KAISER COAL CORPORATION
WELLINGTON PREPARATION PLANT
RECLAMATION TEST PLOT VEGETATION STUDIES
1988 FIELD DATA

INTRODUCTION

Kaiser Coal Corporation acquired the Wellington Coal Cleaning Plant in 1985. The property status is Temporary Cessation. Kaiser is responsible for the maintenance and compliance of the plant and associated facilities. These responsibilites will continue until the property is sold, is reclaimed, or coal cleaning operations resume.

This report presents the 1988 reclamation test plot vegetation study. The field data is being submitted by September 9, 1988, to terminate NOV 88-17-2-1. The field sampling results, interpretation of data, and comparison to 1986 will be included in the annual report during the first quarter of 1989.

Sampling Methodology

Sampling of the Wellington test plots was accomplished on August 25, 26, and 27, 1988, utilizing methodology approved by Mr. Lynn M. Kunzler, Reclamation Biologist, Utah Division of Oil, Gas and Mining (DOGM) during a field inspection of the site with Kaiser personnel on August 25, 1988. The sampling was conducted by Mr. Joseph W. Clarke III, 2000 Schafer Street, P. O. Box 5500, Bismarck, North Dakota 58502-5500. A review of Mr. Clarke's technical expertise was made to Mr. Kunzler's satisfaction during the August 25 site inspection. A written resume of Mr. Clarke's background will be submitted to DOGM upon request. Mr. Clarke was assisted in the sampling effort by Mr. John Palfy, 13140 Coit Road, Suite 400, Lock Box 138, Dallas, Texas 75240-5784, who recorded the field data.

Sampling was conducted throughout each sequentially numbered subplot of the Surface Facility, Coarse Refuse, Coarse Slurry, and Fine Slurry Test Plot areas, as shown on the attached report maps. The numbers of the subplots are noted on the maps as well as on the corresponding data sheets. The data is further combined by treatment within each test plot area, when possible.

A total of five locations was sampled within each subplot of the test plot areas for a grand total of 720 samples. The samples were systematically located within each subplot using a dice-face pattern with four samples located at each corner and one in the center of each subplot. Allowances for the two-foot buffer zone between subplots were also made when placing the corner samples within each subplot.

An ocular estimate of cover was made at each sampling location utilizing a square-shaped quadrat with inside dimensions encompassing a one-square meter area. Cover was estimated to the nearest percentage point for the following categories: vegetation, litter, bare ground, and rock. Vegetation cover was further estimated by species for all plants either rooted in or hanging over the quadrat. Percentages of cover less than one percent were noted as traces (T) on the data sheets. It should be noted that the sum total of the individual estimated species may exceed that estimated for the vegetation cover category collected initially due to plant canopy overlap within the quadrat.

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Surface Facilities Area
TREATMENT Unirrigated, Species Mix A, 0 in. Topsoil

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 25, 1988

n :
$\bar{x}$:
s^2 :

		9						10						5																		
CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
VEGETATION		40	25	26	20	46		45	35	55	50	60		35	29	20	18	50													
LITTER		8	10	6	2	17		8	7	7	8	15		15	15	6	10	20													
BAREGROUND		15	5	38	39	19		35	5	33	22	15		20	30	69	60	20													
ROCK		37	60	30	39	18		12	53	5	20	10		30	26	5	12	10													
Halogeton glomeratus		7	T	1	T	41		T	17	3		15			1	6		43													
Kochia Scoparia																1															
Gutierrezia Surothrae				12	5	T				10	6																				
Bromus tectorum		15		6	T	T					T			1	T		2														
Atriplex Confertifolia				6	10			4		4						5	5														
Agropyron Hackycaulum		20	16	15	7			5		1	30			2	5		5														
Hilaria jamesii			1																												
Atriplex canescens			2		1			1	1	15	16	40			1	8	8														
Chrysothamnus nauseosus		10	11					35	20	30				33	26		1														
Ceratoides lanata						5						1						5													
Descurainia pinnata									1			5			T	T		2													
Ephedra viridus		1		T																											
Sitanion hystrix			4												1		1														
Melilotus officinalis														T																	

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Surface Facilities Area
TREATMENT Unirrigated, Species Mix A, 3 in. Topsoil

SAMPLED BY Joe Clarke/John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 25, 1988

n :
$\bar{x}$:
s^2 :

		6						2						1																		
CLASS/SPECIES	x̄	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
VEGETATION		25	20	25	28	34		30	38	45	40	50		25	35	40	55	28													
LITTER		6	8	3	15	20		8	9	10	5	5		10	15	12	20	40													
BARE GROUND		69	71	72	56	46		60	53	45	55	45		65	46	45	25	32													
ROCK		T	1	T	1	T		2			T				4	3	T	T													
Halogeton glomeratus		12	7		5	8		15			10	20		3		15		22													
Kochia Scoparia				10	7			15			6	25		6																	
Gutierrezia Sarothrae				T		1			9	8				T	15	21	15														
Bromus tectorum									10	2				T																	
Atriplex confertifolia		2									15						6														
Agropyron trachycaulum						1				1				3			3														
Atriplex canescens			2		15	25					24			6																	
Salsola Kali										2																					
Chrysothamnus nauseosus			10						30	35					20	12	30														
Ceratoides lanata		6				4					3			7																	
Descurainia pinnata		5	3	20	1	6		3			4	5		3	T		3	10													
Chenopodium fremontii										2																					
Hordeum jubatum																	6														

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Surface Facilities Area
TREATMENT Unirrigated, Species Mix B, 0 in. Topsoil

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 25, 1988

n :
$\bar{x}$:
s^2 :

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		3						7						12																	
VEGETATION		21	35	58	30	50		35	20	30	19	56		40	30	40	25	23													
BARE GROUND		72	59	35	56	35		62	59	54	60	38		56	61	29	38	32													
LITTER		4	6	7	4	15		3	4	11	20	4		3	4	6	3	15													
ROCK		3	T	T	10	T		T	17	5	1	2		1	5	25	34	30													
Penstemon strictus					1	5																									
Gutierrezia Sarothrae		1		8	7							T			3	11	4													
Atriplex canescens		19	9			8			9	25	10	35		25	20		6	21													
Hilaria jamesii		T														3														
Chrysothamnus nauseosus					12										7	25	12													
Descurainia pinnata			1			T		1		1	5	10		T																	
Sitanion hystrix								1								T		T													
Bromus tectorum						7			2						1	1		T													
Halogeton glomeratus			25	50	12	35		34	T	T	1	8		25				2													
Atriplex confertifolia		1			1				11	5							3													
Kochia scoparia		T							T		4	3																		
Oryzopsis hymenoides									1							2														
Hordeum jubatum																2														

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Surface Facilities Area
TREATMENT Unirrigated, Species Mix B, 3 in. Topsoil

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 25, 1988

n :
$\bar{x}$:
s^2 :

		11						8						4																	
CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
VEGETATION		40	26	35	25	30		40	16	25	15	35		12	45	12	20	20													
BARE GROUND		48	71	49	65	62		44	66	47	74	45		78	51	58	50	55													
LITTER		10	2	15	10	5		16	10	20	11	20		10	4	5	3	20													
ROCK		2	1	1	T	3			8	8	T	T		T	T	25	27	5													
Penstemon strictus																	1														
Gutierrezia sarothrae		1		2					6	24					5	10	18														
Atriplex canescens		38	25	20	4	15		20				35			30			15													
Chrysothamnus nauseosus						5		18							8	2	1														
Descurainia pinnata		3	T	2	4			5		T	T	T		T				1													
Bromus tectorum				T					8	2	1	T		12	5	T	2														
Halogeton glomeratus		1	2	11	1	15			2									4													
Atriplex confertifolia					23																										
Kochia scoparia										1	15			1																	

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Surface Facilities Area
TREATMENT Irrigated, Species Mix A, 0 in Topsoil

SAMPLED BY Joe Clarke/John Pairy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 25, 1988

n:
$\bar{x}$:
s^2:

CLASS / SPECIES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	22						17						13																	
VEGETATION	14	35	15	28	45		28	32	63	30	30		34	25	35	35	45													
LITTER	6	16	5	12	12		15	35	3	8	8		25	12	6	16	8													
BARE GROUND	70	29	70	55	23		45	10	4	37	52		10	15	29	25	17													
ROCK	10	20	10	5	20		12	23	30	25	10		31	48	30	24	30													
Halogeton glomeratus	4	33	2	7			8	1		1							2													
Kochia scoparia	T																													
Gutierrezia sarothrae			8		2				6	13			20		2	T														
Bromus tectorum		1	2				2		T	3				4	1		T													
Atriplex confertifolia					5		15								2															
Agropyron hackycaulum	3		12	6	6		3	20	2		5		5	17	26	12	9													
Hilaria jamesii		1			1		2	5		1	8			1	2															
Atriplex canescens				17	25		T		34						25	1	26													
Chrysothamnus nauseosus	10		T		5			6	32	14	30		10	3		30	15													
Ceratoides lanata					1																									
Descurainia pinnata			1																											
Polygonum aviculare			1																											
Tragopogon dubius										2																				
Artemisia nova											T																			

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Surface Facilities Area
TREATMENT Irrigated, Species Mix A, 3 in. Topsoil

SAMPLED BY Joe Clarke/John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 25, 1988

n :
$\bar{x}$:
s^2 :

		21						18						14																	
CLASS/SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
VEGETATION		39	45	24	26	18		26	20	11	10	44		40	33	50	45	36													
LITTER		15	4	20	9	9		34	15	37	14	16		11	7	7	26	15													
BARE GROUND		45	39	50	62	68		40	65	52	25	40		49	60	43	29	48													
ROCK		1	12	6	3	5			T		1	T			T		T	1													
Halogeton glomeratus		39	30	24	25	15		1	3			12		25	20	9		3													
Gutierrezia Sarothrae			16						4		1	1			3	8															
Bromus tectorum			10			3				T	1				2																
Atriplex confertifolia					2	4									1	13		1													
Agropyron trachycaulum					6	5		6		5		4		3		10	11	11													
Oryzopsis hymenoides					1																										
Hilaria jamesii					T			15	8		8	4				5															
Sarcobatus vermiculatus						1																									
Atriplex canescens								5		5		22				7	15	26													
Salsola kali								T	1								3	2													
Chrysothamnus nauseosus									10	1		3		15	10		30														
Ceratoides lanata									T																						
Descurainia Pinnata									T						3	1	T	6													
Sporobolus airoides										1																					
Annual Atriplex																	T														

