
Oil & Grease												<0.5
Phosphate			0.03		<0.02							
Potassium			9.78		5.							13.5
Selenium			<0.001		<0.001							
Sodium			610.		182.							699.
Sulfate			2885.		731.							2600.
Sulfide			<0.10		<0.2							
TDS			4550.		1362.							5320.
TSS			63.		86.							<1.
Sett. Solids												<0.1
Zinc			<0.001		0.01							
C-A Balance					-0.09							

KAISER COAL CORPORATION - WELLINGTON PREPARATION PLANT - ACT/007/012
1986 WATER MONITORING DATA

SAMPLE LOCATION: SW-5

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Level (ft)			Pond was dry all of 1986.									
pH												
Temp. (^{o}C)												
Conductiv.												
Aluminum												
Arsenic												
Barium												
Bicarbon.												
Boron												
Cadmium												
Calcium												
Carbonate												
Chloride												
Chromium												
Copper												
Fluoride												
Hardness												
Iron												
Lead												
Magnesium												
Manganese												
Mercury												
Molybdenum												
Nickel												
Ammonia												
Nitrate												
Nitrite												
Oil & Grease												
Phosphate												
Potassium												
Selenium												
Sodium												
Sulfate												
Sulfide												
TDS												
TSS												
Sett. Solids												
Zinc												
C-A Balance												

KAISER COAL CORPORATION - WELLINGTON PREPARATION PLANT - ACT/007/012
1986 WATER MONITORING DATA

SAMPLE LOCATION: SW-6

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Level (ft)			5373.9		5370.2							
pH			8.20		8.3							
Temp. (°C)												P
Conductiv.			4490.		4450.							
Aluminum			0.23		0.35							O
Arsenic			<0.001		<0.001							
Barium			0.04		0.04							N
Bicarbon.			272.		214.							
Boron			0.95		0.95							D
Cadmium			<0.001		<0.005							
Calcium			150.		155.							
Carbonate			<0.01		0.							
Chloride			95.6		130.							D
Chromium			0.020		<0.01							
Copper			0.04		<0.01							R
Fluoride			0.63		0.87							
Hardness			990.		1142.							Y
Iron			0.36		0.80							
Lead			<0.001		<0.02							
Magnesium			147.6		184.							
Manganese			0.04		0.04							
Mercury			<0.0002		<0.0002							
Molybdenum			0.06		<0.05							
Nickel			<0.01		<0.02							
Ammonia			0.43		0.03							
Nitrate			0.10		0.02							
Nitrite			0.02									
Oil & Grease												
Phosphate			0.02		<0.02							
Potassium			8.86		12.							
Selenium			0.003		0.003							
Sodium			565.		798.							
Sulfate			1820.		2529.							
Sulfide			<0.10		<0.2							
TDS			2950.		3904.							
TSS			35.0		176.							
Sett. Solids												
Zinc			0.017		0.01							
C-A Balance					-2.32							

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1986 WATER MONITORING DATA

SAMPLE LOCATION: SW-7

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Level (ft)			5362.4		5360.8							5353.0
pH			7.85		8.3							8.92
Temp. (^{o}C)												4.
Conductiv.			3800.		3600.							3150.
Aluminum			<0.01		0.05							
Arsenic			<0.001		0.002							
Barium			0.01		0.03							
Bicarbon.			376.		305.							157.
Boron			0.55		0.49							
Cadmium			<0.001		<0.005							
Calcium			218.		226.							124.
Carbonate			<0.01		0.							0.
Chloride			81.2		91.							120.
Chromium			<0.010		<0.01							
Copper			0.04		<0.01							
Fluoride			0.38		0.51							
Hardness			1230.		1336.							1330.
Iron			0.16		0.05							0.07
Lead			<0.001		<0.02							
Magnesium			164.4		188.							216.
Manganese			0.20		0.13							0.25
Mercury			<0.0002		<0.0002							
Molybdenum			0.03		<0.05							
Nickel			<0.01		<0.02							
Ammonia			0.76		0.09							
Nitrate			0.36		0.02							
Nitrite			0.03									
Oil & Grease												<0.5
Phosphate			0.16		0.09							
Potassium			5.64		7.							12.4
Selenium			<0.001		0.002							
Sodium			340.		522.							602.
Sulfate			1530.		2021.							2360.
Sulfide			<0.10		0.2							
TDS			2520.		3262.							3890.
TSS			30.		16.							6.0
Sett. Solids												<0.1
Zinc			0.019		<0.01							
C-A Balance					-1.21							

KAISER COAL CORPORATION - WELLINGTON PREPARATION PLANT - ACT/007/012
1986 WATER MONITORING DATA

SAMPLE LOCATION: SW-8

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Level (ft)												
pH			7.85		8.0							
Temp. (°C)												
Conductiv.			10100.		9740.							
Aluminum			0.10		0.40							
Arsenic			0.015		0.001							
Barium			<0.01		0.02							
Bicarbon.			414.		360.							
Boron			0.54		0.73							
Cadmium			<0.001		<0.005							
Calcium			246.		280.							
Carbonate			<0.01		0.							
Chloride			355.		520.							
Chromium			0.050		<0.01							
Copper			0.04		<0.01							
Fluoride			0.32		0.50							
Hardness			2260.		3201.							
Iron			0.20		0.70							
Lead			<0.001		0.02							
Magnesium			394.8		610.							
Manganese			0.09		0.12							
Mercury			<0.0002		<0.0002							
Molybdenum			0.08		<0.05							
Nickel			<0.01		<0.02							
Ammonia			0.99		0.08							
Nitrate			0.09		0.02							
Nitrite			<0.01									
Oil & Grease												
Phosphate			0.03		0.05							
Potassium			6.24		9.							
Selenium			0.002		0.002							
Sodium			1505.		1920.							
Sulfate			4520.		5935.							
Sulfide			<0.10		0.2							
TDS			6950.		9958.							
TSS			58.		60.							
Sett. Solids												
Zinc			0.015		0.01							

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KAISER COAL CORPORATION - WELLINGTON PREPARATION PLANT - ACT/007/012
1986 WATER MONITORING DATA

SAMPLE LOCATION: BCW

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Flow (gpm)			1.		0							0
pH			8.25									
Temp. (°C)												
Conductiv.			12840.									
Aluminum			<0.01									
Arsenic			0.030									
Barium			<0.01									
Bicarbon.			551.									
Boron			1.30									
Cadmium			<0.001									
Calcium			400.									
Carbonate			<0.01									
Chloride			426.									
Chromium			0.030									
Copper			0.09									
Fluoride			0.81									
Hardness			4150.									
Iron			0.18									
Lead			0.003									
Magnesium			756.									
Manganese			0.09									
Mercury			<0.0002									
Molybdenum			0.14									
Nickel			<0.01									
Ammonia			3.32									
Nitrate			0.02									
Nitrite			0.04									
Oil & Grease												
Phosphate			0.12									
Potassium			54.13									
Selenium			0.002									
Sodium			2120.									
Sulfate			7660.									
Sulfide			<0.10									
TDS			12734.									
TSS			33.									
Sett. Solids												
Zinc			0.048									
C-A Balance												

TABLE 3

GROUND WATER BASELINE, OPERATIONAL AND
POSTMINING WATER QUALITY PARAMETER LIST

Field Measurements:

* - Water Levels or Flow
* - pH
* - Specific Conductivity (umhos/cm)
* - Temperature (C^o)

Laboratory Measurements: (mg/l) (Major, minor ions and trace elements are to be analyzed in dissolved form only.)

* - Total Dissolved Solids
* - Total Hardness (as $CaCO_3$)
- Aluminum (Al)
- Arsenic (As)
- Barium (Ba)
- Boron (B)
* - Carbonate (CO_3^{-2})
* - Bicarbonate (HCO_3^-)
- Cadmium (Cd)
* - Calcium (Ca)
* - Chloride (CL^-)
- Chromium (Cr)
- Copper (Cu)
- Fluoride (F^-)
* - Iron (Fe)
- Lead (Pb)
* - Magnesium (Mg)
* - Manganese (Mn)
- Mercury (Hg)
- Molybdenum (Mo)
- Nickel (Ni)
- Nitrogen: Ammonia (NH_3)
- Nitrite (NO_2)
- Nitrate (NO_3^-)
* - Potassium (K)
- Phosphate (PO_4^{-3})
- Selenium (Se)
* - Sodium (Na)
* - Sulfate (SO_4^{-2})
- Sulfide (S^-)
- Zinc (Zn)

Sampling Period:

-Baseline
*Operational, Postmining

KAISER COAL CORPORATION - WELLINGTON PREPARATION PLANT
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1986 WATER MONITORING DATA

SAMPLE LOCATION: GW-1

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Depth (ft)		7.7			9.05			7.10				
pH		7.49			7.6			7.4				
Temp. (°C)		4.			11.			10.				N
Conductiv.		5200.			3600.			800.				
Aluminum		0.51			0.79			<0.05				O
Arsenic		0.002			0.001			0.001				
Barium		0.02			0.03			0.03				
Bicarbon.		653.			555.			474.				
Boron		0.89			0.48			0.27				S
Cadmium		<0.001			<0.005			<0.005				
Calcium		342.			510.			221.				A
Carbonate		<0.01			0.			0.				
Chloride		58.6			75.			32.				M
Chromium		0.005			<0.01			<0.01				
Copper		0.03			<0.01			<0.01				P
Fluoride		o.31			0.49			0.4				
Hardness		1510.			2173.			913.				L
Iron		2.24			14.4			1.39				
Lead		0.002			0.02			0.02				E
Magnesium		157.2			219.			88.				
Manganese		3.50			0.51			<0.01				
Mercury		<0.0002			<0.0002			<0.0002				
Molybdenum		<0.01			<0.05			<0.05				
Nickel		0.03			0.02			<0.02				
Ammonia		<0.01			0.02			0.14				
Nitrate		0.17			0.16			0.24				
Nitrite		<0.01						<0.02				
Phosphate		0.30										
Potassium		7.45			4.			7.				
Selenium		<0.001			<0.001			<0.001				
Sodium		260.			319.			97.				
Sulfate		1352.			2000.			554.				
Sulfide		<0.10			<0.2			0.5				
TDS		3410.			3618.			1170.				
Zinc		0.022			0.02			<0.01				

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1986 WATER MONITORING DATA

SAMPLE LOCATION: GW-2

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Depth (ft)		15.7			16.5			17.6				
pH		7.33			7.7			7.0				
Temp. (°C)		9.5			14.			14.				N
Conductiv.		28100.			17200.			17600.				
Aluminum		0.79			0.58			10.9				O
Arsenic		0.002			0.002			<0.001				
Barium		0.03			0.01			0.01				
Bicarbon.		891.			695.			720.				
Boron		0.76			1.61			1.60				S
Cadmium		<0.001			<0.005			<0.005				
Calcium		530.			548.			510.				A
Carbonate		<0.01			0.			0.				
Chloride		751.			840.			832.				M
Chromium		0.01			<0.04			<0.01				
Copper		0.02			<0.01			<0.01				P
Fluoride		0.79			1.14			0.9				
Hardness		5725.			6044.			6810.				L
Iron		0.94			9.45			15.5				
Lead		0.002			0.03			<0.02				E
Magnesium		1056.			1140.			1350.				
Manganese		0.10			1.44			3.45				
Mercury		<0.0002			<0.0002			<0.0002				
Molybdenum		0.01			0.08			<0.05				
Nickel		0.02			0.02			0.05				
Ammonia		2.20			0.68			1.24				
Nitrate		<0.01			0.08			0.08				
Nitrite		<0.01						0.13				
Phosphate		0.02										
Potassium		7.38			34.			30.				
Selenium		0.002			<0.001			<0.001				
Sodium		3700.			3420.			4000.				
Sulfate		11740.			11928.			12347.				
Sulfide		<0.10			<0.2			0.05				
TDS		18356.			18962.			19540.				
Zinc		0.006			0.23			0.04				