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE SURFACE FACILITIES AREA
TREATMENT IRRIGATED, SPECIES MIX B, 0 IN. TOPSOIL

SAMPLED BY Joe Clarke/John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 25, 1988

n :
$\bar{x}$:
s^2 :

		24						23						20																		
CLASS/SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
VEGETATION		25	18	40	45	40		11	35	35	30	45		33	23	50	21	53														
BARE GROUND		40	62	45	47	47		70	33	45	42	38		20	38	31	67	15														
LITTER		11	8	9	4	5		4	2	12	2	11		20	4	15	5	22														
ROCK		24	12	6	4	8		15	30	8	26	6		27	35	4	7	10														
Atriplex canescens		20	5	16	25	35		8	10	3	2	40		T	5	9	2	10														
Bromus tectorum		2	1		1	6		4		1	T			T	1																	
Gutierrezia sarothrae		6		1	T	5			7	15	3			8	3	20	1															
Chrysothamnus nauseosus			15	8	20				1	15	30			27	15	20		30														
Hilaria jamesii			1	10		1			8	6		18		1		4	12	11														
Penstemon Strictus			1	10					10.	1		1				5	11	8														
Oryzopsis hymenoides				1																												
Sitanion hystrix						T		2																								
Hordeum jubatum											T																					

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE SURFACE FACILITIES AREA
TREATMENT IRRIGATED, SPECIES MIX B, 3 in. Topsoil

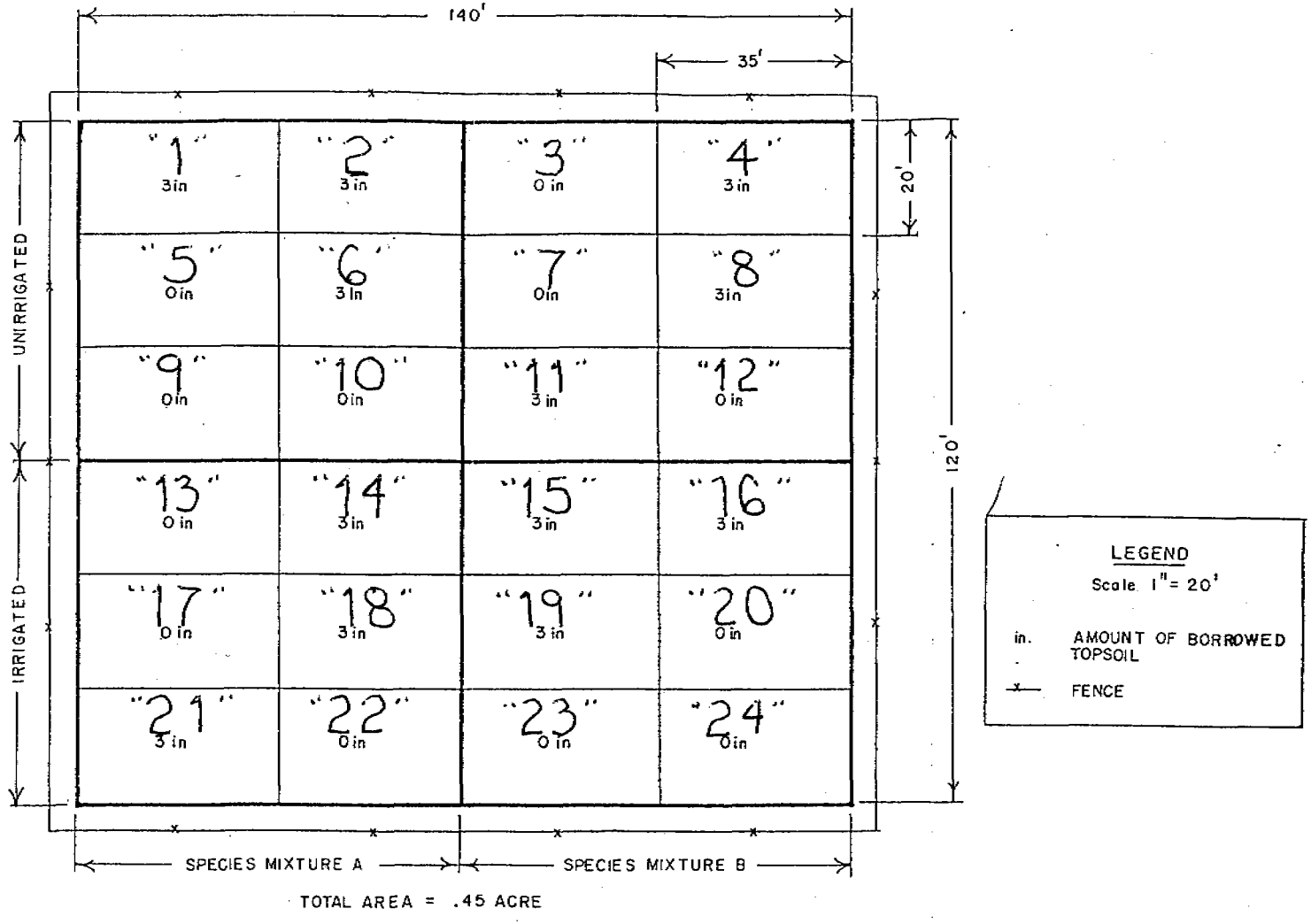
SAMPLED BY Joe Clarke/John Palfy
QUADRAT SIZE / SHAPE 1M²/Square
SAMPLING DATE August 25, 1988

n:
x̄:
s²:

		19						15						16																	
CLASS/SPECIES	x̄	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
VEGETATION		45	40	60	26	35		26	30	27	45	60		30	30	33	53	55													
BARE GROUND		30	18	15	10	57		30	66	70	13	15		67	63	57	40	43													
LITTER		22	41	25	62	8		44	1	1	42	22		3	7	8	2	2													
ROCK		3	1		2	T		T	3	2		3		T	T	2	5														
Penstemon strictus		9						20	8	1	16	50			10		5	7													
Gutierrezia sarothrae		1	2		1			1			3				3		10	3													
Atriplex canescens		T	25	50	9	30			25	10	25	10		25	15	26	25	50													
Hilaria jamesii		35	15	23	12	7		5		2	15	2			2		4														
Chrysothamnus nauseosus			10							3				3			20														
Descurainia pinnata				T																											
Sitanion hystrix					4																										
Bromus tectorum									2	10					2	11	3	2													
Halogeton glomeratus									1	2				2																	
Atriplex confertifolia										4	2																				

FIGURE 1

SURFACE FACILITY AREA



TOTAL AREA = .45 ACRE

NOTE: THE ENTIRE PLOT WILL ALSO BE: 1)RIPPED, 2) FERTILIZED, 3) GOUGED, 4) SEEDED, 5) MULCHED, 6) TRANSPLANTED AND 7) FENCED.
NOTE: THE TEST PLOT WAS INSTALLED AS SHOWN ABOVE.

REVISON (1): 4/10/87 W.B.

prepared by:
MT. NEBO SCIENTIFIC

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Refuse Area
TREATMENT Unirrigated, 6in. Topsoil, Organic, C.S.

SAMPLED BY Joe Clarke/John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n :
$\bar{x}$:
s^2 :

CLASS/SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Vegetation		16	4	2	35	6		25	36	34	20	20		15	54	35	60	22													
Bare		63	94	80	47	78		46	18	20	61	55		35	18	30	15	35													
Litter		21	2	9	15	6		35	45	45	18	25		50	25	35	25	43													
Rock			T	9	3	10		T	1	1	1	T		T	3	T	T	T													
Kochia scoparia		15	3	2	35	6		25	36	34	20	20		10	54	35	60	22													
Descurainia pinnata									1	1				15		T	12	2													
Bromus tectorum																T															
Ceratoides lanata		1	1			T																									

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Refuse Area
TREATMENT Unirrigated, 6 in. Topsoil, None, C.S.

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n :
$\bar{x}$:
s^2 :

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		3												5																	
Vegetation		15	6	25	15	17		27	25	10	18	40		26	5	25	6	40													
Rock		T	T	T	T	1		1	T	1	5	3		T	T	20	T														
Bare		77	83	15	12	57		30	15	79	52	22		30	70	20	69	16													
Litter		8	11	60	73	25		42	60	10	25	35		44	25	35	25	44													
Kochia scoparia		15	5	25	10	17		27	25	10	18	40		26	5	25	6	40													
Descurainia pinnata		2		T	5	T		2	3			4						1													
Ceratoides lanata		T	1																												
Bromus tectorum				T					T									2													

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Refuse Area
TREATMENT Unirrigated, 6 in. Topsoil, Organic, No C.S.

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n :
$\bar{x}$:
s^2 :

CLASS / SPECIES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	½						6						10																	
Vegetation	19	55	15	35	50		35	20	10	25	24		50	13	30	12	35													
Litter	10	21	13	10	4		18	15	35	13	4		19	17	20	37	35													
Bare	71	24	70	55	45		46	63	54	62	72		31	69	50	50	30													
Rock	T	T	2	T	1		1	2	1	T	T		T	1	T	1	T													
Kochia scoparia	19	55	15	35	50		35	20	10	25	24		50	13	30	12	35													
Descurainia pinnata	T							T	T	T	T		2	T	T	T													
Bromus tectorum														T		T	1												

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Refuse Area
TREATMENT Unirrigated, 6 in. Topsoil, None, No C.S.

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n:
$\bar{x}$:
s^2:

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		4						8						12																	
Vegetation		5	25	23	35	25		12	15	12	23	35		30	20	18	50	9													
Rock		T	T	T				T	T	T	T			1	1	T	2	T													
Bare		80	64	63	15	40		70	60	35	57	9		64	72	35	35	25													
Litter		15	11	14	50	35		18	25	53	20	56		5	7	47	13	66													
Kochia scoparia		5	25	23	35	25		12	15	12	23	35		30	20	18	50	6													
Descurainia pinnata				T						2	2	5		1	2			5													

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Refuse Area
TREATMENT Unirrigated, 12 in. Topsoil, Organic, C.S.

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n :
$\bar{x}$:
s^2 :

		21						13						23					
CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Vegetation		40	53	50	25	25		35	45	50	35	39		71	15	50	50	63	
Bare		30	32	20	40	25		25	40	14	34	11		4	40	6	30	12	
Litter		30	15	30	35	50		40	15	35	30	50		25	41	44	20	25	
Rock		T	T	T	T	T		T	T	1	1	T		T	4		T		
Kochia scoparia		40	53	50	25	25		35	45	50	35	39		71	15	50	50	2	
Descurainia pinnata		3	4	2	10	1		T	1			6				T	1	63	
Bromus tectorum								T						15					
Ceratoides lanata			T		1										T				
Atriplex canescens						1													
Suaeda torreyana						5													

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Refuse Area
TREATMENT Unirrigated, 12in Topsoil, None C.S.

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n :
$\bar{x}$:
s^2 :

		15						19						17																	
CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
VEGETATION		5	14	45	30	35		20	21	20	15	20		25	35	30	20	46													
LITTER		25	40	12	49	35		15	15	10	18	45		25	45	20	26	46													
BARE GROUND		55	46	41	20	29		64	64	69	67	35		50	20	49	54	8													
ROCK		15	T	2	1	1		1	T	1	T	T		T	T	1	T	T													
Kochia scoparia		5	14	45	30	35		20	21	20	15	20		25	35	30	20	46													
Descurainia Pinnata				2	T	1			T	T								1													
Bromus tectorum			T					T							2															
Sisymbrium altissimum											T							3												
Ceratoides lanata															T															
Atriplex canescens																	T													

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Refuse Area
TREATMENT Unirrigated, 12in. Topsoil, Organic, No C.S.

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n :
$\bar{x}$:
s^2 :

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		20						24						14																	
Vegetation		35	25	64	38	53		30	82	60	57	67		11	10	45	65	30													
Bare		20	12	20	37	7		55	6	10	24	8		47	59	25	20	45													
Litter		45	63	15	24	40		15	12	30	25	25		40	30	30	15	25													
Rock		T	T	1	T	T		T	T		T	T		2	1	T	T														
Kochia Scoparia		35	20	64	38	53		30	82	60	10	67		11	10	45	65	30													
Descurainia pinnata		T	15	6	2	10		5	3	10	50	25			T	T	T	T													
Bromus tectorum			8												2		T													
Atriplex Canescens								5																							
Ceratoides lanata														T																	
Artemisia nova														T																	

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Refuse Area
TREATMENT Unirrigated, 12in. Topsoil, None, No C.S.

SAMPLED BY Joe Clarke/John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n :
$\bar{x}$:
s^2 :

CLASS/SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		16						18						22																	
VEGETATION		30	25	35	50	20		10	20	23	23	40		8	35	45	20	40													
LITTER		8	15	20	7	35		15	25	17	17	40		62	35	30	40	35													
BARE GROUND		59	60	30	43	43		75	55	60	60	20		30	30	25	40	25													
ROCK		3	T	15	T	2		T	T	T	T	T		T	T	T	T	T													
Kochia scoparia		25	25	35	50	20		10	20	23	21	35		8	35	45	20	40													
Descurainia pinnata		T		T	T				T	T					T			T												
Atriplex canescens					1										6			5												
Ceratoides lanata											T						1													
Oryzopsis hymenoides																	T													
Sitanion hystrix																	1													
Bromus tectorum								2																						
Sisymbrium altissimum		5			5						2	5																		
Suaeda torreyana					15																									

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Refuse Area
TREATMENT Irrigated, 12" Topsoil - Plots #25-36 (Differentiation between treatments not possible until map is corrected)

SAMPLED BY Joe Clarke / John Pairy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n:
$\bar{x}$:
s^2:

CLASS / SPECIES	$\bar{x}$	25					26					27					28					29				
		1	2	3	4	5	7	8	9	10	11	13	14	15	16	17	19	20	21	22	23	25	26	27	28	29
Vegetation		50	68	25	45	60	8	10	60	47	25	25	25	20	35	10	51	6	30	35	65	45	55	10	50	35
Litter		30	20	12	49	15	51	25	25	41	72	60	72	55	60	84	20	81	68	64	35	54	37	5	10	61
Bare		20	12	63	6	25	35	65	15	6	3	15	3	25	5	6	23	7	2	1		1	8	85	46	4
Rock								T							T	T	T							T	T	
Kochia scoparia		50	68	25	45	60	2	5	60	47	14	23	20	20	35	8	51	6	30	35	65	45	55	10	50	35
Descurainia pinnata		3	1			1		2	T								5					1				T
Bromus tectorum																										T
Atriplex canescens				2								1				1										
Sisymbrium altissimum								3																		
Ceratoides lanata							T																			
Sitanion hystrix							6												T							
Agropyron trachycaulum											10	1	4	1	1	5		1								
Hordeum jubatum											1															
Oryzopsis hymenoides													1													

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Refuse Area
TREATMENT Irrigated 6/12" Topsoil Plots #25-36 (Differentiation between treatments not possible until map is corrected)

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n:
$\bar{x}$:
s^2:

		30						31						32						33						34					
CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Vegetation		30	20	45	45	20		49	45	60	49	49		20	25	25	10	40		20	41	56	5	65		35	25	8	8	25	
Litter		53	79	15	30	77		48	45	15	50	50		78	72	72	70	53		30	23	4	25	25		50	30	57	35	35	
Bare		17	1	40	25	3		3	10	25	1	1		2	3	3	20	7		49	30	40	67	10		15	45	35	57	40	
Rock				T																1	T		3				T		T	T	
Kochia scoparia		30	20	45	45	20		49	45	60	49	49		20	25	25	5	39		20	41	56	2	65		35	22	8	8	23	
Descurainia pinnata															T		10	T		1	2		3	T				T			
Bromus tectorum			T		1					2														T		3	2			1	
Atriplex canescens								4																							
Sisymbrium altissimum					1															2							1			1	
Hordeum jubatum												1																			
Agropyron trachycaulum															6			1													
Suaeda torreyana																	1														
Ceratoides lanata																				1											

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Rufuse Area
TREATMENT Irrigated 12" Topsoil - Plots #25-36 (Differentiation between treatments not possible until map is corrected)

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n:
$\bar{x}$:
s^2:

35 | 39

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Vegetation		40	30	25	8	30		40	25	10	25	10																			
Litter		40	30	65	46	69		51	72	81	48	89																			
Bare		20	40	10	46	1		3	3	3	25	1																			
Rock			T		T					T	2																				
Rochia Scoparia		40	30	25	3	30		39	25	10	25	10																			
Descurainia pinnata								2																							
Bromus tectorum			T																												
Atriplex chrysocas																															
Sisymbrium altissimum																															
Agropyron trachycaulum					5																										
Oryzopsis hymenoides		T																													
Cerbatoides lanata										1																					
Sitanion hystrix								1		T																					
Sarcobatus vermiculatus										1																					
Hordeum jubatum												4																			

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Refuse Area
TREATMENT Irrigated, 6" Topsoil - Plots #37-48 (Differentiation between treatments not possible until map is corrected)

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n:
$\bar{x}$:
s^2:

		37						38						39						40						41				
CLASS / SPECIES	x̄	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Vegetation		8	40	56	4	40		15	6	-	5	10		-	25	20	6	6		31	10	4	11	5		-	50	30	20	25	
Litter		76	25	20	84	55		14	79	84	47	75		50	70	50	69	81		25	88	86	54	11		81	36	65	72	70	
Bare		16	35	23	11	5		21	12	11	48	15		50	5	30	25	13		42	2	10	20	84		17	4	4	6	4	
Rock		T		1	1	T		-	3	5	T	-		T	-	-	-	T		2	-	T	15	T		2	10	1	2	1	
Kochia scoparia		8	40	56	4	40		15	5	T	5	6		T	25	20	T	6		30	10	3	T				50	30	20	25	
Descurainia pinnata		T							1																		7			3	
Bromus tectorum		T				T		T												1	3			3				4		T	
Atriplex canescens																															
Sisymbrium altissimum																															
Suaeda torreyana						1																	T								
Agropyron trachycaulum												4					6					2	11	1					6		
Hordeum jubatum												T										1	T	2							
Ceratoides lanata																													T		

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Refuse Area
TREATMENT Irrigated, 6" Topsoil - Plots #37-48 (Differentiation between treatments not possible until map is corrected)

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n:
$\bar{x}$:
s^2:

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		42						43						44						45						46					
Vegetation		10	-	25	3	35		5	25	30	15	25		10	20	10	5	30		5	45	20	25	35		25	5	25	15	25	
Litter		45	89	71	87	60		60	73	68	58	72		65	40	72	75	60		52	20	50	50	49		65	90	34	40	45	
Bare		44	11	4	8	5		35	2	1	25	3		25	39	17	20	10		40	30	30	20	15		10	5	40	40	5	
Rock		1	T	T	2	T		T	-	1	2	T		T	1	1	T	-		3	5	T	5	1		T	T	1	5	25	
Kochia scoparia		10				35		5	25	30	15	25		8	20	10	5	30		5	45	20	25	35		25	5	25	10	25	
Descurainia pinnata										T		2									1					T	1				
Bromus tectorum					1						T					1						T					T	T		1	
Atriplex canescens																															
Sisymbrium altissimum																															
Agropyron trachycaulum				25	1									2															3		
Suaeda torreyana						3																							1		
Penstemon strictus					1																										
Ceratoides lanata																										T			T		
Hordeum jubatum																													1		
Oryzopsis hymenoides																												1			

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Refuse Area
TREATMENT Irrigated, 6" Topsoil - Plot # 37-48 (Differentiation between treatments not possible until map is corrected)

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n:
$\bar{x}$:
s^2:

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		47						48																							
Vegetation		5	35	30	50	26		15	6	25	25	15																			
Litter		85	58	43	41	71		76	69	40	69	84																			
Bare		10	7	2	4	3		9	25	10	6	1																			
Rock		T	-	25	5	T		T	T	25	T	T																			
Kochia scoparia		5	35			25		15	6	20	12	10																			
Descurainia pinnata																															
Bromus tectorum						T						T																			
Atriplex canescens																															
Sisymbrium altissimum																															
Agropyron trachycaulum			1	30	50	1			1.	5	10	3																			
Hordeum jubatum				2																											
Ceratoides lanata											3	1																			
Artemisia nova												3																			

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Fine Slurry Area
TREATMENT Irrigated, Slurry Cover, Organic, 12 in. Topsoil

SAMPLED BY Joe Clarke/John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 27, 1988

n :
x̄ :
s² :