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SAMPLE LOCATION: GW-3

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Depth (ft)		12.8			13.2			13.5				14.3
pH		7.33			7.7			7.18				8.08
Temp. (°C)		9.			12.			12.				
Conductiv.		44800.			23100.			49800.				2600.
Aluminum		51.75			6.34			4.67				
Arsenic		0.003			0.004			<0.001				
Barium		0.92			0.04			0.02				
Bicarbon.		1183.			915.			1240.				1880.
Boron		0.78			1.06			1.20				
Cadmium		0.002			<0.005			<0.005				
Calcium		430.			459.			490.				362.
Carbonate		<0.01			0.			0.				0.
Chloride		1280.			1390.			2778.				3660.
Chromium		0.09			<0.01			<0.001				
Copper		0.14			0.01			0.01				
Fluoride		0.75			1.20			0.7				
Hardness		6975.			5740.			18035.				23900.
Iron		67.30			79.0			24.3				19.1
Lead		0.02			0.03			0.03				
Magnesium		1416.			1120.			4100.				5200.
Manganese		1.97			2.58			2.71				3.49
Mercury		<0.0002			<0.0002			<0.0002				
Molybdenum		0.01			0.10			<0.05				
Nickel		0.06			0.06			0.07				
Ammonia		6.20			2.45			2.37				
Nitrate		0.75			0.66			0.11				
Nitrite		<0.01						0.03				
Phosphate		0.09										
Potassium		25.26			62.			150.				218.
Selenium		0.002			<0.001			<0.001				
Sodium		6800.			5500.			16170.				20600.
Sulfate		18700.			15386.			45152.				64000.
Sulfide		<0.10			<0.2			<0.2				
TDS		29150.			24594.			22052.				98000.
Zinc		0.397			0.08			0.17				

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SAMPLE LOCATION: GW-4

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Depth (ft)		5.7			6.65			9.35				
pH		7.50			8.0			7.31				
Temp. (°C)		9.			13.			12.				N
Conductiv.		7700.			5480.			2500.				
Aluminum		0.11			0.36			0.33				O
Arsenic		0.002			<0.001			<0.001				
Barium		0.01			0.01			0.01				
Bicarbon.		359.			345.			248.				
Boron		0.59			345.			0.70				S
Cadmium		<0.001			<0.005			<0.005				
Calcium		394.			398.			430.				A
Carbonate		<0.01			0.			0.				
Chloride		112.			126.			115.				M
Chromium		0.009			<0.01			<0.01				
Copper		0.02			<0.01			<0.01				P
Fluoride		1.55			0.91			1.5				
Hardness		2000.			2196.			2100.				L
Iron		2.09			2.80			5.25				
Lead		0.013			0.02			<0.02				E
Magnesium		243.6			293.			250.				
Manganese		1.17			0.18			1.73				
Mercury		<0.0002			<0.0002			<0.0002				
Molybdenum		<0.01			0.06			<0.05				
Nickel		<0.01			<0.02			<0.02				
Ammonia		0.20			0.09			0.20				
Nitrate		0.15			0.13			0.22				
Nitrite		<0.01						<0.02				
Phosphate		0.02										
Potassium		7.78			9.			10.				
Selenium		0.002			<0.001			<0.001				
Sodium		810.			851.			770.				
Sulfate		3250.			3326.			3128.				
Sulfide		<0.10			<0.2			<0.2				
TDS		5058.			5316.			4820.				
Zinc		0.016			0.01			0.23				

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SAMPLE LOCATION: GW-5

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Depth (ft)		20.8			21.4			22.17				
pH		7.36			7.5							
Temp. (°C)		11.			12.			N				N
Conductiv.		10500.			7130.							
Aluminum		16.10			8.39			O				O
Arsenic		0.009			0.005							
Barium		0.26			0.02							
Bicarbon.		355.			305.							
Boron		1.14			0.63			S				S
Cadmium		<0.001			<0.005							
Calcium		412.			483.			A				A
Carbonate		<0.01			0.							
Chloride		136.			144.			M				M
Chromium		0.100			0.01							
Copper		0.17			0.03			P				P
Fluoride		0.74			1.16							
Hardness		2880.			3245.			L				L
Iron		23.50			190.							
Lead		0.005			0.18			E				E
Magnesium		444.			497.							
Manganese		3.47			1.42							
Mercury		<0.0002			<0.0002							
Molybdenum		0.01			0.09							
Nickel		0.11			0.06							
Ammonia		0.20			0.21							
Nitrate		0.74			0.11							
Nitrite		<0.01										
Phosphate		0.03										
Potassium		49.8			20.							
Selenium		0.013			0.003							
Sodium		990.			1130.							
Sulfate		4470.			4721.							
Sulfide		<0.10			0.3							
TDS		6982.			6632.							
Zinc		0.161			0.46							

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SAMPLE LOCATION: GW-6

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Depth (ft)		8.1			7.95			19.51				9.
pH		7.86			7.8			7.09				7.8
Temp. (°C)		9.			12.			16.				13.
Conductiv.		6300.			5200.			2200.				2600.
Aluminum		0.17			0.42			3.84				
Arsenic		0.002			0.004			<0.001				
Barium		0.05			0.01			0.01				
Bicarbon.		395.			290.			302.				352.
Boron		0.49			0.83			0.70				
Cadmium		<0.001			<0.005			<0.005				
Calcium		256.			453.			410.				141.
Carbonate		<0.01			0.			0.				0.
Chloride		115.			110.			132.				116.
Chromium		0.006			<0.01			<0.01				
Copper		<0.01			<0.01			0.02				
Fluoride		0.68			1.89			0.7				
Hardness		1460.			2240.			2214.				1940.
Iron		0.51			5.00			3.35				2.26
Lead		0.019			0.04			0.03				
Magnesium		196.8			270.			290.				228.
Manganese		0.02			1.82			0.45				1.44
Mercury		<0.0002			<0.0002			<0.0002				
Molybdenum		<0.01			<0.05			<0.05				
Nickel		<0.01			0.02			<0.02				
Ammonia		0.10			0.07			0.20				
Nitrate		0.33			0.32			0.22				
Nitrite		<0.01						<0.02				
Phosphate		0.02										
Potassium		6.10			8.			10.				9.2
Selenium		0.002			<0.001			<0.001				
Sodium		780.			766.			890.				699.
Sulfate		2600.			3217.			3375.				3320.
Sulfide		<0.10			<0.2			0.9				
TDS		4150.			4946.			5214.				4900.
Zinc		0.019			0.01			0.10				

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SAMPLE LOCATION: GW-7

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Depth (ft)		7.20			7.05			9.65				9.
pH		7.70			8.2			7.33				8.08
Temp. (°C)		11.			10.			13.				12.
Conductiv.		5700.			4490.			1900.				2200.
Aluminum		2.59			0.10			0.22				
Arsenic		0.002			<0.001			0.002				
Barium		0.09			0.02			0.01				
Bicarbon.		526.			395.			350.				459.
Boron		0.37			0.61			0.40				
Cadmium		<0.001			<0.005			<0.005				
Calcium		184.			184.			190.				98.
Carbonate		<0.01			0.			0.				0.
Chloride		118.			132.			112.				117.
Chromium		0.012			<0.01			<0.01				
Copper		0.04			<0.01			<0.01				
Fluoride		0.44			0.52			0.4				
Hardness		1320.			1370.			1377.				1280.
Iron		4.81			0.67			10.5				3.03
Lead		0.006			0.02			0.02				
Magnesium		206.4			222.			220.				193.
Manganese		0.29			0.07			0.73				0.48
Mercury		<0.0002			<0.0002			<0.0002				
Molybdenum		<0.01			<0.05			<0.05				
Nickel		0.03			<0.02			<0.02				
Ammonia		<0.01			0.09			0.59				
Nitrate		0.73			0.56			0.48				
Nitrite		<0.01						<0.02				
Phosphate		0.10										
Potassium		4.71			8.			10.				10.2
Selenium		<0.001			<0.001			<0.001				
Sodium		700.			781.			700.				635.
Sulfate		2220.			2470.			2184.				2440.
Sulfide		<0.10			0.3			0.7				
TDS		3720.			4032.			3592.				3710.
Zinc		0.091			0.02			0.03				

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SAMPLE LOCATION: GW-8

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Depth (ft)		23.5			23.2			14.0				
pH		7.30			8.0			7.8				
Temp. (°C)		12.			14.			11.				N
Conductiv.		3700.			2930.			3000.				
Aluminum		1.99			0.09			0.41				O
Arsenic		0.002			<0.001			<0.001				
Barium		0.05			0.04			0.03				
Bicarbon.		270.			220.			216.				
Boron		1.56			0.51			0.30				S
Cadmium		<0.001			<0.005			<0.005				
Calcium		120.			113.			140.				A
Carbonate		<0.01			0.			0.				
Chloride		85.4			89.			97.				M
Chromium		0.034			<0.01			<0.01				
Copper		0.09			<0.01			0.01				P
Fluoride		0.49			0.60			0.5				
Hardness		770.			779.			924.				L
Iron		3.42			0.25			1.77				
Lead		<0.001			0.03			<0.02				E
Magnesium		112.8			121.			140.				
Manganese		1.66			<0.01			0.02				
Mercury		<0.0002			<0.0002			<0.0002				
Molybdenum		<0.01			<0.05			<0.05				
Nickel		0.04			<0.02			<0.02				
Ammonia		<0.01			0.07			0.06				
Nitrate		0.03			0.02			0.06				
Nitrite		<0.01						<0.02				
Phosphate		<0.01										
Potassium		27.69			7.			10.				
Selenium		0.004			<0.001			<0.001				
Sodium		495.			479.			510.				
Sulfate		1430.			1484.			1488.				
Sulfide		<0.10			0.2			<0.2				
TDS		2354.			2388.			2382.				
Zinc		0.037			0.03			0.05				

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SAMPLE LOCATION: GW-9

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Depth (ft)		12.3			11.45			24.15				
pH		7.80			8.1			7.2				
Temp. (°C)		11.			11.			12.				N
Conductiv.		4900.			5620.			2900.				
Aluminum		0.54			0.34			0.55				O
Arsenic		0.002			<0.001			<0.001				
Barium		0.04			0.03			0.02				
Bicarbon.		333.			310.			400.				
Boron		0.56			0.05			0.50				S
Cadmium		0.001			<0.005			<0.005				
Calcium		158.			205.			274.				A
Carbonate		<0.01			0.			0.				
Chloride		154.			230.			382.				M
Chromium		0.006			<0.01			<0.01				
Copper		0.02			<0.01			0.01				P
Fluoride		0.51			0.62			0.6				
Hardness		1120.			1677.			2555.				L
Iron		1.05			1.70			1.87				
Lead		0.012			0.03			<0.02				E
Magnesium		174.			284.			456.				
Manganese		0.04			0.43			0.45				
Mercury		<0.0002			<0.0002			<0.0002				
Molybdenum		<0.01			<0.05			<0.05				
Nickel		0.02			<0.02			<0.02				
Ammonia		0.20			0.26			0.44				
Nitrate		0.27			0.22			0.85				
Nitrite		<0.01						0.10				
Phosphate		<0.01										
Potassium		6.77			10.			10.				
Selenium		<0.001			<0.001			<0.001				
Sodium		650.			972.			1425.				
Sulfate		1900.			3180.			4750.				
Sulfide		<0.10			0.5			0.3				
TDS		3185.			5168.			8498.				
Zinc		0.500			0.01			0.06				

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SAMPLE LOCATION: GW-10

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Depth (ft)		11.1			10.1			13.25				
pH		7.55			8.0			7.48				
Temp. (°C)		12.			8.			8.				N
Conductiv.		3700.			3170.			1300.				
Aluminum		0.40			1.05			0.19				O
Arsenic		<0.001			<0.001			<0.001				
Barium		0.01			0.04			0.03				
Bicarbon.		272.			230.			220.				
Boron		0.30			0.56			0.40				S
Cadmium		<0.001			<0.005			<0.005				
Calcium		114.			129.			140.				A
Carbonate		<0.01			0.			0.				
Chloride		85.1			89.			93.				M
Chromium		0.005			<0.01			<0.01				
Copper		0.02			<0.01			0.02				P
Fluoride		0.51			0.64			0.5				
Hardness		780.			897.			965.				L
Iron		1.09			2.10			0.43				
Lead		0.004			0.02			<0.02				E
Magnesium		118.8			140.			150.				
Manganese		0.07			0.07			0.03				
Mercury		<0.0002			<0.0002			<0.0002				
Molybdenum		<0.01			<0.05			<0.05				
Nickel		<0.01			<0.02			<0.02				
Ammonia		0.10			0.04			0.04				
Nitrate		0.26			0.22			0.06				
Nitrite		<0.01						<0.02				
Phosphate		<0.01										
Potassium		7.10			9.			10.				
Selenium		<0.001			0.002			<0.001				
Sodium		490.			546.			550.				
Sulfate		1482.			1644.			1624.				
Sulfide		<0.10			<0.2			<0.2				
TDS		2466.			2640.			2624.				
Zinc		0.017			0.14			0.21				