38 43 44

CLASS/SPECIES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Vegetation	50	35	45	45	35		25	55	40	40	60		30	50	60	40	60													
Litter	47	59	53	40	59		63	32	20	52	23		68	42	36	44	37													
Bare	3	6	2	15	1		12	8	32	8	16		2	3	4	16	3													
Rock		T		T	5			5	8	T	1			5	T		T													
Kochia scoparia				4									25																	
Agropyron trachycaulum		8	25	10	16		15	35	20	35	25			15	35		30													
Grindelia squarrosa	20										4			25	4	12	6													
Hordeum jubatum			5													3	3													
Agropyron Smithii	29	27	18	35	22		7	25	25	15	37		7	22	28	21	25													
Oryzopsis hymenoides	1			1						1																				
Atriplex canescens			1																											
Penstemon strictus							1																							
Hilaria jamesii							2																							
Agropyron cristatum																4														
Chenopodium fremontii													1																	

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Fine Slurry Area
TREATMENT Irrigated, Slurry Cover, None, 12 in. Topsoil

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1M² / Square
SAMPLING DATE August 27, 1988

n:
$\bar{x}$:
s^2:

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	27									28								37													
Vegetation		45	50	50	25	30		30	30	25	45	45		20	35	20	35	15													
Litter		20	30	25	74	55		63	66	73	35	30		79	63	74	60	85													
Bare		35	20	20	1	15		7	3	2	20	25		1	1	4	5														
Rock				5					1						1	2															
Kochia scoparia					3			15	28	1				20	35			6													
Agropyron trachycaulum		25	25		15	20				8	25	15				5	15	5													
Grindelia squarrosa		20	15							15	12					6	15														
Agropyron smithii		2	10	48	10	10		15	2	2	9	35				9	6														
Hordeum jubatum				2							2																				
Oryzopsis hymenoides			3																												
Hilaria jamesii		1																													
Melilotus officinalis			2																												
Chenopodium fremontii								T		1							T	8													

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Fine Slurry Area
TREATMENT Irrigated, Slurry Cover, Organic, 6in. Topsoil

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 27, 1988

n :
$\bar{x}$:
s^2 :

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		40						41						42																	
Vegetation		23	45	35	45	30		50	25	50	40	45		25	35	35	40	55													
Litter		76	53	59	52	66		45	74	49	30	55		72	58	64	45	43													
Bare		1	2	6	3	4		5	1	1	30			3	7	1	15	2													
Rock											T																				
Kochia scoparia		4		3	2				25			35		T		35		1													
Agropyron trachycaulum					6				15			15			10	15		20													
Agropyron smithii		7	45	28	35	29		50	1	35	35	1		20	5		25	40													
Agropyron cristatum		12		4	4	1				4	1																				
Grindelia squarrosa										3	10			12	30		12														
Hordeum jubatum										5					1		3														
Oryzopsis hymenoides										8	3																				
Lepidium perfoliatum											1																				

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Fine Slurry Area
TREATMENT Irrigated Slurry Cover None 6 in. Topsoil

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 27, 1988

n:
$\bar{x}$:
s^2:

25 26 39

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Vegetation		35	25	35	40	25		25	30	60	20	20		30	25	25	40	15													
Litter		45	73	61	29	72		74	69	39	79	75		69	73	57	59	79													
Bare		20	2	4	30	3		1	1	1	1	5		1	2	16	1	6													
Rock					1											2															
Kochia scoparia			T					25	30	60		20		25	2			2													
Agropyron trachycaulum		7		2		5										12	30													
Grindelia squarrosa					25						T																			
Agropyron Smithii		28	25	28	12	20					20				18	2	5	12												
Hordeum jubatum					3											11	5	1												
Chenopodium fremontii			T	2		T		T	5			2		8	5															
Oryzopsis hymenoides						T					1																			
Agropyron Cristatum				3																										

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Fine Slurry Area
TREATMENT Unirrigated, Slurry/Cover, Organic, 12in. Topsoil

SAMPLED BY Joe Clarke/John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 27, 1988

n :
$\bar{x}$:
s^2 :

35 36 46

CLASS/SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Vegetation		30	40	20	8	35		15	55	70	45	35		35	30	60	35	35													
Litter		16	30	30	30	45		73	38	29	53	62		35	4	36	63	62													
Bare		54	30	50	62	20		7	7	1	2	3		30	66	4	2	3													
Rock					T									T	T	T		T													
Kochia Scoparia		5	6	20	8	5		10	55	70	45	35		5	30	60	34	27													
Descurainia pinnata		25	30		1	30		5	3					30				3													
Agropyron Smithii						1																									
Agropyron Cristatum			4											5				5													
Atriplex Canescens		5																													
Sisymbrium altissimum			1					4							1																
Chenopodium Fremontii											T																				
Sarcobatus Vermiculatus																	1														

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Fine Slurry Area
TREATMENT Unirrigated, Slurry Cover, None, 12in. Topsoil

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 27, 1988

n:
$\bar{x}$:
s^2:

29 30 45

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Vegetation		10	10	35	35	15		21	20	25	20	25		20	35	45	50	45													
Litter		25	62	64	63	40		33	17	20	40	35		76	52	47	49	40													
Bare		65	28	1	2	45		40	63	55	40	40		4	8	1	1	15													
Rock															5	1	T														
Kochia scoparia		10	10	35	12	15		24	20	25	20	22		20	25		50	45												
Descurainia pinnata			2	T				3		T	T																				
Agropyron Smithii					25							1			10	29	1													
Chenopodium fremontii					T																										
Agropyron trachycaulum																15														
Bromus tectorum											T																				
Hordeum jubatum									T																						
Agropyron cristatum					1					T		2				6															

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Fine Slurry Area
TREATMENT Unirrigated, Slurry Cover, Organic, 6in. Topsoil

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 27, 1988

n:
$\bar{x}$:
s^2:

	32						33						48																	
CLASS / SPECIES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Vegetation	30	12	25	20	35		20	25	20	45	35		30	30	25	60	38													
Litter	40	58	10	58	45		50	10	15	45	5		37	41	29	38	61													
Bare	30	30	65	22	20		30	65	65	10	60		30	23	40	2	1													
Rock	T	T		T				T	T		T		3	6	6		T													
Kochia scoparia	16	12	25	12	35		15	25	4	5	5		30	22	24	31	8													
Descurainia pinnata	1			4	2				5	35	10		T			5													
Bromus tectorum	3		2	3	T		2		16	6						15	10													
Agropyron Smithii	T			1	3										1	2	1													
Agropyron cristatum		1			1									8			2													
Atriplex Canescens	10										1						2													
Sisymbrium altissimum	1						5	1			25		T			6	15													

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Fine Slurry Area
TREATMENT Unirrigated, Slurry Cover, None, 6in. Topsoil

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 27, 1988

n:
$\bar{x}$:
s^2:

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		31						34						47																	
Vegetation		20	20	15	15	6		20	30	20	15	8		20	20	15	20	15													
Litter		15	20	12	61	20		15	37	51	28	20		25	7	12	51	57													
Bare		65	58	33	24	74		65	33	4	55	72		55	67	60	26	28													
Rock		—	2	40	—	—		T	T	25	2	—		—	6	5	3	T													
Kochia Scoparia		20	20	15	15	6			10	20	10	8		15	20	15	20	10													
Descurainia pinnata			2	1		1		20		4				4			2	4													
Bromus tectorum			1																												
Agropyron Smithii		T						1	2		5			2				1												
Agropyron cristatum				T	4												1													
Atriplex canescens									1.		3																				
Sisymbrium altissimum									25																						

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Fine Slurry Area
TREATMENT Irrigated, No Slurry Cover, Organic, 12 in. Topsoil

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 27, 1988

n :
$\bar{x}$:
s^2 :

	5						12						21																	
CLASS / SPECIES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Vegetation	40	25	30	25	35		60	45	20	30	45		30	55	45	65	40													
Litter	59	40	65	63	63		28	10	48	62	49		69	34	50	20	40													
Bare	1	35	5	12	2		12	45	32	8	6		1	1	5	15	20													
Rock	T								T					T		T	T													
Kochia scoparia	18	5	9	1	3								4	50																
Agropyron trachycaulum	2	16		4	26		15	25	20	3	40			1			20													
Grindelia squarrosa			20	20	1		30		2	25						15														
Agropyron Smithii	3	4			6		13	24		2	7		24	5	44	50	25													
Oryzopsis hymenoides	2			T			2																							
Chenopodium fremontii	15	T			T								2		1															
Hilaria jamesii			5																											
Hordeum jubatum										T	1																			

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Fine Slurry Area
TREATMENT Irrigated, No Slurry Cover, None, 12in. Topsoil

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 27, 1988

n :
$\bar{x}$:
s^2 :

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	3
		16						11						22																	
Vegetation		30	35	25	35	30		40	30	35	45	25		20	30	20	25	35													
Litter		55	42	10	45	46		55	10	30	10	15		6	54	62	25	60													
Bare		15	22	65	20	24		5	60	35	45	60		74	16	18	50	5													
Rock		–	1	–	–	–		–	–	–	–	–		–	T	–	–	–													
Agropyron Hackyraulum		5		22	11	8		11	15	4	26	18			15		12														
Grindelia Squarrosa		1	33		25	12		25	12	20	8	5			3	1	10													
Agropyron Smithii		24	2	7	2	20		4	6	17	4			20	12	17		30													
Hordeum Jubatum											7																				
Hilaria Jamesii												2																			
Oryzopsis Hymenoides											1						3														
Kochia Scoparia																		5													
Chenopodium Fremontii																2															

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Fine Slurry Area
TREATMENT Irrigated, No Slurry/Cover, Organic, 6ft. Topsoil

SAMPLED BY Joe Clarke/John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 27, 1988

n: 10 23
$\bar{x}$:
s²:

CLASS/SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Vegetation		20	70	35	35	55		65	40	24	20	45		50	45	55	60	40													
Litter		80	20	55	64	44		32	52	70	77	48		40	55	43	37	57													
Bare		—	10	10	1	1		3	8	5	3	7		10	-	2	3	3													
Rock		—	—	—	—	—		—	—	1	—	—		—	—	—	—	—													
Agropyron Hochyraulum		17	20	7	16	15			15			25		5			15													
Grindelia Squarrosa		3	4	2		3		20	1	22	15			5	10	6	12													
Hordeum jubatum				3		42										2														
Agropyron Smithii			46	25	19			55	22	1	14	20		40		47	33	40													
Sarcobatus vermiculatus			T																												
Agropyron Cristatum									4.																						
Chenopodium leptophyll									1	1								T													
Kochia Scoparia															40	2															

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Fine Slurry Area
TREATMENT Irrigated, No Slurry Cover, None, 6 M. Top Soil