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SAMPLE LOCATION: GW-11

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Depth (ft)		10.1			8.9			11.1				
pH		7.73			8.0			7.41				
Temp. (°C)		10.			11.			11.				N
Conductiv.		7900.			10900.			3600.				
Aluminum		1.17			0.15			0.11				O
Arsenic		0.003			<0.001			<0.001				
Barium		0.06			0.02			<0.01				
Bicarbon.		378.			485.			456.				
Boron		0.50			0.57			0.40				S
Cadmium		<0.001			<0.005			<0.005				
Calcium		160.			361.			380.				A
Carbonate		<0.01			0.			0.				
Chloride		358.			615.			648.				M
Chromium		0.010			<0.01			<0.01				
Copper		0.03			<0.01			<0.01				P
Fluoride		0.51			0.43			0.4				
Hardness		1470.			3691.			3943.				L
Iron		1.14			6.30			1.17				
Lead		0.016			0.02			<0.02				E
Magnesium		256.8			680.			730.				
Manganese		0.08			0.53			0.37				
Mercury		<0.0002			<0.0002			<0.0002				
Molybdenum		<0.01			<0.05			<0.05				
Nickel		0.02			<0.02			<0.02				
Ammonia		<0.01			0.37			0.33				
Nitrate		0.16			0.03			0.50				
Nitrite		<0.01						<0.02				
Phosphate		<0.01										
Potassium		8.06			7.			10.				
Selenium		<0.001			<0.001			<0.001				
Sodium		1120.			2080.			2260.				
Sulfate		3050.			6563.			6998.				
Sulfide		<0.10			<0.2			<0.2				
TDS		5166.			11252.			11466.				
Zinc		0.033			0.05			0.17				

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SAMPLE LOCATION: GW-12

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Depth (ft)		7.80			6.2			8.60				8.75
pH		7.84			8.0			7.35				7.91
Temp. (^{o}C)		11.			10.			10.				12.
Conductiv.		2600.			2100.			800.				1200.
Aluminum		0.23			0.49			0.15				
Arsenic		0.004			<0.001			<0.001				
Barium		0.04			0.02			<0.01				
Bicarbon.		522.			395.			376.				482.
Boron		0.58			0.27			0.25				
Cadmium		<0.001			<0.005			<0.005				
Calcium		198.			216.			202.				107.
Carbonate		<0.01			0.			0.				0.
Chloride		34.3			35.			37.				36.8
Chromium		0.010			<0.01			<0.01				
Copper		0.03			<0.01			0.01				
Fluoride		0.34			0.43			0.4				
Hardness		920.			979.			931.				882.
Iron		0.38			1.84			0.96				1.14
Lead		<0.001			0.03			0.03				
Magnesium		102.			107.			104.				101.
Manganese		0.02			0.04			0.14				0.20
Mercury		<0.0002			<0.002			<0.0002				
Molybdenum		<0.01			<0.05			<0.05				
Nickel		<0.01			<0.02			<0.02				
Ammonia		0.40			0.65			0.49				
Nitrate		2.80			0.03			0.45				
Nitrite		<0.01						<0.02				
Phosphate		0.03										
Potassium		6.59			9.			8.				9.1
Selenium		0.002			<0.001			<0.001				
Sodium		200.			239.			216.				204.
Sulfate		872.			938.			941.				810.
Sulfide		<0.10			0.2			<0.2				
TDS		1706.			1808.			1762.				1780.
Zinc		0.085			0.01			0.05				

KAISER COAL CORPORATION - WELLINGTON PREPARATION PLANT
ACT/007/012
1986 WATER MONITORING DATA

SAMPLE LOCATION: GW-13

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Depth (ft)		23.1			22.7			22.65				
pH		7.48			7.9			7.14				
Temp. (°C)		13.			11.			12.				N
Conductiv.		25600.			16800.			4700.				
Aluminum		8.57			3.95			2.31				O
Arsenic		0.011			<0.001			<0.001				
Barium		0.35			0.02			0.01				
Bicarbon.		824.			625.			598.				
Boron		0.54			0.53			0.50				S
Cadmium		<0.001			<0.005			<0.005				
Calcium		440.			431.			440.				A
Carbonate		<0.01			0.			0.				
Chloride		439.			450.			467.				M
Chromium		0.051			<0.01			<0.01				
Copper		0.11			<0.01			<0.01				P
Fluoride		0.23			0.34			0.3				
Hardness		3950.			4173.			4216.				L
Iron		21.30			42.3			30.				
Lead		0.007			0.02			<0.02				E
Magnesium		684.			755.			760.				
Manganese		1.04			0.84			0.78				
Mercury		<0.0002			<0.0002			<0.0002				
Molybdenum		<0.01			<0.05			<0.05				
Nickel		0.08			0.03			0.03				
Ammonia		0.20			0.08			0.13				
Nitrate		56.00			127.81			109.96				
Nitrite		<0.01						0.04				
Phosphate		0.03										
Potassium		29.46			36.			30.				
Selenium		<0.010			0.598			0.339				
Sodium		3948.			3800.			4190.				
Sulfate		10650.			11245.			10826.				
Sulfide		<0.10			0.6			<0.2				
TDS		16796.			17728.			17244.				
Zinc		0.158			0.05			0.03				

KAISER COAL CORPORATION - WELLINGTON PREPARATION PLANT
ACT/007/012
1986 WATER MONITORING DATA

SAMPLE LOCATION: GW-14

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Depth (ft)		12.3			10.1			8.05				
pH		7.58			8.0			7.3				
Temp. (°C)		11.			9.			10.				N
Conductiv.		3850.			3220.			1300.				
Aluminum		0.62			0.61			0.16				O
Arsenic		0.003			<0.001			<0.001				
Barium		0.07			0.05			0.03				
Bicarbon.		276.			235.			224.				
Boron		0.54			0.58			0.40				S
Cadmium		<0.001			<0.005			<0.005				
Calcium		114.			121.			130.				A
Carbonate		<0.01			0.			0.				
Chloride		87.2			92.			95.				M
Chromium		0.007			<0.01			<0.01				
Copper		0.17			<0.01			<0.01				P
Fluoride		0.54			0.66			0.6				
Hardness		735.			848.			858.				L
Iron		1.00			1.11			0.36				
Lead		0.016			<0.02			0.02				E
Magnesium		108.			133.			130.				
Manganese		0.07			0.02			0.01				
Mercury		<0.0002			<0.0002			<0.0002				
Molybdenum		<0.01			<0.05			<0.05				
Nickel		<0.01			<0.02			<0.02				
Ammonia		<0.01			0.06			0.04				
Nitrate		0.31			0.02			0.01				
Nitrite		<0.01						<0.02				
Phosphate		0.02										
Potassium		8.37			10.			10.				
Selenium		0.002			<0.001			<0.001				
Sodium		536.			596.			580.				
Sulfate		1530.			1642.			1632.				
Sulfide		<0.10			<0.2			0.4				
TDS		2492.			2632.			2580.				
Zinc		1.101			0.05			0.05				

TABLE 4 GROUND WATER SAMPLING

	Baseline Monitoring	Operational Monitoring	Postmining Monitoring
Type of Sampling Site	Springs, In-Mine Flows, Boreholes, Observation Wells	Springs, In-Mine Flows, Boreholes, Observation Well	Springs, Observation Wells
Field Measurements (see Table 3)	Yes	Yes	Yes
Sampling Frequency Each Site	At least four samples per annum, at fixed monthly intervals.	Quarterly samples for in-mine flows. For other sites, four samples per annum at fixed monthly intervals.	One sample per annum (spring sampling at low flow).
Sampling Duration	Two years (one complete year of data before submission of PAP).	Every year until two years after surface reclamation activities have ceased.	Every year until termination of bonding.
Type of Data Collected and Reported	Water levels and/or flow and water quality.	Water levels and/or flow. For springs, one water quality sample at low flow.	Water levels and/or flow and water quality per operational parameters.
Comments	First year of baseline monitoring and the year preceding repermitting; spring and seep inventory taken both during the Fall and Spring.	During the year preceding repermitting. For springs, one water quality sample at low flow per baseline parameters. For other sites, one sample per baseline parameter.	

0104R

section is not considered significant. This evaluation is made for both the high and low flow periods. However, to provide additional protection for the environment, the East Side Slurry Catch Basin has been constructed.

(d) Does not apply.

2. Pumphouse Area

The pumphouse area will be regraded to smooth contours and cover concrete foundations with at least two feet of soil. When the River Water Collection Well was constructed, the material removed from the well was piled around the circumference. The surface portion of the well casing will be removed (as least two feet below final grade). The well will then be filled with soil from the pumphouse area.

3. Area West of the Price River

The main plant facilities area west of the Price River will be regraded as shown on Map D9-3342 following the removal of the surface facilities. The fills constructed for the plant railroad system and the ponds will be contoured to blend with the surrounding areas. The diversion ditch will be left in place until revegetation success has been achieved. At that time, the diversion will be filled and graded to blend with the surrounding areas.

4. Refuse Disposal Area West of Price River

The final contours of the refuse pile will be achieved as refuse is placed during plant operation. No grading will be required to achieve the final reclamation contours. A six inch soil cover will be placed over the refuse pile to provide a medium for achieving revegetation success.

The required material volumes for all grading are included in Appendix D.

(4) Topsoil Handling

Refer to Appendix II of the Determination of Completeness Response for the topsoil handling plan.

(5) Refer to Appendix I of the Determination of Completeness Response.

(6) Applies to underground mining.

(7) Refer to Appendix G for information concerning non-coal waste. Samples of the coal processing waste are currently being analyzed by a laboratory for the parameters requested by the Division. The results will be included when received.

(8) Refer to paragraph (3) for a description of how the River Water Collection Well will be reclaimed.

(9) The activities during reclamation will include, removal of the plant buildings, structures and railroad, demolition of the concrete piers, and foundations, grading to the final surface contour, surface preparation for seeding and reseeding. The Operator will take the following actions during reclamation to comply with the requirements of the Clean Air Act and the Clean Water Act:

1. The materials that will result from demolition will be non-toxic and non-acid forming, will be suitable for burial and will not affect groundwater.

2. The Operator will water unpaved roads as necessary to control fugitive dust.

3. The speed of vehicles will be restricted to reduce fugitive dust caused by travel.

4. The travel of vehicles will be restricted to established roads.

5. The newly graded and seeded areas will be mulched.

UMC 784.13 Reclamation Plan - West of the Price River

(a) The disturbed areas occupied by the coal cleaning plant buildings, railroad tracks, roads and structures are projected for more than 30 years of future operation. It is probable that the plant area including the plant railroad track will continue as an industrial land classification in the event the operator abandons the area. However, the reclamation plan will be based on a return of the disturbed area to undeveloped land if abandoned by the operator.

(b) (1) The execution of the reclamation plan will begin with the decision to terminate the operation of the coal cleaning facilities and a return of the disturbed land to an undeveloped land classification as follows:

Year 1

Dismantle and remove all steel structures and buildings.

Year 2

Demolish the concrete, piers and foundations to at least one foot below ground level. Rip the road surfaces.

Year 3

Grade the surface area to the final contour and seed for revegetation at the first planting season after preparation of the surface.

(2) See Appendix D for the estimated cost of reclamation.

(3) The disturbed areas to be reclaimed are at or near the pre-disturbance grade level. The requirement for surface grading will be limited. The coarse waste pile will be constructed in accord with Cross Section C9-1217.

(4) Topsoil

The operator will establish a topsoil storage area and remove up to 12 inches of the toplayer of soil from the area of encroachment of the coarse refuse pile. The topsoil will be placed in the topsoil storage area or immediately redistributed to areas prepared for reclamation. The operator will consult with the SCS to determine an effective cover of non-noxious, quick growing annual and perennial plants, seeded during the first normal period after removal for planting.

The stored topsoil at the time of mine closing, after the final

The stored topsoil at the time of reclamation, after the final grading to contour of the coarse waste pile will be redistributed to achieve uniform thickness to achieve a condition that will be in accord with the final land use as undeveloped land and the contiguous undisturbed areas.

It is pointed out that the topsoil was not segregated from the material excavated prior to construction of the plant buildings. However, regrading to the original contour is expected to result in a soil cover that approximates the predisturbance condition.

(5) Plan for Revegetation

(i) Schedule of Revegetation

Revegetation of the disturbed areas will begin with the first planting and seeding season after preparation of the surface for seeding. The fall is reported to be the most favorable season for seeding with spring as the second choice.