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 27, 1988

n :
$\bar{x}$:
s^2 :

		7						8						24																		
CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Vegetation		35	45	50	50	55		50	60	15	30	30		35	65	25	45	40														
Litter		60	32	34	46	29		44	36	84	25	65		40	32	55	50	56														
Bare		5	23	16	4	15		6	4	1	45	5		25	3	20	5	4														
Rock		–	–	–	–	1		–	–	–	–	–		–	–	–	–	–														
Agropyron trachycaulum		22	28	17	8	25		20	40	3	20	20				25	20	25														
Grindelia squarrosa		10	T	10	20	5		20	15					8	15																	
Hordeum jubatum			3	10	12	6		10		10					1		5															
Agropyron Smithii		11	14	15	20	20		10	15		10	10		27	49		19	26														
Kochia scoparia										2																						
Sisymbrium altissimum								T																								
Atriplex canescens																	1															

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Fine Slurry Area
TREATMENT Unirrigated, No Slurry Cover, Organic, 12in. Top Soil

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 27, 1988

n:
$\bar{x}$:
s^2:

		3					1:4						1:9																		
CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Vegetation		20	30	55	25	30		20	25	30	40	35		16	25	20	20	25													
Bare		55	30	3	9	42		50	68	30	8	30		58	45	35	35	55													
Liter		25	40	42	66	28		30	7	40	52	35		25	30	45	45	20													
Rock		T	T		T			T		T				1			T													
Kochia scoparia		11	30	55	25	25		20	23	30	40	35		12	16	16	20	25													
Agropyron trachycaulus		3			4						T																			
Descurainia pinnata			2					3		3				1	9	9	3	T													
Bromus tectorum						1			2								T													
Agropyron Smithii		6			1	6		1	1		1			2				T												
Atriplex canescens						2																								
Agropyron cristatum					T				4					2																
Hordeum jubatum		T																												
Oryzopsis hymenoides				1	1																									
Atriplex gardneri						T																								

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Fine Slurry Area
TREATMENT Unirrigated, No Slurry Cover, None, 12 in Topsoil

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 27, 1988

n: 4 13 20
$\bar{x}$:
s^2:

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Vegetation		20	45	35	30	30		35	20	55	40	30		20	30	35	35	30													
Bare		15	20	1	24	23		45	30	3	5	30		25	45	4	15	23													
Liter		65	35	64	46	47		20	42	42	55	40		55	25	61	50	47													
Rock									T		T				T															
Kochia scoparia		12	45			8		35	28	50		6		15	30	27		30													
Agropyron trachycaulum		8		23	10	15				8						4	11														
Bromus tectorum		1												2																	
Grindelia squarrosa		1		11	1						25						2														
Agropyron smithii		T			19	6								2		3	20														
Hordeum jubatum				1		1				1	5						3														
Agropyron cristatum		2												4		5															
Sarcobatus vermiculatus				1																											
Chenopodium fremontii				1																											
Hilaria jamesii						1																									
Descurainia pinnata									8			25			1			3													
Agropyron smithii											10																				
Atriplex gardneri																	1														

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Fine Slurry Area
TREATMENT Unirrigated, No Slurry Cover, Organic, 6in.

SAMPLED BY Joe Clarke/John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 27, 1988

n :
$\bar{x}$:
s^2 :

CLASS / SPECIES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Vegetation	35	8	25	25	40		20	30	20	35	45		70	35	25	40	20													
Litter	61	10	40	52	30		40	25	15	59	40		25	20	30	35	65													
Bare	3	82	35	23	30		40	45	65	6	15		5	45	45	25	15													
Rock	1			T	T		T	T	T																					
Kochia scoparia	35	8	20	25	30		20	30	15	35	30		15	28	22	11	5													
Descurainia pinnata	1		T		T		T	3	T	6				1	3	4	5													
Bromus tectorum	T		T				2	1			15		60	3			3													
Agropyron Smithii	2			T	10		1		3		3			4			10													
Atriplex canescens														1																
Sisymbrium altissimum		1	8	T			1	1	1		2				5	25														
Lepidium perfoliatum		3			T																									
Grindelia squarrosa									1																					
Agropyron cristatum							1				1																			
Sarcobatus vermiculatus									1																					

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Fine Slurry Area
TREATMENT Unirrigated, No Slurry/Cover, None, 6in. Topsoil

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 27, 1988

n: 2 16 18
$\bar{x}$:
s^2:

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Vegetation		20	28	23	26	30		30	25	20	20	15		25	20	20	15	25													
Litter		40	15	56	66	27		55	40	17	52	20		53	45	15	60	45													
Bare		40	57	20	8	43		15	35	63	28	65		22	35	65	25	30													
Rock			T	1												T														
Kochia scoparia		20	22	23	12	30		5	10	20	15	10		7	22	20	12	5													
Agropyron trachycaulum					8																										
Descurainia pinnata				3		T			1	2	T			12		2		2													
Bromus tectorum					2			1	10		7	3						T													
Agropyron smithii					5			1	2		T	5		1			3														
Atriplex canescens			3					2																							
Agropyron cristatum			3		2				1																						
Tragopogon dubius					T																										
Lepidium perfoliatum								25			T																				
Oryzopsis hymenoides									2																						
Sisymbrium altissimum														5	1			20													
Atriplex gardneri															1																

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Slurry Area
TREATMENT Unirrigated, 6 in. Topsoil, None

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n :
$\bar{x}$:
s^2 :

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		18						24						22																	
VEGETATION		5	35	30	4	28		35	20	57	5	20		15	20	20	33	25													
LITTER		30	40	27	71	42		58	35	6	87	43		58	30	27	25	20													
BARE GROUND		64	25	43	25	30		7	45	34	8	12		27	50	45	40	52													
ROCK		1	T		T	T				3		25			T	8	2	3													
Kochia Scoparia		5	35	30	4	28		35	5	35	4	20		15	20	20	33	16													
Descurainia Pinnata				T	T						T																				
Bromus tectorum			T	T	1	T		T		15	T	T																			
Oryzopsis hymenoides									3																						
Ceratoides lanata									3	2								4													
Agropyron trachycaulum									10.	6								5													
Grindelia Squarrosa										5																					
Artemisia nova									1																						
Tragopogon dubius											1																				

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Slurry Area
TREATMENT Unirrigated, 6in. Topsoil, Organic

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n :
$\bar{x}$:
s^2 :

16 19 23

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
VEGETATION		5	35	25	10	35		25	11	35	10	12		25	3	25	25	20													
LITTER		62	55	25	38	63		25	6	5	4	35		51	23	9	45	60													
BARE GROUND		30	10	50	50	2		50	82	60	41	53		24	69	64	30	20													
ROCK		3			2			T	1		45	T			5	2		T													
Kochia Scoparia		3	35	25	10	35		19	10	35	10	12		25	T	24	24	15													
Descurainia Pinnata					T				1			T		3	T			5													
Chenopodium Fremontii			T																												
Oryzopsis hymenoides		1	T																												
Ceratoides lanata					T			6								1	1														
Agropyron trachycaulum		1	5																												
Atriplex canescens															3															

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Slurry Area
TREATMENT Irrigated, 6 in. Topsoil, None

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n :
$\bar{x}$:
s^2 :

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		15						21						20																	
VEGETATION		20	20	15	35	5		7	24	6	10	33		25	40	25	30	15													
LITTER		35	45	70	28	92		90	40	86	45	20		70	17	34	67	35													
BARE GROUND		45	35	15	35	3		3	31	8	45	47		5	40	40	3	50													
ROCK			T	T	2			T	5						3	1		T													
Kochia scoparia		20	20	5		5		7		6	9			25			30														
Oryzopsis hymenoides				T	2																										
Agropyron trachycaulum				8	35				4			25			40	22		5													
Hordeum jubatum				2					20			8				3		10													
Grindelia squarrosa				T								7																			
Poa pratensis					T							T																			
Bromus tectorum												T																			
Ceratoides lanata											1																				
Hilaria jamesii									1						T																

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Slurry Area
TREATMENT Irrigated, 6 in. TopSoil, Organic

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n :
$\bar{x}$:
s^2 :

CLASS / SPECIES	13						14						19					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
VEGETATION	60	5	25	20	30		15	35	25	30	25		5	35	35	25	6	
LITTER	38	15	71	55	70		83	59	55	54	74		79	45	52	55	91	
BARE GROUND	2	55	3	25			2	6	20	15	1		16	20	3	20	3	
ROCK		25	1	T						1			T	T	10			
Kochia Scoparia	50	5	5	T	30		1	5	20	10	4		T	4	13	24	6	
Chenopodium Fremontii				T			T											
Oryzopsis hymenoides				1			6						2					
Agropyron trachycaulum	10		15	20			7	23	3	20	10		3	35	22	1		
Hordeum jubatum			5					1			6							
Agropyron Smithii			1															
Atriplex canescens							1											
Grindelia squarrosa								6			5							
Agropyron Cristatum									2									

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Slurry Area
TREATMENT Unirrigated, 12in. Topsoil, None

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n :
$\bar{x}$:
s^2 :

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		4						6						12																	
VEGETATION		20	40	25	20	35		20	30	35	25	20		20	25	25	15	5													
LITTER		59	55	10	45	29		40	6	42	50	60		40	35	35	50	35													
BARE GROUND		20	5	65	35	35		39	64	20	25	20		40	40	35	35	60													
ROCK		1	T		T	1		1		3	T					5	T	T													
Kochia scoparia			40	25	T	35		5	30	35	5	20		5	25	25		3													
Descurainia pinnata								15			1			20				2													
Froggoposon dubius																															
Hilaria jamesii		20			20																										
Bromus tectorum		3									10						14														
Oryzopsis hymenoides											7						3														
Agropyron trachycaulum											6																				
Ceratoides lanata											T							T													

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Slurry Area
TREATMENT Unirrigated, 12 in. Topsoil, Organic

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n :
$\bar{x}$:
s^2 :

		5						11						10																	
CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
VEGETATION		25	30	20	20	30		20	29	25	15	25		20	40	40	20	15													
LITTER		35	20	15	59	28		45	25	47	43	35		60	35	25	45	30													
BARE GROUND		40	50	65	20	42		35	45	27	42	40		20	25	35	35	55													
ROCK		T	T		1			T	1	1		T			T	T		T												
Kochia Scoparia		2	30	20	5	29		20	7	25	15	20		20	40	25	20	15													
Descurainia pinnata		23	5		20	2		5	25	10	1	10				20	T	5													
Bromus tectorum						T					T																				
Tragopogan dubius						1																									
Chenopodium Fremontii										T																					

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Slurry Area
TREATMENT Irrigated, 12 in. Topsoil, None

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n:
$\bar{x}$:
s^2:

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		2						3						7																	
VEGETATION		20	30	20	20	39		35	20	35	20	35		20	30	20	3	21													
LITTER		23	65	59	30	37		40	45	60	50	64		79	50	35	48	74													
BAREGROUND		55	5	20	48	24		25	35	5	30	1		1	20	45	49	5													
Rock		2		1	2	T		T	T	T	T																				
Kochia scoparia		3	30	20				10	15	35		35		20		T	2	1													
Agropyron trachycaulum		10			17	35			5		6	4			30	20	T	20													
Oryzopsis hymenoides		12			3						7																				
Cerdfoides lanata		T																													
Atriplex canescens		T																													
Hilaria jamesii						4																									
Descurainia pinnata								20			10																				
Bromus tectorum								5																							
Sitanion hystrix																	1														

COVER DATA SHEET

COMPANY NAME KAISER COAL
LOCATION Wellington Test Plots
SITE Coarse Slurry Area
TREATMENT Irrigated, 12 in. Topsoil, Organic

SAMPLED BY Joe Clarke / John Palfy
QUADRAT SIZE / SHAPE 1 M² / Square
SAMPLING DATE August 26, 1988

n:
$\bar{x}$:
s^2:

CLASS / SPECIES	$\bar{x}$	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
VEGETATION		5	30	25	20	29		20	20	55	25	35		20	40	20	12	25													
LITTER		91	69	70	69	66		78	78	10	73	42		57	57	72	73	45													
BAREGROUND		4	1	4	10	3		2	2	35	2	23		23	3	8	15	30													
ROCK		T		1	1					T								T												
Kochia scoparia		5	30	25	20	25		20	5		25			20	40	20	10														
Agropyron trachycaulum		3				4			15	55		35					2	25													
Chenopodium fremontii			5					T																							
Ceratoides lanata																		1													
Hordeum jubatum									T	3		2																			
Hilaria jamesii																															
Artemisia nova																		T													

NOTICE OF INTENT
FOR COVERAGE UNDER THE GENERAL PERMIT
FOR COAL MINING PERMIT #UTG040000

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ACT/007/012
Remitz

NOTICE OF INTENT
FOR COVERAGE UNDER THE GENERAL PERMIT
FOR COAL MINING PERMIT #UTG040000

Submitted by:

Genwal Coal Company

Submitted to:

Utah Dept. of Health
Bureau of Water Pollution Control
P. O. Box 16690
Salt Lake City, UT 84116-0699

Environmental Protection Agency
Region VIII
Water Management Division
Complance Branch (8LUM-C)
Denver Place, Suite 500
999 18th Street
Denver, CO 80202-2405

I certify under penalty of law that I have personally examined and am familiar with the information submitted in the application and all attachments that, based on my inquire of those persons immediately responsible for obtaining the information contained in the NOI application, I believe the information is true, accurate and correct. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

C. F. Vaughn
President

Date 8-21-89

A. Facility Name

Wellington Coal Cleaning Plant

B.&C. Facility Contact

Mr. Candy Manzanares
Genwal Coal Company
P. O. Box 766
Wellington, UT 84542
(801) 637-2342

E. Facility Location

Coal Cleaning Road
Carbon County
Wellington, UT 84542

Latitude 39 31' 20"
Longitude 110 41' 50"

G. None of the existing or proposed discharge points are located on Indian lands or within national forest boundaries.

H. This is the only discharge permit the facility is attempting to obtain.

I. The Wellington coal cleaning facility does not have any hazardous waste treatment, storage or disposal facilities.

DESCRIPTION OF DISCHARGE POINTS
(Items J, K, L, & M of Notice of Intent)

Discharge Point 001

Discharge Point 001 is located at approximately 100 degrees 41 minutes 6 seconds east longitude and 39 degrees 31 minutes 22 seconds north latitude. Discharge from this point would be received by the Price River.

As part of the coal washing operations of the previous owners, fine coal refuse was pumped from the coal washing plant to the northern end of the slurry ponds. Waste water went through a series of two slurry ponds and finally into the clear water pond. Water from the clear water pond was then recycled to the wash plant. Because the clear water pond does have an emergency spillway, it is possible that a larger flash flood could cause the clear water pond to discharge. The ponds are dry now, and it is not intended to reactivate them for coal washing at the present time. There is still the remote possibility that a massive flash flood could refill the ponds and cause a discharge over the emergency spillway.

The existing pond system was designed to remove sediment from coal cleaning slurries. It is, therefore, felt that the pond system is already adequate to treat water from a flash flood. Since diversion ditches already reroute most run-off not falling directly onto the pond, contaminants will come from refuse washed from the dry pond bottom or chemicals leached from the waste. While no water from a flash flood large enough to cause a discharge has ever been sampled, samples of water from the clear water pond during and after the cessation of operations of previous owners do exist and are included with the application.

There will be no regular flow from the clear water pond. A flash flood with a re-ocurrence interval greater than 25 years would be required to cause a discharge.

Discharge Point 002

Point source 002 is located at approximately 110 degrees 41 minutes 6 seconds longitude by 39 degrees 31 minutes 22 seconds north latitude. Discharge from this point flows into the Price River.

Genwal Coal Company has water rights on the Price River and a channel leads from the river to a sump with a pump-to-pump water to the coal cleaning plant. This pump facility may be reactivated. In that event, it would be possible for water to flow toward the sump and then flow back to the river. Since this would simply be a return of river water to the river, no special treatment process is proposed. Water quality should be the same as that already in the Price River and analyses of this water are provided with this application.

Flow from this source would result from eddies and mixing in the channel to the sump. The net flow of water will always be 0 or away from the river. The frequent and magnitude of the discharge is, therefore, difficult to quantify but likely to be small.

Discharge Point 003

Discharge Point 003 is located at approximately 110 degrees 41 minutes 41 seconds longitude by 39 degrees 31 minutes 28 seconds north latitude. Discharge from this point would flow to the Price River.

When the Wellington coal cleaning plant was operated by previous owners as a coal cleaning facility, coal refuse was pumped through slurry lines to the slurry ponds. During the winter these lines could freeze and break. The previous owners installed a series of rock filters to treat effluent from this source. Because it is not intended at this point to clean coal at Wellington, this slurry line will be empty and there will never be a discharge from this point. Therefore, no additional treatment is proposed.

Discharge Point 004

Discharge Point 004 is located at approximately 110 degrees 41 minutes 42 seconds longitude by 39 degrees 31 minutes 27 seconds north latitude. Water from this point will discharge into the Price River.

A series of two ponds (auxiliary and heat-dryer ponds) were built near the Wellington coal cleaning plant by the previous owners. These ponds were designed to hold a 25-year flash flood accompanied by the discharge from the plant with a complete power failure. These ponds are now dry and it is not intended to run the Wellington plant for coal cleaning. Still, it is possible that a massive flash flood could refill the ponds and go over the emergency spillway.

The auxiliary and heat-dryer ponds are already designed as sediment ponds and it is proposed that they be used as such for the treatment of flash flood water and run-off from the buildings in the Wellington plant complex. While no flood massive enough to cause discharge has ever been sampled, the water in the auxiliary pond was sampled during operation, and as it dried up, after the previous operator shut the plant down. These water analyses are provided with this application.

Discharge from this source should have a re-occurence interval greater than every 25 years and the magnitude of the discharge will depend on the size of the flood.

Discharge Point 005

Discharge Point 005 is located at approximately 110 degrees 40 minutes 58 seconds longitude by 39 degrees 30 minutes 56 seconds north latitude. The receiving waters are the Price River.

Most water discharging from this point originates as storm run-off from the undisturbed hills around the Wellington plant. A sediment pond is proposed as part of new coal screening and loading operations of Genwal Coal Company. This pond would discharge after a 10-year flash flood. This discharge would flow down a ditch and discharge through a culvert at the discharge point. Additionally, previous operations have build piles of coarse coal wash refuse beside the ditch. It is possible for run-off or leachate seeping from the pile to get into the ditch and be discharged during a precipitation event.

It is proposed to treat water running off the coal loading and screening pad with a sediment pond. Water running north off the top of the existing refuse piles will also be treated and passed through the sediment pond. Water running off the pile or seeping into the ditch below the refuse pile will be treated with a silt fence. Since the coal loading pad has not been constructed, no samples of the run-off exist, however, samples of the leachate from the refuse pile do exist and are provided with this application.

The sediment pond is designed to discharge around six cubic feet per minute. This discharge would result from a 10-year flash flood. Otherwise, there will probably be no discharge from the pond. A 25-year flash flood with a wet antecedent moisture condition (which is very abnormal for the area) or a larger flash flood could cause discharge over the emergency spillway and the magnitude of this discharge would depend on the flood. Run-off or seepage from the pile into the ditch could occur with any significant precipitation event. Because this discharge point handles water from disturbed and undisturbed ground and drains a watershed of over 350 acres, there will be some kind of discharge at this point during most significant precipitation event.

Discharge Point 006

Discharge Point 006 is located approximately at 110 degrees 42 minutes and 15 seconds longitude by 30 degrees 31 minutes 52 seconds north latitude. The receiving waters are the Price River.

In the early 1980's, Utah Power and Light (UP&L) leased ground just north of the Wellington coal cleaning plant for used as a staging area. Materials once stored there have been removed but a few roads remain. It is not intended to further disturb this area at this time, though a flood train loading facility may be built here in the future. Run-off from this area has never been tested, and attempts to take samples during the next storm large enough to create run-off are planned. Because a complete list of materials stored at the site is not available and this run-off has never been tested; this point is being included until run-off is proven harmless.

No treatment is proposed at this point unless a hazard or contaminant from UP&L's previous operation is found. Except for a few remaining dirt roads, this country is undisturbed and run-off is just the natural run-off from the land.

Discharge Point 007

Discharge Point 007 is located at about 110 degrees 42 minutes longitude by 39 degrees 31 minutes 35 seconds north latitude. The receiving waters are the Price River. Potential flows and contaminants at this discharge point are the same as 006 and sampling is planned.

Discharge Point 008

Discharge Point 008 is located at about 110 degrees 41 minutes 43 seconds west longitude by 39 degrees 31 minutes 56 seconds north latitude. The receiving waters are the Price River.