(ii) Species and Amounts of Seed Per Acre

The largest disturbed area is contained in the Type 3A with Greasewood-Summer Cypress vegetation. The revegetation with the native species will be difficult. This area will be seeded with introduced species to establish a vegetative cover to permit the native plants to reinvade the area. The reclaimed area will be seeded with Yellow Sweet Clover at one pound per acre and Tall Wheatgrass at two pounds per acre.

The disturbed area occupied by the coarse refuse pile will have a topsoil cover. The Type 2B. Mat Saltbrush - Shad Scale - Galleta Grass vegetation described in Appendix E. This disturbed area will be seeded in accord with the following:

Type	Pounds/Acre
Grasses	
Galleta Grass	1
Indian Ricegrass	1
Forbs	
Desert Trumpet	2
Desert Plantain	1

Type	Pounds/Acre
Shrubs	
Mat Saltbrush	4
Shad Scale	4
TOTAL	13

The operator will also seed with introduced species to establish a quick cover at a rate of one pound each per acre of the following:

Crested Wheatgrass
Tall Wheatgrass
Sweet Clover

(iii) Method to be Used in Planting and Seeding

The areas that are prepared for seeding will be seeded with a range drill

(iv) Mulching Techniques

The areas after seeding will be mulched with straw or other suitable mulching material.

(v) Irrigation is not a part of the revegetation plan.

(vi) Measures to be Used to Determine the Success of Revegetation

The operator, five years before the beginning of reclamation will establish the criteria to measure the success of the revegetation using USDA or USDI Technical Guidance Procedures as appropriate.

(vii) Soil Testing Plan

The soil will be tested for the soil amendments required to establish vegetation in accord with the vegetation plan.

(6) Does not apply.

(7) Acid-forming and toxic forming materials are not present

(8) The well at the pump house will be filled with area soil.

(9) The activities during reclamation will include, removal of the plant buildings, structures and railroad, demolition of the concrete piers, and foundations, grading to the final surface contour, surface preparation for seeding and reseeding. The operator will take the following actions during reclamation to comply with the requirements of the Clean Air Act and the Clean Water Act:

1. The present surface configuration of the plant property precludes precipitation event runoff entering the streams that pass through or leave the area. The operator does not project a problem with runoff water.

2. The materials that will result from demolition will be non toxic and non-acid forming, will be suitable for burial and will not affect ground water.

3. The operator will water unpaved roads as necessary to control fugitive dust.

4. The speed of vehicles will be restricted to reduce fugitive dust caused by travel.

5. The travel of vehicles will be restricted to established roads.

6. The newly graded and seeded areas will be mulched.

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Use: Industrial Volume: .146 cfs

Owner: Milton Wilson WUC No. 91-233
Location: Section 7 T15S R11E
Direct Source: Underground water well
Use: Dom. & Irr. Volume: .015 cfs

Owner: Donald and Janice A. Hamilton WUC No. 91-4122
Location: Section 8 T15S R11E
Direct Source: Price River
Use: Irrigation Volume: 60 AF

Downstream from Permit Area

Owner: Arnel S. Milner WUC No. 91-402
Location: Section 16 T15S R11E Status: Dec.
Direct Source: Price River thru Farnham Ditch
Use: Irr. & Stock Volume: .177 cfs
Annual: 42.4 AF

Owner: Leon and Dixie Thayne WUC No. 91-405
Location: Section 16 T15S R11E Status: Dec.
Direct Source: Price River thru Farnham Ditch
Use: Irr. & Stock Volume: .293 cfs
Annual: 8.57 AF

Owner: AMCA Coal Leasing, Inc. WUC 91-4172
Location: Section 22 T15S R11E Status: Unapproved
Direct Source: Underground water well
Use: Volume: 5 cfs

Owner: Mont Blackburn WUC 91-4030
Location: Section 22T15S R11E Status: WUCS
Direct Source: Price River
Use: Volume: 5 cfs

Owner: D&RGW Railroad Co. WUC No.91-101
Location: Section 22 T15S R11E Status: Certificate
Direct Source: Price River
Use: Irr. & Stock Volume: .16 cfs

Owner: Price Water Improvement District
WUC 91-737
Location: Section 8 T15S R11E
Direct Source: Sewage Plant effluent
Use: Volume:

Within the Permit Area

Owner: U.S. Steel Corporation WUC 91-371
Location: Stection 16 T15S R11E
Direct Source: Price River and Underground well
Use: Irr. & Ind. Volume: 5.197 cfs
Annual: 724.4 AF

Owner: U.S. Steel Corporation WUC 91-254
Location: Section 16 T15S R11E
Direct Source: Underground water sump
Use: Industrial Volume: .15 cfs

Owner: U.S. Steel Corporation WUC 91-255
Location: Section 16 T15S R11E
Direct Source: Underground water sump
Use: Industrial Volume: .21 cfs

Owner: U.S. Steel Corporation WUC 91-215
Location: Section 16 T15S R11E
Direct Source: Price River and Underground well
Use: Irr. & Ind. Volume: 10 cfs Ind. 2400AF
Irr. 90 AC

Owner: U.S. Steel Corporation WUC 91-216
Location: Section 16 T15S R11E
Direct Source: Price River and Underground well
Use: Ind. & Irr. Volume: 5.0 cfs
Ind. 3650 AF
Irr. 90.112 AC

Source of Data: State of Utah Div. of Water Rights

The Operator owned Price River diversions Milner, Pumphouse and Farnham are shown on Map F9-177. the next known diversion is located downstream in Section 23 T17S R13E.

(3) The Cleaning Plant is a surface facility and as such there is no potential for diminution or interruption of river water.

The worst case impact of the Cleaning Plant's effect on the Price River would be if the slurry pipeline ruptured and discharged into the river. The consequences of this unlikely event are considered insignificant. Flow volumes in the Price River from gaging station data indicate a high and low flow to be 42 and 19 cfs during April and July, 1981 respectively. The Operators water sample test results at monitoring station A are shown below and the influence of a slurry sample evaluated.

	Price River High Flow 5/82	Slurry Constant Flow 6/83	Combined	Net Effect
Conductivity (umhos/cm)	930	3,500	975	5%
Dissolved Iron (mg/l)	6.800	0.020	6.68	(2%)
Dissolved Solids (mg/l)	516	2,280	547	6%

Flow (gpm)	167,402	3,000	170,402	2%

	Price River High Flow 7/81	Slurry Constant Flow 6/83	Combined	Net Effect
Conductivity (umhos/cm)	2,850	3,500	3,019	6%
Dissolved Iron (mg/l)	0.660	0.020	0.497	(25%)
Dissolved Solids (mg/l)	2,050	2,280	2,110	3%
Flow (gpm)	8,527	3,000	11,527	35%

(4) Does not apply.

(b)(1) Surface drainage through the permit area is described in Appendix B and referenced on F9-177.

During reclamation, surface drainage from the reclaimed Upper and Lower Refuse Pond areas will be coursed into the Clear Water Pond for sedimentation control. When a suitable stand of vegetation is established on the reclaimed pond surfaces upstream, the clear water dike will be removed and graded to the configuration shown on Drawing No. E9-3342. A sediment filter, such as silt fence or straw bales, will be placed at the upstream end of the culvert which goes beneath the county road. The permanent diversion ditch adjacent to the North Dike will not be affected during reclamation. When the River Pumphouse area is reclaimed, the structures shown (and proposed) on F9-177 will be maintained until a stand of vegetation is established, then removed.

(2) With the sedimentation control structures described in Appendix B and in item (b)(1) of this section, surface waters will be protected from contamination without further treatment.

(3) Surface waters will be monitored quarterly at the locations shown on F9-177. Ground water monitoring will be in accord with the water monitoring plan contained in Appendix III of the Determination of Compelteness Response.

(c) With the sedimentation control structures described in Appendix B and in item (b)(1) of this section, the quality and quantity of water in the Price River is not expected to be affected. The worst case impact of slurry discharge described in item (a)(3) of this section is not considered significant. This evaluation is made for both the high and low flow periods.

(d) Does not apply.

UMC 784.14 Reclamation Plan: Protection of Hydrologic Balance

(a) (1) The operator does not discharge any water used in the coal cleaning plant operation to the Price River or any other streams leaving the area. The runoff from precipitation events is contained within the property area and does not enter into any of the area streams.

(2) The operator does not know of any users of groundwater in the area that are or will be affected by the operation of the coal cleaning plant.

The operator has owned water rights in the Price River to fill the requirements for the operation of the coal cleaning plant and the use of water from the Price River does not exceed these rights.

(3) Does not apply.

(4) Does not apply.

(b) (1) The water used in the coal cleaning process is in a closed circuit and none of the processing water is known to leave the area as surface or groundwater.

Surface runoff from the disturbed surface areas on the east side of the Price River due to precipitation events is contained within the settling and clear water ponds and does not enter the streams leaving the area.

Surface runoff from the disturbed surface area on the west side of the Price River caused by precipitation events is contained within the plant property and does not enter the streams leaving the area.

(2) There is no known discharge of water from the coal cleaning process or from precipitation events and treatment of the water is not necessary.

(3) Plan for the collection, recording, and reporting of the ground area surface water quality and quantity data.

Since this operation is not an underground mine the monitoring of groundwater is not required.

The operator does not discharge any surface water from the area and sampling is not necessary. The operator samples the Price River at the locations identified on map C9-1212 .

(c) Applies to an underground mining operation.

(d) Applies to an underground mining operation.

UMC 784.15 Reclamation Plan: Post-Mining Land Uses

(a) The disturbed areas will be returned to the premining use of undeveloped land. The pre-disturbance records show as follows:

East of the Price River:

The pre-disturbance use of the land currently occupied by the slurry ponds and impoundments was undeveloped land. A stream flowed through the valley now forming the slurry ponds which appears to have been fed by irrigation return water. The surface vegetation consisted primarily of sagebrush thinning to sparce vegetation on the slopes forming the valley. It does not appear that the area was irrigated; however, it may have been fenced to contain cattle.

The soils description indicates a minimal capability to support a higher use level. The capacity of the reclaimed land to support a variety of alternative uses will be limited due to a lack of subirrigation water, lack of rainfall, and a desert environment. Termination of the use of the ponds and reclamation will terminate the use of this area by the riparian population.

West of the Price River:

The pre-disturbance use of the area west of the Denver and Rio Grande Western Railroad track now occupied by the coal cleaning plant facilities was undeveloped land. The area was traversed by an irrigation ditch carrying irrigation water to the fields between the Denver and Rio Grande Western Railroad tracks and the Price River. The surface vegetation was largely sagebrush and was not cultivated or irrigated for a higher use. The soils description does not indicate a capability to support a higher level of use. The area was probably fenced to contain cattle and probably supported limited grazing. The return of this land to use as undeveloped land is in accord with the pre-disturbance use. Management to support a higher use level such as cultivated land or enhanced grazing would not support the cost of management. The land after reclamation would probably be made available for grazing at its pre-disturbance level.

The capability of the reclaimed land to support a variety of alternative uses is enhanced by the plant railroad tracks and the proximity of these tracks to the disturbed area. The land would support an industrial use.

(1) The post-mining land use will be achieved in accord with the reclamation plan.

(2) The post-disturbance land use is the same as the pre-disturbance land use.

(3) Applies to underground mining.

(b) The operator is the owner of the property to be reclaimed.

UMC 784.16 Reclamation Plan: Ponds, Impoundments, Banks, Dams and Embankments

(a) The coal cleaning plant, refuse disposal areas, and the water clarification ponds are existing and have been in continuous operation since 1958. The site investigations were conducted by Dames and Moore-Soils Mechanics Engineers in 1957.

The impounding structures were investigated in 1978 by Rollins, Brown, and Gunnell, Inc. professional engineers to evaluate slope stability. Appendix C contains a copy of this report.

(1) (i) Ponds, impoundments and embankments have been designed and/or evaluated by a Registered Professional Engineer.

(ii) A description of the function of each pond, impoundment and embankment is included under section 784.11. Maps and cross - sections are as follows:

Upper Refuse Dike - Appendix C, E9-3441
Lower Refuse Dike - Appendix C, E9-3441
- Appendix E
Clear Water Dike - Appendix C, E9-3341
North Dike - Appendix C, E9-3341
Auxiliary Pond - C9-1285
Road Pond - E9-3453
Heat Dryer Pond - A9-1464
East Side Catch Basin - E9-3450

(iii) See Section 783.13, 14, 15 and 16 for hydrologic and geologic information.

(iv) Applies to underground mining.

(v) Refer to Appendix E

2. The Upper Refuse Dike, Lower Refuse Dike and Clear Water Dike meet or exceed the size criteria of the Mine Safety and Health Administration 30 CFR 77.216(a).