Previous operators discharged coal as slurries into slurry ponds shown on the map. Water can seep from these ponds and mix with water diverted through

ditches from undisturbed ground. When the Wellington plant was operated for coal cleaning and the ponds were partially filled, seepage could be of both rain water falling on the ponds or process water from the ponds. Since it is not intended at this point to clean coal at Wellington, any contamination will come from rain water leaching coal refuse and seeping into the ditch.

The flow in the ditch will be mostly diverted storm run-off from undisturbed ground. Seepage should be small although difficult to quantify for these conditions. Since the water is already being diverted from disturbed ground, no further treatment is planned unless analyses show problems requiring remediation. Analyses of water from the diversion ditch are included with the application.

N. Discharge Point Data

There is a limited amount of data for some of the discharge points. This data is included as informational only. It is reflective of the operation conducted by U. S. Steel and it is in no way reflective of the proposed coal loading facility to be operated by Genwal Coal Company. Coal will not be processed; it will be stored and loaded into rail cars. Initial discharge from the new and existing points will be monitored and data collected and reported as it is available. This data will then be used to determine compliance with the parameters outlined in the Utah General Permit for Coal Mining #UTG040000.

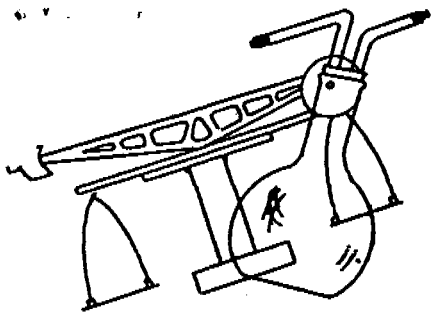
U. S. STEEL MINING CO., INC. - WELLINGTON COAL CLEANING PLANT

CLEAR WATER POND (Potential Discharge 001)
~~#SW-7###~~

Sampling Date	1-13-84	3-14-84	5-11-84	7-27-84	9-21-84	11-27-84	1-29-85	3-18-85	5-28-85	07-31-85
Flow Not Applic.									0.000	
Aluminum, Al (Tot) mg/l	0.057	0.257	0.220	0.070	1.160	0.153	0.200	0.210	(.010	(.001
Ammonia, NH3-N mg/l	0.400	0.350	0.200	0.010	0.020	0.100	0.800	0.100	(.01	0.150
Arsenic, As (Tot) mg/l	0.001	(.001	(.001	(.001	(.010	0.002	(0.001	(.001	(.001	(.001
Barium, Ba (Tot) mg/l	0.200	0.050	0.050	0.060	0.040	0.040	0.040	0.010	0.040	0.030
Bicarbonate, HCO3 mg/l	351.360	414.000	341.600	335.500	268.400	317.200	385.500	294.000	273.000	241.600
Boron as B (Tot) mg/l	0.380	0.300	0.350	0.476	0.599	0.391	0.420	0.409	0.601	0.510
Cadmium, Cd (Tot) mg/l	(.001	(.010	(.0010	(.001	0.007	(.001	(0.001	(.001	(.001	(.001
Calcium, Ca mg/l	144.000	128.000	120.000	88.000	112.000	138.000	136.000	157.100	137.000	136.000
Carbonate as CO3 mg/l	(.01	(.01	(.01	(.01	(.01	(.01	(0.01	(.01	(.01	(.01
Chloride, Cl mg/l	70.000	60.000	86.000	60.000	95.000	33.000	64.400	67.000	86.000	77.900
Chromium, Cr (Tot) mg/l	(.001	(.001	(.001	(.001	0.010	(.001	(0.001	0.002	0.016	0.005
Conductivity umhos/cm	3200	3200	2200	2690	3700	2950	3100	3350	3650.000	3650.000
Copper (Tot) mg/l	0.032	0.040	(.001	0.024	0.020	0.010	(0.001	0.020	0.030	0.010
Fluoride, F mg/l	0.560	0.660	0.230	0.490	0.430	0.520	0.370	0.330	0.630	0.440
Hardness, CaCO3 mg/l	800	775	600	635	725	780	806	937	885.000	830.000
Iron, Fe (Tot) mg/l	0.270	0.280	0.240	0.140	0.530	(.02	0.150	0.110	0.080	0.110
Lead, Pb (Tot) mg/l	0.002	(.001	(.001	0.021	0.060	(.001	(0.01	(.001	0.007	0.003
Magnesium, Mg mg/l	105.600	109.200	72.000	99.600	106.800	104.400	112.000	131.100	131.000	118.000
Manganese, Mn (Tot) mg/l	0.080	0.080	0.010	0.010	0.060	0.140	0.220	0.130	0.020	0.040
Mercury, Hg mg/l	(.0002	(.0002	(.0002	(.0002	(.0002	0.0003	(0.0002	(.0002	(.0002	(.0002
Molybdenum as Mo (Tot) mg/l	0.007	(.001	(.001	0.007	0.005	0.006	(0.05	0.006	(.001	(.01
Nickel, Ni (Tot) mg/l	0.080	(.01	(.01	(.01	0.050	(.01	(0.01	(.01	(.01	(.05
Nitrate, NO3-N mg/l	1.010	1.230	0.220	0.150	0.010	0.010	0.340	0.070	0.020	1.040
Nitrite as NO2-N mg/l	0.130	0.050	0.360	0.020	0.430	0.030	0.030	(.01	(.01	(.01
Phosphate PO4-P Ortho mg/l	0.490	0.100	0.020	0.030	(.01	0.060	0.220	0.040	0.020	0.020
Phosphate PO4-P Tot mg/l	0.450	0.100	0.120	0.300	0.580	0.260	0.160	0.110	0.040	0.100
Potassium, K mg/l	7.700	5.600	4.900	6.200	8.850	6.500	7.400	5.940	7.520	7.700
Selenium Se (Tot) mg/l	(.001	(.001	(.001	(.001	(.001	(.001	(0.001	(.001	(.001	(.001
Sodium, Na mg/l	388.000	410.000	281.000	347.000	476.000	352.000	365.000	362.000	465.500	469.000
Sulfate, SO4 mg/l	1230	1180	760	980	1320	1170	1160	1300	1450.000	1470.000
Sulfide as S mg/l	0.200	(.01	1.100	1.000	0.800	0.500	(0.01	(.01	(.01	(.10
Suspended Solids mg/l	6	11	26	9	45	11.0	14.0	17.0	15.000	20.000
Total Dis. Solids mg/l	2120	2100	1500	1750	2426	1985	2060	2180	2426.000	2392.000
Zinc, An (Tot) mg/l	0.030	0.090	0.010	0.046	0.030	0.052	(0.002	0.009	0.110	0.015
pH Units	7.80	8.00	7.80	7.90	8.02	8.05	7.80	7.95	8.050	7.900

CLEAR WATER POND
SW-7

Sampling Date	9-26-85	11-22-85	MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
Flow Not Applic.						
Aluminum, Al (Tot) mg/l	0.160	0.050	0.000	1.160	0.211	0.298
Ammonia, NH3-N mg/l	(.01	0.100	0.000	0.800	0.186	0.224
Arsenic, As (Tot) mg/l	(.001	(.001	0.000	0.002	.000	0.001
Barium, Ba (Tot) mg/l	0.040	0.040	0.010	0.200	0.053	0.046
Bicarbonate, HCO3 mg/l	281.000	387.000	241.600	414.000	324.247	52.012
Boron as B (Tot) mg/l	0.600	0.529	0.300	0.601	0.464	0.100
Cadmium, Cd (Tot) mg/l	0.009	(.001	0.000	0.009	0.001	0.003
Calcium, Ca mg/l	160.000	230.000	88.000	230.000	140.575	32.758
Carbonate as CO3 mg/l	(.01	(.01	0.000	0.000	0.000	0.000
Chloride, Cl mg/l	69.400	81.400	33.000	95.000	70.908	15.583
Chromium, Cr (Tot) mg/l	0.017	0.002	0.000	0.017	0.004	0.006
Conductivity umhos/cm	3900.000	4300.000	2200.000	4300.000	3330.833	547.044
Copper (Tot) mg/l	(.01	(.01	0.000	0.040	0.016	0.014
Fluoride, F mg/l	0.540	0.410	0.230	0.660	0.468	0.119
Hardness, CaCO3 mg/l	990.000	1245.000	600.000	1245.000	834.000	163.569
Iron, Fe (Tot) mg/l	0.280	0.040	0.000	0.530	0.186	0.138
Lead, Pb (Tot) mg/l	0.009	(.001	0.000	0.060	0.009	0.017
Magnesium, Mg mg/l	141.600	160.800	72.000	160.800	116.075	21.868
Manganese, Mn (Tot) mg/l	0.090	0.220	0.010	0.220	0.092	0.070
Mercury, Hg mg/l	(.0002	(.0002	0.000	.000	.000	.000
Molybdenum as Mo (Tot) mg/l	0.010	0.034	0.000	0.034	0.006	0.009
Nickel, Ni (Tot) mg/l	(.01	(.01	0.000	0.000	0.011	0.025
Nitrate, NO3-N mg/l	0.020	0.180	0.010	1.230	0.358	0.438
Nitrite as NO2-N mg/l	0.040	(.01	0.000	0.430	0.091	0.141
Phosphate PO4-P Ortho mg/l	(.01	0.340	0.000	0.490	0.112	0.150
Phosphate PO4-P Tot mg/l	0.080	0.100	0.040	0.580	0.200	0.160
Potassium, K mg/l	7.900	6.370	4.900	8.850	6.882	1.090
Selenium Se (Tot) mg/l	(.001	0.002	0.000	0.002	.000	0.001
Sodium, Na mg/l	469.000	449.000	281.000	476.000	402.125	60.813
Sulfate, SO4 mg/l	1600.000	1750.000	760.000	1750.000	1280.833	256.530
Sulfide as S mg/l	(.10	(.01	0.000	1.100	0.300	0.414
Suspended Solids mg/l	14.000	16.000	6.000	45.000	17.000	9.806
Total Dis. Solids mg/l	2620.000	3028.000	1500.000	3028.000	2215.583	384.485
Zinc, An (Tot) mg/l	0.038	0.014	0.000	0.110	0.037	0.032
pH Units	8.200	8.200	7.800	8.200	7.973	0.135



Ford Chemical LABORATORY, INC.