(i) The stability of the structures have been accepted by MSHA based on the evaluations and certifications of Rollins, Brown and Gunnell, Inc. (RGBI)

(ii) The geotechnical investigation, design and construction of the structures is discussed in the RGBI report in Appendix C.

The geotechnical investigation, design and construction for the proposed impoundments modifications are included in Appendix E.

The as built drawings for the Lower Refuse Dike are in Appendix E.

(iii) The slurry ponds and impoundments were constructed to require minimal, if any, maintenance. The impoundments and ponds are visited daily to observe the structures for evidence of instability and/or potential required maintenance. Substandard conditions are corrected immediately. A walking reconnaissance is conducted weekly on the impounding structures to inspect and observe the structures for instability or required maintenance. Substandard conditions are corrected immediately. Results of these examinations are recorded in a permanent record by a qualified person at the Sunnyside Mine office. Copies of the annual impoundments report are included in pages 784 - 32i to 784 - 32v in lieu of the annual report.

The operation of the ponds to clarify water for the operation of the coal cleaning plant is as follows:

A. During the operation of the coal cleaning plant, the clear water pumps draw water from the clear water pond and pump the water to the clear water head tanks located in the plant. Clear water is gravity fed from the head tanks for processing of the raw coal into a clean coal product and a waste product. The waste product is crushed to a -3/4 inch size, pulp fed to a refuse pump and pumped through a 12 inch slurry line to the waste disposal area east of the Price River. The coarse material is deposited immediately. The water bearing the fine material passes into ponds with the fine material settling to provide a clarified water passing into the clear water ponds for recirculation to the coal cleaning plant.

KAISER COAL

KAISER COAL CORPORATION
Sunnyside Coal Mines
P.O. Box 10
Sunnyside, Utah 84539
Telephone (801) 888-4421

April 8, 1987

Mr. Lowell P. Braxton, Administrator
Mineral Resource Development & Reclamation Program
Utah Division of Oil, Gas & Mining
355 W. North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Re: Impoundments Report
Wellington Preparation Plant
ACT/007/012

Dear Mr. Braxton:

Attached please find the Annual Impoundments Report submitted to the Mine Safety and Health Administration for the ponds at Wellington which meet the criteria of 30 CFR 77.216(a).

Quarterly inspections were conducted of the ponds at Wellington which do not meet these criteria (namely - the Auxiliary, Dryer, Pipeline, and Road ponds). The banks of all ponds were stable with the only substandard condition found being minor erosion at the inlets to the Pipeline pond. Also, the spillway of the Pipeline pond was improved as required by the Division.

Sincerely,

Carl W. Winters

Carl W. Winters, P. E.
Senior Mining Engineer

attach

cc: B. J. Bourquin

KAISER COAL

KAISER COAL CORPORATION
Sunnyside Coal Mines
P.O. Box 10
Sunnyside, Utah 84539
Telephone (801) 888-4421

April 8, 1987

Mr. John W. Barton
District Manager
Mine Safety and Health Administration
P. O. Box 25367
Denver, Colorado 80225

Re: Annual Impoundments Report
Wellington Preparation Plant
I. D. No. 42-00099

Dear Mr. Barton:

Attached please find the subject reports for the Wellington Preparation Plant. The impoundments at Wellington are identified as:

Clear Water Pond	1211-UT-09-00099-02
Lower Refuse Pond	1211-UT-09-00099-03
Upper Refuse Pond	1211-UT-09-00099-04

As you are probably aware, the plant continues in an idle status.

Sincerely,

Carl W. Winters
Senior Mining Engineer

attach (3)

cc: B. J. Bourquin
L. P. Braxton (UDOGM)

KAISER COAL CORPORATION
WELLINGTON PREPARATION PLANT
MSHA I.D. #42-00099

WATER IMPOUNDMENT AND IMPOUNDING STRUCTURE ANNUAL REPORT

IMPOUNDMENT: CLEAR WATER POND

IMPOUNDMENT I.D. 1211-UT-09-00099-02

Changes in the geometry of the impounding structure during this reporting period: No modifications were made to the impounding structure during 1986.

Instrumentation: There is no instrumentation on the impounding structure.

Impounded water, sediment, or slurry level:

	Depth	Elevation
Average	20' 6"	5,358.5
Maximum	26' 0"	5,364.0

Storage capacity of the impounding structure: Design capacity is 185 acre-feet

Average volume of water, sediment, or slurry impounded: Approximately 115 acre-feet

No fires occurred in the construction materials.

Other aspects of the impounding structure affecting its stability which occurred during this reporting period: There were no known changes to the impounding structure which would have affected its stability. However, it is being allowed to dry out.

I, Carl W. Winters, a registered professional engineer in the State of Utah, license number 5118, do hereby certify that all work performed on the Clear Water Pond and Embankment during 1986 was in accordance with the approved plan.

Carl W. Winters — 4-8-87
Carl W. Winters — Date

KAISER COAL CORPORATION
WELLINGTON PREPARATION PLANT
MSHA I.D. #42-00099

WATER IMPOUNDMENT AND IMPOUNDING STRUCTURE ANNUAL REPORT

IMPOUNDMENT: LOWER REFUSE POND
IMPOUNDMENT I.D. 1211-UT-09-00099-03

Changes in the geometry of the impounding structure during this reporting period: No modifications were made to the impounding structure during 1986.

Instrumentation: There is no instrumentation on the impounding structure.

Impounded water, sediment, or slurry level:

	Depth	Elevation
Average	31' 0"	5373.0
Maximum	33' 1"	5375.1

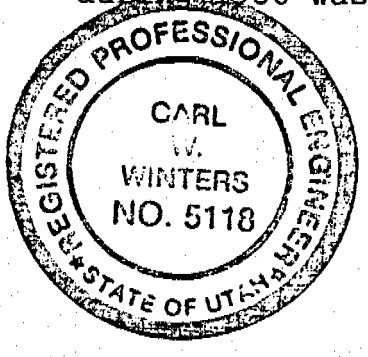
Storage capacity of the impounding structure: Design capacity is 1200 acre-feet.

Average volume of water, sediment, or slurry impounded: Approximately 1000 acre-feet.

No fires occurred in the construction materials.

Other aspects of the impounding structure affecting its stability which occurred during this reporting period: A potential deflection of the decant was identified by MSHA. Field investigation identified possible damage. Prior to the pond being returned to active use, an exploratory trench will be excavated and the decant condition evaluated. Repair work, if necessary, will then be performed.

I, Carl W. Winters, a registered professional engineer in the State of Utah, license number 5118, do hereby certify that all work performed on the Lower Refuse Pond and Embankment during 1986 was in accordance with the approved plan.



Carl W. Winters — 4-8-87
Carl W. Winters — Date

KAISER COAL CORPORATION
WELLINGTON PREPARATION PLANT
MSHA I.D. #42-00099

WATER IMPOUNDMENT AND IMPOUNDING STRUCTURE ANNUAL REPORT

IMPOUNDMENT: UPPER REFUSE POND
IMPOUNDMENT I.D. 1211-UT-09-00099-04

Changes in the geometry of the impounding structure during this reporting period: No modifications were made to the impounding structure during 1986.

Instrumentation: There is no instrumentation on the impounding structure.

Impounded water, sediment, or slurry level: This structure did not impound water during 1986.

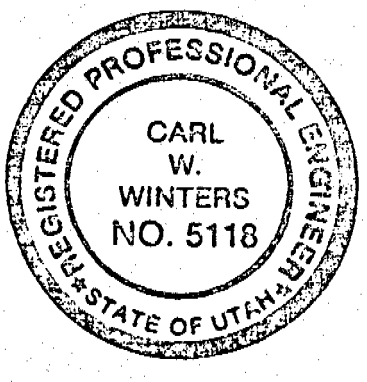
Storage capacity of the impounding structure: The design capacity of this impoundment did not change during 1986.

Average volume of water, sediment, or slurry impounded: This structure did not impound water during 1986.

No fires occurred in the construction materials.

Other aspects of the impounding structure affecting its stability which occurred during this reporting period: There were no known changes to the impounding structure which would have affected its stability. However, it was allowed to dry out.

I, Carl W. Winters, a registered professional engineer in the State of Utah, license number 5118, do hereby certify that all work performed on the Upper Refuse Pond and Embankment during 1986 was in accordance with the approved plan.



Carl W. Winters — 4-8-87
Carl W. Winters — Date

784-32V

The principle water loss in the above process is associated with evaporation from the ponds and the coal drying plant. Make up water is pumped from the Price River by pumps located in the Pumphouse. The required water levels in the individual ponds are controlled by gates in the stand pipes passing the water to the succeeding pond as required for water clarification.

(iv) See UMC 784.13(b)(1) for the timetable for reclamation of the pond area.

See UMC 784.13(b)(1) for removal plans.

(3) The remaining ponds within the permit area do not meet the size criteria of 30 CFR 77.216.

(b) The Auxiliary Road and Heat Dryer Ponds are incised ponds and do not require impounding structures. All ponds within the permit area are temporary. Hydrologic design criteria are included in Appendix B.

The East Side Slurry Catch Basin has been sized to handle flows from the area adjacent to the slurry pipeline. This is a temporary structure.

(c) All impoundments are temporary structures which have been accepted by MSHA.

Refer to Appendices C and E for current and modified impoundment stability.

Refer to Appendix E for the hydrologic evaluation.

Refer to item (a)(2)(iii) of this section for operation maintenance of impounding structures.

(d) The disposal of coal processing waste in the designated area east of the Price River does not create waste banks as described in 817.81 - 817.85.

(e) The Upper Refuse Dike is an existing structure constructed of coal processing waste. The structure separates the Upper Refuse Pond from the Lower Refuse Pond. The Rollins, Brown and Gunnell, Inc. report of 1978 contains the information developed in their investigation of this structure.

(1) Figure 3 exhibits the log borings and the test pit that was included in their investigations.

(2) The log borings show the character of the overburden materials.

(3) This is an existing structure. Identification of current springs, seepage and groundwater flow is not possible.

(4) There is no possibility of mudflows, rock debris falls or other landslides into the dam, embankment or impoundment material. The operator commits to notifying the Division within 10 days of the occurrence of a slide which has potential for adverse effect on public property, health, safety or the environment.

Refer to Appendix E for the proposed modification and as constructed drawings for the Lower Refuse Dike.

(f) The stability analyses of the structures is exhibited in Appendix C. Refer to Appendix E for the stability analysis of the proposed modifications.

UMC 784.15 Reclamation Plan: Post Mining Land Uses

(a) (1) The land will be returned to its pre-mining use of undeveloped land. The capacity of the disturbed land west of the Price River to support a variety of uses is enhanced by the plant railroad tracks and the proximity of the disturbed areas to these tracks. This land is most suitable for industrial use. The poor soil and absence of water preclude use as grazing or crop land.

The capacity of the disturbed land east of the Price River is limited to undeveloped land due to poor soil and undeveloped water supply. The soil types are not suitable for grazing or crop land and do not provide more than limited forage for wildlife.

(2) The post disturbance land use is the same as the pre-disturbance land use.

(3) Applies to an underground mining operation.

(b) The operator is the owner of the surface areas to be reclaimed.

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UMC 784.16 Reclamation Plan: Ponds, Impoundments, Banks, Dams and Embankments

(a) The coal cleaning plant, refuse disposal areas, and the water clarification ponds are existing and have been in continuous operation since 1958. The site investigations were conducted by Dames and Moore-Soils Mechanics Engineers in 1957.

The impounding structures were investigated in 1978 by Rollins, Brown and Gunnell, Inc. professional engineers to evaluate slope stability. Appendix C contains a copy of this report.

(1) (i) Ponds, impoundments and embankments have been designed and/or evaluated by a registered professional engineer.

(ii) A description of the function of each pond, impoundment, and embankment is included under Section 784.11. Maps and cross-sections are as follows:

Upper Refuse Dike - Appendix C, E9-3341

Lower Refuse Dike - Appendix C, E9-3341, Technical Rev. No. 1

Clear Water Dike - Appendix C, E9-3341

North Dike - Appendix C, E9-3341

Auxiliary Pond - C9-1285

Road Pond - E9-3453

Heat Dryer Pond - A9-1464

(iii) See Section 783.13, 14, 15, and 16 for hydrologic and geologic information.

(iv) Applies to underground mining.

(v) Refer to Appendix E.

2. The Upper Refuse Dike, Lower Refuse Dike and Clear Water Dike meet or exceed the size criteria of the Mine Safety and Health Administration 30CFR 77.216(a).

(i) The stability of the structures have been accepted by MSHA based on the evaluations and certifications of Rollins, Brown and Gunnell, Inc. (RBGI)

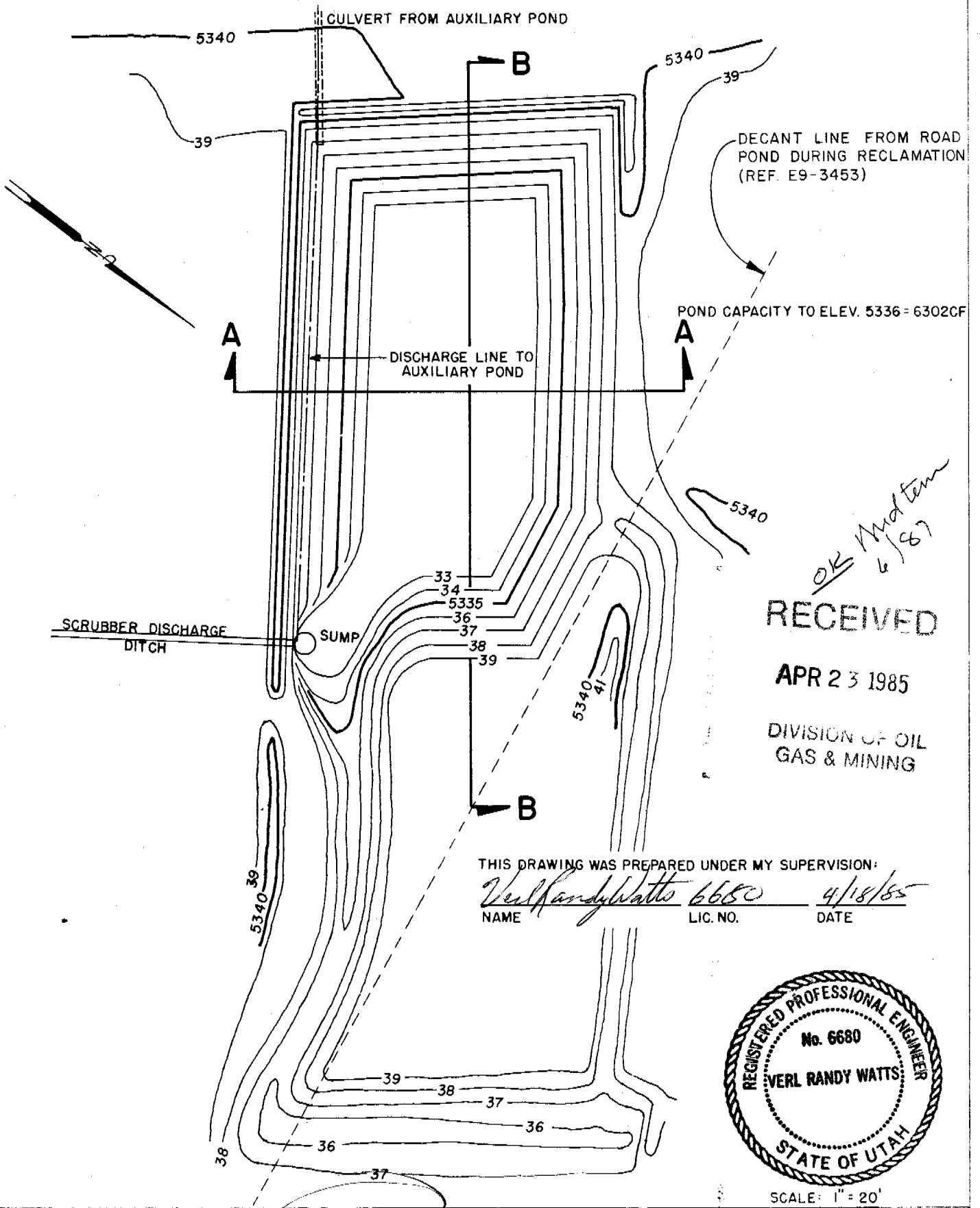
ENGINEERING DEPARTMENT
WESTERN DISTRICT – COAL

DRAWN: B.A.F. CHECKED: V.R.W. APPROVED FOR SAFETY: APPROVED: V.R.W.

U. S. STEEL (USS) MINING CO.

A9-1464

DRYER POND AS CONSTRUCTED



OK Mud Tem 6/85

RECEIVED
APR 23 1985
DIVISION OF OIL GAS & MINING

THIS DRAWING WAS PREPARED UNDER MY SUPERVISION:

Verl Randy Watts | 6680 | 4/18/85
NAME | LIC. NO. | DATE

REGISTERED PROFESSIONAL ENGINEER
No. 6680
VERL RANDY WATTS
STATE OF UTAH

SCALE: 1" = 20'

REF. DWGS.	E9-3433, E9-3453	REV.	4-11-85 + X-SECTIONS

ENGINEERING DEPARTMENT
WESTERN DISTRICT

APPROVED: G.H.S. 7-1-83

DRAWN: CWW 6-13-83 CHECKED:

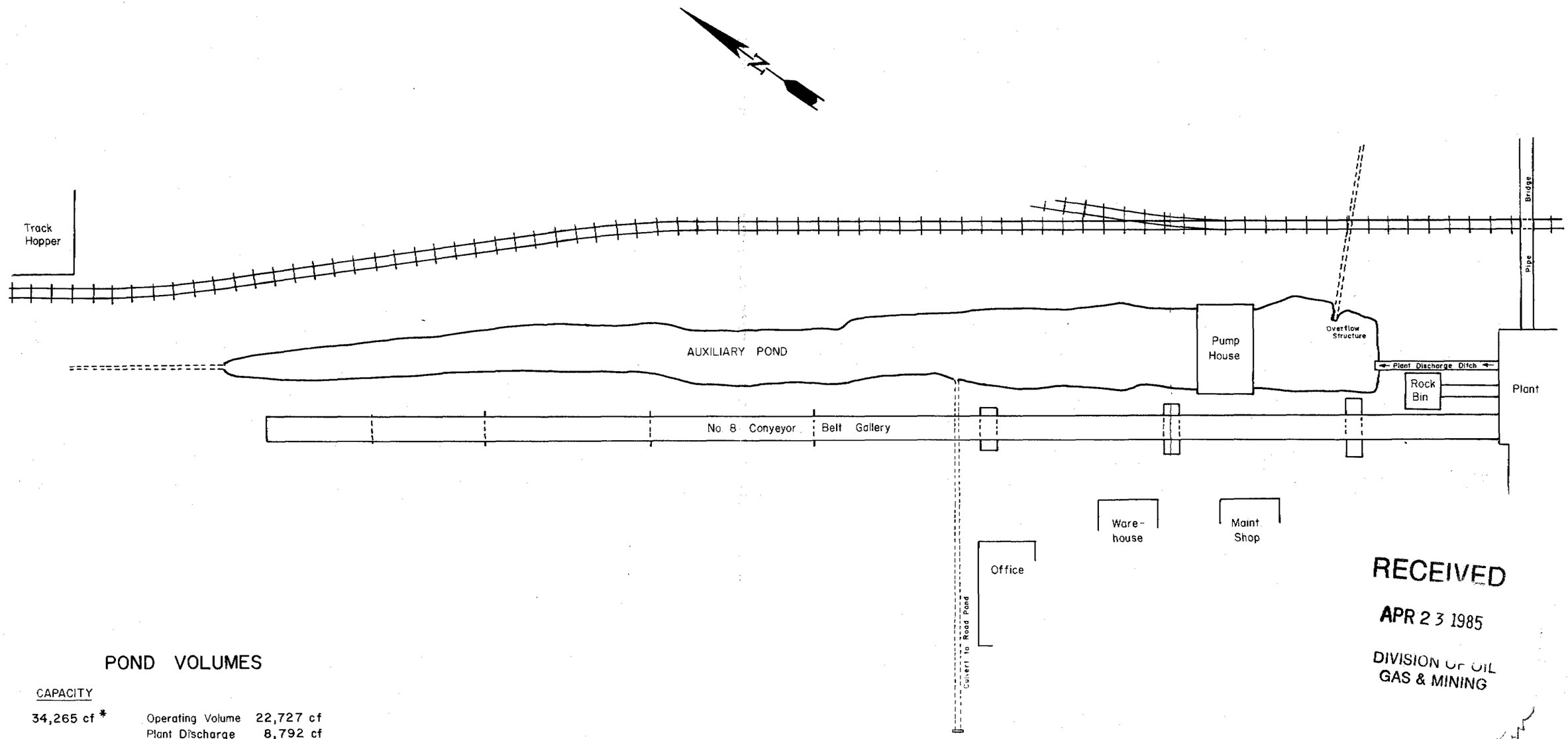
TRACED: APPROVED FOR SAFETY:

OSBORNE

U.S. Steel Mining Company, Inc.

WELLINGTON COAL CLEANING PLANT
AUXILIARY POND

C9-1285



RECEIVED
APR 23 1985
DIVISION OF OIL
GAS & MINING

POND VOLUMES

CAPACITY

34,265 cf *

Operating Volume	22,727 cf
Plant Discharge	8,792 cf
Runoff Volume	23,290 cf
Total	54,809 cf

*Remainder of required volume is in the Road Pond

No cross section is available

Scale: 1"=50'

OK MJ 6/18

THIS DRAWING PREPARED BY:

Carl W. Winters

Registered Professional Engineer
State of Utah No. 05118
Date: April 11, 1985

Reference drawings: E9-3341
E9-3453

REVISIONS

UMC 784.16 Reclamation Plan: Ponds, Impoundments, Banks, Dams and Embankments

(a) The coal cleaning plant, refuse disposal areas, and the water clarification ponds are existing and have been in continuous operation since 1958. The site investigations were conducted by Dames and Moore-Soils Mechanics Engineers in 1957.

The impounding structures were investigated in 1978 by Rollins, Brown and Gunnell, Inc. professional engineers to evaluate slope stability. Appendix C contains a copy of this report.

(1) (i) Ponds, impoundments and embankments have been designed and/or evaluated by a registered professional engineer.

(ii) A description of the function of each pond, impoundment, and embankment is included under Section 784.11. Maps and cross-sections are as follows:

Upper Refuse Dike - Appendix C, E9-3341

Lower Refuse Dike - Appendix C, E9-3341, Technical Revision No. 1

Clear Water Dike - Appendix C, E9-3341

North Dike - Appendix C, E9-3341

Auxiliary Pond - C9-1285

Road Pond - E9-3429, C9-1284

Heat Dryer Pond - E9-3433

(iii) See Section 783.13, 14, 15, and 16 for hydrologic and geologic information.

(iv) Applies to underground mining.

(v) Refer to Appendix E.

(2) The Upper Refuse Dike, Lower Refuse Dike and Clear Water Dike meet or exceed the size criteria of the Mine Safety and Health Administration 30CFR 77.216(a).

(i) The stability of the structures have been accepted by MSHA based on the evaluations and certifications of Rollins, Brown and Gunnell, Inc. (RBGI)

(ii) The geotechnical investigation, design and construction of the structures is discussed in the RBGI report in Appendix C.

The geotechnical investigation, design and construction for the proposed impoundments modifications are included in Technical Revision No. 1.

(iii) The slurry ponds and impoundments were constructed to require minimal, if any, maintenance. The impoundments and ponds are visited daily to observe the structures for evidence of instability and/or potential required maintenance. Substandard conditions are corrected immediately. A walking reconnaissance is conducted weekly on the impounding structures to inspect and observe the structures for unstability or required maintenance. Substandard conditions are corrected immediately. Results of these examinations are recorded in a permanent record by a qualified person at the coal cleaning plant office.

The operation of the ponds to clarify water for the operation of the coal cleaning plant is as follows:

A. During operation of the coal cleaning plant, the clear water pumps draw water from the clear water pond and pump the water to the clear water head tanks located in the plant. Clear water is gravity fed from the head tanks for the processing of the raw coal into a clean coal product and a waste product. The waste product is crushed to a -3/4 inch size, pulp fed to the refuse pump, and pumped through a 12 inch slurry line to the waste disposal area east of the Price River. The coarse material is deposited immediately. The water bearing the fine material passes into the ponds with the fine material settling to provide a clarified water passing to the clear water ponds for recirculation to the coal cleaning plant.

The principle water loss in the above process is associated with evaporation from the ponds and evaporation from the coal drying plant. Make up water is pumped from the Price River by pumps located in the Pumphouse. The required water levels in the individual ponds is controlled by gates in the stand pipes passing the water to the succeeding pond as required for water clarification.

(iv) See UMC 784.13(b)(1) for the timetable for reclamation of the pond area.

See UMC 784.13(b)(3) for removal plans.

(3) The remaining ponds within the permit area do not meet the size criteria of 30 CFR 77.216.

(b) The Auxiliary Road and Heat Dryer ponds are incised ponds and do not require impounding structures. All ponds within the permit area are temporary. Hydrologic design critera is included in Appendix B.

(c) All impoundments are temporary structures which have been accepted by MSHA.

Refer to Appendix C and Technical Revision No. 1 for current and modified impoundment stability.

Refer to Technical Revision No. 1 for the hydrologic evaluation.

Refer to item (a)(2)(iii) of this section for operation maintenance of impounding structures.

(d) The disposal of coal processing waste in the designated area east of Price River does not create waste banks as described in 817.81 - 817.85.

(e) The upper refuse dike is an existing structure constructed of coal processing waste. The structure separates the upper refuse pond from the lower refuse pond. The Rollins, Brown and Gunnell, Inc. report of 1978 contains the information developed in their investigation of this structure.

(1) Figure No. 3 exhibits the log of borings and the test pit that was included in their investigations.

(2) The log of borings show the character of the overburden materials.

(3) This is an existing structure. Identification of current springs, seepage, and groundwater flow is not possible.

(4) There is no possibility of mudflows, rock-debris falls, or other landslides into the dam, embankment or impoundded material.

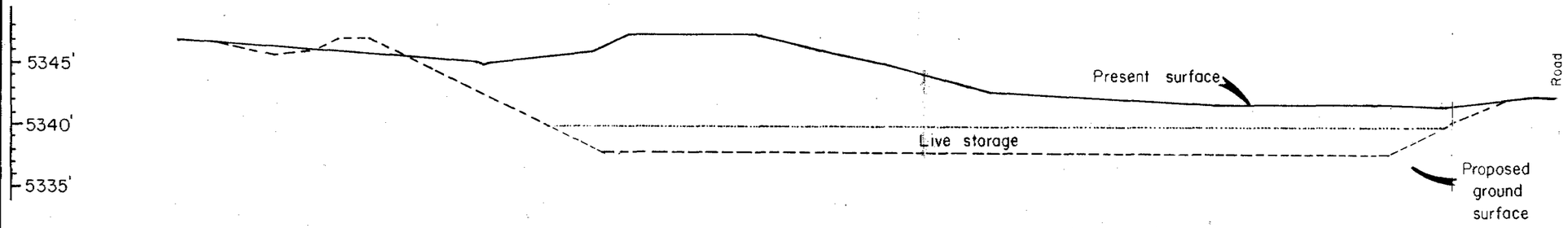
Refer to Technical Revision No. 1 for proposed modification to the Lower Refuse Dike.

(f) The stability analyses of the structures is exhibited in Appendix C. Refer to the Technical Revision No. 1 for the stability analysis of the proposed modifications.

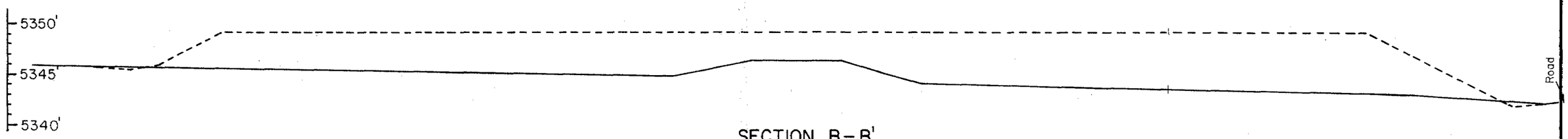
U.S. Steel Mining Company, Inc.

WELLINGTON COAL CLEANING PLANT
CROSS-SECTIONS – PROPOSED ROAD POND

C9-1284



SECTION A-A'



SECTION B-B'

——— PRESENT GROUND SURFACE

----- PROPOSED GROUND SURFACE

THIS DRAWING WAS PREPARED BY:

Carl W. Workman

Registered Professional Engineer
State of Utah No. 05118
Date: July 1, 1983

Scale: 1" = 10' (hor. & ver.)

Reference drawing E9-3429

REVISIONS	Pond Side Slopes & Depth – B.A.F. – 12-21-83

ENGINEERING WESTERN REGION

APPROVED: G.H.S. 7-1-83

APPROVED FOR SAFETY:

CHECKED: VRW 6-6-83

DRAWN: CWW 6-6-83

TRACED:

UMC 784.16 Reclamation Plan: Ponds, Impoundments, Banks, Dams and Embankments

(a) The coal cleaning plant, refuse disposal areas, and the water clarification ponds are existing and have been in continuous operation since 1958. The site investigations were conducted by Dames and Moore-Soils Mechanics Engineers in 1957.

The impounding structures were investigated in 1978 by Rollins, Brown and Gunnell, Inc. professional engineers to evaluate slope stability. Appendix C contains a copy of this report.

(1) (i) The stabilities of the impounding structures are contained in Appendix C.

(ii) For a description and cross section of the structures and their locations see Appendix C and Map E9-3341.

(iii) See UMC 783.13, 14, 15 and 16 for hydrologic and geologic information.

(iv) Since there is no underground mining in the area, the impoundments are not subject to affects of subsidence.

(v) The operator does not plan any additional submissions regarding these structures.

The coarse coal processing waste pile east of the Price River is an existing, designated, disposal area for coarse coal processing waste. See cross section C9-1217 for the construction of this pile and Map E9-3342 for the location and aerial extent of the pile.

(2) The structures meet or exceed the size or other criteria of the Mine Safety and Health Administration 30 CFR77.216(a). The stability of the structures have been accepted by MSHA based on the evaluations and certifications of Rollins, Brown and Gunnell, Inc.

(3) There are no other impounding structures within the plant property.

(b) Sedimentation Ponds

The sedimentation pond stability and operation has been accepted by MSHA.

(c) The lower refuse dike and the clearwater dike can be considered as permanent impounding structures. These structures have been accepted by MSHA as meeting the requirements for stability.

(d) The disposal of coal processing waste in the designated area east of Price River does not create waste banks as described in 817.81 - 817.85.

(e) The upper refuse dike is an existing structure constructed of coal processing waste. The structure separates the upper refuse pond from the lower refuse pond. The Rollins, Brown and Gunnell, Inc. report of 1978 contains the information developed in their investigation of this structure.

(1) Figure No. 3 exhibits the log of borings and the test pit that was included in their investigations.

(2) The log of borings show the character of the overburden materials.

(3) This is an existing structure. Identification of current springs seepage and groundwater flow is not possible.

(4) There is no possibility of mudflows, rock-debris falls, or other landslides into the dam, embankment or impounded material.

(f) The stability analysis of the structures is exhibited in Appendix C.

UMC 784.17 Protection of Public Parks and Historic Places

There are no known public parks, or historic places listed or designated as historic pursuant to Federal, State, or local law that will be affected by the present or future operating of the coal cleaning plant.

UMC 784.17 Protection of Public Parks and Historic Places

There are no known public parks, or historic places listed or designated as historic pursuant to Federal, State, or local law that will be affected by the present or future operating of the coal cleaning plant.

UMC 784.18 Relocation of Use of Public Roads

The permit area is within less than 100 feet of a public road. The operator claims valid existing rights to occupy the permit area since these areas have been occupied since 1958.

UMC 784.18 Relocation of Use of Public Roads

The permit area is within less than 100 feet of a public road. The operator claims valid existing rights to occupy the permit area since these areas have been occupied since 1958.

UMC 784.19 Underground Development Waste

UMC 784.20 Subsidence Control Plan

These sections do not apply since they address underground coal mining.

UMC 784.19 Underground Development Waste

This section does not apply since it addresses underground coal mining.

UMC 784.20 Subsidence Control Plan

Since there is no underground coal mining operation at this location, subsidence is not a concern.

UMC 784.21 Fish and Wildlife Plan

(a) (1) The recommendations of the Utah Division of Wildlife Resources (UDWR) regarding the mitigation and impact avoidance procedures, general and specific, to wildlife will be considered in all activities associated with operation and reclamation of the property are addressed as follows:

A. The operator will inform all employees of the UDWR recommendations regarding unnecessary disturbance, and adherance to state and federal wildlife regulations.

clear water pond

B. The artifical, temporary pond-wetland habitats will disappear with reclamation.

C. The roads within the plant and pond areas are low speed and do not present impact problems to the area wildlife.

D. The operator does not plan rodent control during reclamation.

E. Revegetation will be in accord with native seed mixes approved by DOGM. The use of introduced species recommended by UDWR are not included in the seed mix.

F. The use of pesticides is not included in the reclamation plan.

G. Any snake dens that are found in the permit area that require removal will be reported to UDWR for action by them.

H. There are no known raptor roost trees or nests in the disturbed area.

I. Operator activities outside the disturbed area are minimal and do not present a problem to any wildlife that may be in the area.

J. The conveyors and slurry lines do not present a barrier to big game movement.

K. The operator does not project any activity associated with the Price River other than exercise of water rights.

L. The operator's employees do not unnecessarily interfere with wildlife inhabitants; however, the conduct of the plant operations requires daily inspection visits to the pond area and periodic visits to the wetland area.

M. The operator will promptly report to the Division the presence of plant and animal threatened or endangered species which have not been previously reported.

N. That portion of the Price River located in the permit area is of limited value in Utah's fishery management program.

O. The plant powerlines were surveyed by the Federal Fish and Wildlife and were determined not to be a hazard to raptor.

(2) The soils descriptions in the disturbed areas indicate a relatively low value for vegetative growth that would support grazing or wildlife. A return of the area to the predisturbance vegetative community will return the area to the predisturbance wildlife habitat level.

The occupancy of these lands by the operator has created ponds and wetlands which have resulted in a riparian-wetland habitat both east and west of the river. The wetlands west of the river are supported in part by the effluent from the plant operation. It appears that establishment of a buffer zone or reduction of plant effluent to this area will reduce the viability of this habitat. It is the operators conclusion that the present riparian-wetlands habitat will disappear with termination of the plant operations and reclamation of the property.

UMC 784.21 Fish and Wildlife Plan

(a) The operators reclamation plan is based on a return of the permit area to undeveloped land. A review of the SCS soils descriptions indicate a low potential for development of these areas as grazing or wildlife habitats.

The operators employees do not unnecessarily interfere with the wildlife that inhabits the ponds and wetland area. However, the conduct of the cleaning plant operations requires daily inspection visits to the pond areas.

The Utah Division of Wildlife Resources provided a Fish and Wildlife plan for the permit area. The plan is on file and will be referenced as necessary in the plant area operation and reclamation.

(b) It is not anticipated that the operation of the coal cleaning plant will impact the pond or wetland communities. However, it is pointed out that termination of the plant operation will probably terminate these habitats.

UMC 784.22 Diversions

Diversion Ditch Adjacent to the North Dike:

The operator established the refuse disposal area and constructed the water impounding structure in a drainage that in prior years had been used to course irrigation return water to the Price River. In 1970, the operator excavated a ditch (see Map E9-3341) that now intercepts any water flowing north and diverts this flow to the Price River.

Proposed modifications and design calculations based on a 100 year 24 hour storm are included in Appendix E. This diversion will not be removed during reclamation for the following reasons:

1. The slurry ponds have been built in the original drainage.

2. The volume of materials which will be contained in the slurry ponds at the time of reclamation will preclude restoring the area to approximate original contour.

3. The diversion ditch will be at an elevation lower than the ultimate elevation of the consolidated fine refuse.

Diversion Ditch West of the Plant Site:

The operator established a diversion west of the coal cleaning plant to intercept runoff from precipitation events to pass this runoff to the south and preclude flooding of the coal cleaning plant.

Hydrologic evaluation of this ditch is contained in Appendix B. This ditch is a temporary structure and will be graded to approximate original contour when a stand of vegetation is achieved at the plant site.

UMC 784.22 Diversions

Diversion Ditch Adjacent to the North Dike:

The operator established the refuse disposal area and constructed the water impounding structure in a drainage that in prior years had been used to course irrigation return water to the Price River. In 1970, the operator excavated a ditch (see Map E9-3341) that now intercepts any water flowing from the north and diverts this flow to the Price River.

Proposed modifications and design calculations based on a 100 year 24 hour storm are included in Technical Revision No. 1. This diversion will not be removed during reclamation for the following reasons:

1. The slurry ponds have been built in the original drainage.

2. The volume of materials which will be contained in the slurry ponds at the time of reclamation will preclude restoring the area to approximate original contour.

3. The diversion ditch will be at an elevation lower than the ultimate elevation of the consolidated fine refuse.

Diversion Ditch West of the Plant Site:

The operator established a diversion west of the coal cleaning plant to intercept runoff from precipitation events to pass this runoff to the south and preclude flooding of the coal cleaning plant.

Hydrologic evaluation of this ditch is contained in Appendix B. This ditch is a temporary structure and will be graded to approximate original contour when a stand of vegetation is achieved at the plant site.

UMC 784.22 Diversions

The operator established the refuse disposal area and constructed the water impounding structure in a drainage that in prior years had been occupied by Soldier Creek. Soldier Creek at the time of construction had naturally established the present coursing to the Price River. The water flowing in this drainage at that time is believed to have been due to percolation from irrigation of farm lands north of the pond sites. In 1970 the operator excavated a ditch (see map E9-3341) that now intercepts any water flowing from the north and diverts this flow to the Price River. It is not planned to change this diversion in the future.

The operator established a diversion west of the coal cleaning plant to intercept runoff from precipitation events to pass this runoff to the south and preclude flooding of the coal cleaning plant.

UMC 784.23 Operation Plan: Maps and Plans

(a) There are no underground mining activities at this location. The existing disturbances will continue. The projected future disturbances associated with the operation of the coal cleaning plant if any will be minor except for the expansion of the Coarse Refuse Pile near the cleaning plant and the continuing placement of refuse from the coal cleaning plant in the pond areas east of the Price River.

(b) (1) See Map E9-3341 for the location of plant buildings and facilities to be used. There are no utility corridors through the area. The Denver and Rio Grande Western Railroad is adjacent to the coal cleaning plant.

(2) There will be no affected land as a result of underground mining.

(3) See Map E9-3339 for areas of land for which a performance bond will be posted (disturbed areas).

(4) The raw coal is received in railroad cars which are dumped into a track hopper. The raw coal passes through the coal cleaning facility for reloading into railroad cars. Ground storage of raw coal and clean coal is not a part of the operating plan.

(5) See Map E9-3341 for the location of coal preparation waste disposal areas. The operator does not plan the disposal of mine development waste in this area.

(6) See Map F9-177 sheets 1 and 2 for water diversion, collection, conveyance, treatment and storage in the area. There is no known discharge of water from the area except through pond evaporation and heat dryer discharge as water vapor.

(7) The source of the waste that is pumped to the refuse ponds and hauled to the coarse refuse disposal is the coal cleaning plant.

(8) There are no facilities that are designed or operated to enhance fish and wildlife. However, the ponds have become a habitat for fish and nesting and feeding areas for geese and ducks. A small wetland area has developed in a portion of the fields between the plant and the river and is inhabitated by wetland birds. It can be anticipated that abandonment of the plant will terminate the water in these areas and the continuation of these habitats.

(9) There is no explosive storage handling facility at the coal cleaning plant.

(10) See Map E9-3341 for ponds, impoundments and coal processing waste disposal areas.

(11) See Map E9-3342 for the final configuration to be achieved for the affected areas.

(12) See Map F9-177 sheets 1 and 2 for the location of water monitoring points.

(13) See Map E9-3341 for the structures which are expected to remain after reclamation.

UMC 784.23 Operation Plan: Maps and Plans

(a) There are no underground mining activities at this location. The existing disturbances will continue. The projected future disturbances associated with the operation of the coal cleaning plant if any will be minor except for the expansion of the Coarse Refuse Pile near the cleaning plant and the continuing placement of refuse from the coal cleaning plant in the pond areas east of the Price River.

(b) (1) See map E9-3341 for the location of plant buildings and facilities to be used. There are no utility corridors through the area. The Denver and Rio Grande Western Railroad is adjacent to the coal cleaning plant.

(2) There will be no affected land as a result of underground mining.

(3) See map E9-3339 for areas of land for which a performance bond will be posted (disturbed areas).

(4) The raw coal is received in railroad cars which are dumped into a trackhopper. The raw coal passes through the coal cleaning facility to reloading into railroad cars. Ground storage of raw coal and clean coal is not a part of the operating plan.

(5) See map E9-3341 for the location of coal preparation waste disposal areas. The operator does not plan the disposal of mine development waste in this area.

(6) See map C9-1212 for water diversion, collection, conveyance, treatment and storage in the area. There is no known discharge of water from the area except through pond evaporation and heat dryer discharge as water vapor.

(7) The source of the waste that is pumped to the refuse ponds and hauled to the coarse refuse disposal is the coal cleaning plant.

(8) There are no facilities that are designed or operated to enhance fish and wildlife. However, the ponds have become a habitat for fish and nesting and feeding areas for geese and ducks. A small wetland area has developed in a portion of the fields between the plant and the river and is inhabitated by wetland birds. It can be anticipated that abandonment of the plant will terminate the water in these areas and the continuation of these habitats.

(9) There is no explosive or storage handling facility at the coal cleaning plant.

(10) See map E9-3341 for ponds, impoundments and coal processing waste disposal areas.

(11) See map E9-3342 for the final configuration to be achieved for the affected areas.

(12) See map C9-1212 for the location of water monitoring points.

(13) See map E9-3341 for the structures which are expected to remain after reclamation.

UMC 784.24 Transportation Facilities

(a) The plant roads, conveyors, railroad and refuse pumpline are shown on E9-3341. The road from the gate to the coal cleaning plant is a blacktopped surface some 12 feet wide and is relatively flat. The plant railroad tracks are on engineered grades to facilitate the movement of railroad cars within the plant area. The highway and railroad bridge that span the Price River at the entrance to the plant property are engineered structures. The culverts under the plant railroad tracks were installed in accord with the engineered plans at the time of construction.

The plant road bridge spanning the Price River is an engineered concrete structure which was constructed in 1957-58 along with the coal cleaning plant complex. It is assumed that the specification included passing a design storm runoff. The calculations are not available, however, the bridge provides capacity to pass a larger storm event than the railroad bridges immediately downstream from the plant bridge.

The culverts under the road and plant railroad do not carry peak runoff. They provide an equalization for water accumulation in the relatively flat area.

The North Ditch capacity calculations are included in Appendix E.

The diversion ditch calculations are shown in Appendix B. Refer to Drawing No.'s C9-1286 and A9-1432 for road grades and cross sections.

(b) There are no steep cut slopes within the plant area.

(c) Relocation of any natural waterway is not in the future planning at the coal cleaning plant.

(d) The relatively flat plant area eliminates any requirement for protection of inlay culvert ends.

(e) The plant roads other than the main road into the plant are unimproved with a top cover of coal cleaning waste as necessary for stability.

UMC 784.24 Transportation Facilities

(a) The plant roads, conveyors, railroad, and refuse pumpline are shown on Map E9-3341. The road from the gate to the coal cleaning plant is a blacktopped surface some 12 feet wide and is relatively flat. The plant railroad tracks are on engineered grades to facilitate the movement of railroad cars within the plant area. The highway and railroad bridge that span the Price River at the entrance to the plant property are engineered structures. The culverts under the plant railroad tracks were installed in accord with the engineered plans at the time of construction.

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The North Ditch capacity calculations are included in Technical Revision No. 1.

The diversion ditch calculations are shown in Appendix B. Refer to Drawing No.'s C9-1286 and A9-1432 for road grades and cross-sections.

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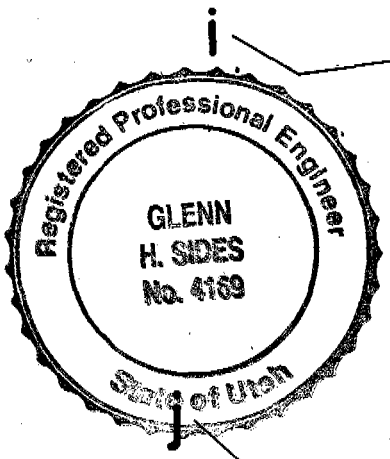
U. S. STEEL (USS) MINING CO.

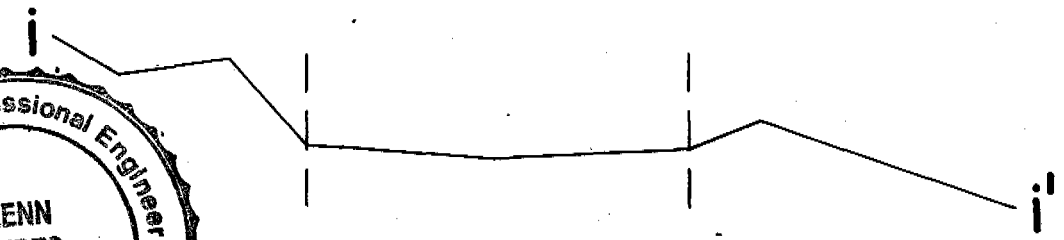
A9-1432

WELLINGTON COAL CLEANING PLANT

ROAD CROSS SECTIONS

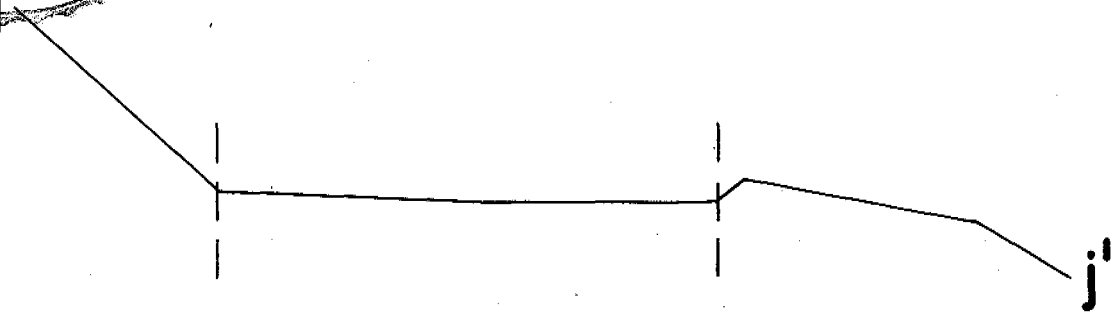
ROADS LOCATED EAST OF THE PRICE RIVER





UPPER REFUSE POND ACCESS

9.8% GRADE



TOPSOIL STOCKPILE ACCESS

8.4% GRADE

SAUERMAN TAIL TOWER ACCESS

NO APPRECIABLE GRADE

THIS DRAWING WAS PREPARED UNDER MY SUPERVISION

Glenn H Sides 4169

Registered Professional Engineer- Utah

JUL 6 1983

Date

SCALE: H&V

REFERENCE DRAWINGS: F9-177

ENGINEERING DEPARTMENT WESTERN DISTRICT - COAL

APPROVED: G.H.S. 6-22-83.

APPROVED FOR SAFETY

CHECKED: B.A. 6-22-83

DRAWN:

UMC 784.24 Transportation Facilities

(a) The plant roads, conveyors, railroad, and refuse pumpline are shown on map E9-3341. The road from the gate to the coal cleaning plant is a blacktopped surface some 12 feet wide and is relatively flat. The plant railroad tracks are on engineered grades to facilitate the movement of railroad cars within the plant area. The highway and railroad bridge that span the Price River at the entrance to the plant property are engineered structures. The culverts under the plant railroad tracks were installed in accord with the engineered plans at the time of construction.

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(d) The relatively flat plant area eliminates any requirement for protection of inlay end culverts.

(e) The plant roads other than the main road into the plant are unimproved with a top cover of coal cleaning waste as necessary for stability.

UMC 784.25 Return of Coal Processing Waste to Abandoned Underground Workings

Does not apply.

UMC 784.25 Return of Coal Processing Waste to Abandoned Underground Workings

The return of coal processing waste to underground workings is not a part of the plan.

UMC 784.26 Air Pollution Control Plan

(a) The coal cleaning plant is not located in a non-attainment area. The operator does not plan to install an air monitoring program at the coal cleaning plant.

(b) The present measures in use to reduce fugitive dust emissions at the cleaning plant include.

(1) The road from the main gate to the plant parking lot and the parking lot is a blacktopped road.

(2) The speed of vehicles in the plant area is restricted.

(3) The travel of unauthorized vehicles on other than established roads is restricted.

(4) The plant receives coal in railroad cars and ships in railroad cars. The operator does not ground store raw or clean coal at the coal cleaning plant.

(5) The clean coal loading chute is telescoping to reduce the fall distance when loading into the railroad cars.

(6) The operator pumps the major portion of the plant refuse to the disposal area using water as a transport medium.

(7) In the event it becomes necessary to control fugitive dust as a result of operations, the operator will sprinkle the source areas or chemically stabilize as determined to be the best available control technology.

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