Bacteriological and Chemical Analysis

40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

DATE: 04/18/86

CERTIFICATE OF ANALYSIS

86-004178-06

FORD CHEMICAL LABORATORIES

BALANCE SHEET FOR SAMPLE: (6) SW-7

C A T I O N S	mg/l	meq/l
Calcium, Ca mg/l SM303A	218.000	10.878
Magnesium, Mg mg/l SM303A	164.400	13.522
Sodium, Na mg/l SM303A	340.000	14.790
Potassium, K mg/l SM303A	5.640	.144
Ammonia, NH3-N mg/l SM417F	.760	.054

A N I O N S	mg/l	meq/l
Carbonate as CO3 mg/l SM403	.000	.000
Bicarbonate,HCO3 mg/l SM403	376.000	6.166
Sulfate, SO4 mg/l SM426D	1530.000	31.855
Chloride, Cl mg/l SM407A	81.200	2.291
Nitrate, NO3-N mg/l SM418C	.360	.006

B A L A N C E I N F O R M A T I O N

CATIONS:	39.388
ANIONS:	40.318
TOTAL:	79.706
DIFFERENCE:	.930
SIGMA:	.011

Client : Kaiser Coal Company
Address : 102 South Tejon St, P.O. Box 2679
Colorado Springs, CO 80901-2679
Attn. : Mr. Jay Smaldone CC: Doug Pearce
P.O. No.:

Sample ID: SW-7
Sample Date Time: 05/12/86 17:45

Lab No.: 86-WI/02305
Date Received: 05/15/86

Parameters

Alkalinity as CaCO3	305.	mg/l
Bicarbonate as CaCO3	305.	mg/l
Boron, dissolved	.49	mg/l
Calcium, dissolved	226	mg/l
Carbonate as CaCO3	0.	mg/l
Chloride	91.	mg/l
Conductivity @ 25C	3600.	umhos/cm
Fluoride	.51	mg/l
Hardness as CaCO3	1336.	mg/l
Hydroxide as CaCO3	0.	mg/l
Magnesium, dissolved	188	mg/l
Nitrogen, ammonia	.09	mg/l
Nitrogen, nitrate	.02	mg/l
pH (lab)	8.3	units
Phosphorus, ortho	.09	mg/l
Phosphorus, total	.20	mg/l
Potassium, dissolved	7	mg/l
SAR in water	6.28	
Sodium, dissolved	522	mg/l
Sulfate	2021.	mg/l
Sulfide as S	.2	mg/l
Cations (sum)	49.87	meq/l
Anions (sum)	51.09	meq'l
Cation-Anion Balance	-1.21	%
Solids, total dissolved	3262.	mg/l
Solids, total suspended	16.	mg/l
Aluminum, total recov.	.05	mg/l
Arsenic, total recov.	.002	mg/l
Barium, total recov.	.03	mg/l
Cadmium, total recov.	-.005	mg/l
Copper, total recov.	-.01	mg/l
Chromium, total recov.	-.01	mg/l
Iron, total	.05	mg/l
Lead, total recov.	-.02	mg/l
Manganese, total recov.	.13	mg/l
Mercury, total recov.	-.0002	mg/l
Molybdenum, total recov.	-.05	mg/l
Nickel, total recov.	-.02	mg/l
Selenium, total recov.	.002	mg/l
Zinc, total recov.	-.01	mg/l

Remarks:

Ralph V. Poulsen

Ralph V. Poulsen, Director

KAISER COAL CORPORATION - WELLINGTON PREPARATION PLANT - ACT/007/012

1987 WATER MONITORING DATA

SAMPLE LOCATION: SW-7

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Level (ft)												
pH											9.5	
Temp. (°C)											0.	
Conductiv.											5000+.	
Aluminum											0.20	
Arsenic											0.014	
Barium											<.01	
Bicarbon.											128.	
Boron											1.24	
Cadmium											<.01	
Calcium											360.	
Carbonate											0.	
Chloride											251.	
Chromium											<.01	
Copper											<.01	
Fluoride											1.49	
Hardness											3270.	
Iron											0.33	
Lead											<.01	
Magnesium											210.	
Manganese											0.120	
Mercury											<.0002	
Molybdenum											0.085	
Nickel											<.01	
Ammonia											0.31	
Nitrate											0.012	
Nitrite											<.01	
Oil & Greas												
Phosphate											0.049	
Potassium											24.3	
Selenium											<.002	
Sodium											1380.	
Sulfate											4050.	
Sulfide											<.1	
TDS											7620.	
TSS											40.	
Sett. Solid											<.1	
Zinc											<.01	
C-A Balance												

KAISER COAL CORPORATION
WELLINGTON PREPARATION PLANT
ACT/007/012

1988 WATER MONITORING DATA

SAMPLE LOCATION: SW - 7

Parameter	Units	Jan 88	Feb 88	Mar 88	Apr 88	May 88	June 88	July 88	Aug 88	Sep 88	Oct 88	Nov 88	Dec 88
Flow	(gpm)				POND						Dry		
pH	standard				8.05								
Temp	o C				6								
Conductivity	umhos/cm				5000+.								
Aluminum	mg/l				<.1								
Arsenic	mg/l				<.01								
Barium	mg/l				<.01								
Bicarbonate	mg/l				186								
Boron	mg/l				1.12								
Cadmium	mg/l				<.01								
Calcium	mg/l				275								
Carbonate	mg/l				0								
Chloride	mg/l				344								
Chromium	mg/l				<.01								
Copper	mg/l				<.01								
Flouride	mg/l				1.37								
Hardness	mg/l				3120								
Iron Total	mg/l				0.67								
Lead	mg/l				<.01								
Magnesium	mg/l				390								
Manganese	mg/l				<.01								
Mercury	mg/l				<.0002								
Molybdenum	mg/l				<.01								
Nickel	mg/l				<.01								
Ammonia	mg/l				0.67								
Nitrate	mg/l				<.01								
Nitrite	mg/l				0.156								
Oil & Grease	mg/l				0.82								
Phosphate	mg/l				<.01								
Potassium	mg/l				18.2								
Selenium	mg/l				<.002								
Sodium	mg/l				1250								
Sulfate	mg/l				5520								
Sulfide	mg/l				<.1								
TDS	mg/l				8080								
TSS	mg/l				425								
Sett. Solids	mg/l				0.3								
Zinc	mg/l				<.01								
C - A Balance	meq/l				-.50								

PRICE RIVER (Potential Discharge 002)
SW-1

Sampling Date	1-13-84	3-14-84	5-11-84	7-27-84	9-21-84	11-27-84	1-29-85	3-18-85
Flow, cfs	25	300	500	500	500	60	100	100
Aluminum, Al (Tot) mg/l	0.065	9.800	8.600	81.000	36.000	5.470	0.550	0.530
Ammonia, NH3-N mg/l	0.250	(.10	(.10	0.350	0.360	0.250	0.800	0.450
Arsenic, As (Tot) mg/l	(.001	(.001	(.001	(.001	(.010	0.008	(0.001	0.007
Barium, Ba (Tot) mg/l	0.020	0.340	0.360	0.990	0.900	0.120	0.060	0.130
Bicarbonate, HCO3 mg/l	409.920	268.400	457.500	488.700	286.700	329.400	487.500	351.000
Boron as B (Tot) mg/l	0.530	0.500	0.600	0.609	0.366	0.175	0.260	0.045
Cadmium, Cd (Tot) mg/l	(0.001	(.010	(.0010	0.003	0.015	(.001	(0.001	(.001
Calcium, Ca mg/l	168.000	70.000	160.000	220.000	140.000	124.800	125.600	196.000
Carbonate as CO3 mg/l	(.01	(.01	(.01	(.01	(.01	(.01	(0.01	(.01
Chloride, Cl mg/l	48.000	20.000	33.500	38.400	35.000	22.000	50.000	50.000
Chromium, Cr (Tot) mg/l	0.012	0.060	0.065	(.001	0.060	(.001	(0.001	0.020
Conductivity umhos/cm	2600	800	960	2400	1900	1200	1750	2770
Copper (Tot) mg/l	0.050	0.090	(.001	0.160	0.110	0.010	0.011	0.030
Fluoride, F mg/l	0.280	0.240	0.290	0.420	0.220	0.210	0.023	0.240
Hardness, CaCO3 mg/l	870	360	500	850	685	470	490	1000
Iron, Fe (Tot) mg/l	0.940	16.000	39.000	149.500	48.500	8.900	1.300	9.810
Lead, Pb (Tot) mg/l	0.005	0.005	0.002	0.390	0.210	0.180	0.036	0.004
Magnesium, Mg mg/l	108.000	44.400	24.000	72.000	80.400	38.400	42.400	122.800
Manganese, Mn (Tot) mgl	0.120	0.890	0.020	3.800	1.190	0.350	0.160	0.330
Mercury, Hg mg/l	(.0002	(.0002	(.0002	(.0002	(.0002	(.0002	(0.0002	(.0002
Molybdenum as Mo (Tot) mg/l	(.001	(.001	(.001	0.010	0.009	0.005	(0.05	(.001
Nickel, Ni (Tot) mg/l	0.030	0.050	0.040	0.350	0.150	(.01	(0.01	(.01
Nitrate, NO3-N mg/l	0.980	0.560	0.640	0.540	0.580	0.580	0.730	0.600
Nitrate as NO2-N mg/l	0.010	(.01	0.650	0.170	(.01	0.090	(0.01	0.020
Phosphate PO4-P Ortho mg/l	0.510	0.140	0.060	0.030	0.020	0.120	0.480	0.120
Phosphate Tot mg/l	0.380	0.100	0.150	9.400	2.800	1.060	0.800	0.600
Potassium, K mg/l	6.100	2.800	9.800	10.600	5.950	3.010	5.300	5.330
Selenium Se (Tot) mg/l	(.001	(.001	(.001	(.001	(.001	(.001	(0.001	(.001
Sodium, Na mg/l	213.000	46.700	34.100	175.000	118.000	95.000	202.000	210.000
Sulfate, SO4 mg/l	880	200	140	830	620	360	510	1045
Sulfide as S mg/l	0.120	(.01	(.01	(.01	(.01	(.01	(0.01	(.01
Suspended Solids mg/l	10	1559	1258	14896	7200	618	46	478
Total Dis. Solids mg/l	1700	550	675	1560	1174	810	1140	1810
Zinc, An (Dis) mg/l	0.940	0.200	0.010	0.707	0.240	0.048	0.008	0.087
pH Units	7.50	7.40	7.20	7.40	7.80	7.40	7.90	7.75

PRICE RIVER
*SW-1***

Sampling Date	5-28-85	07-31-85	9-26-85	11-22-85	MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
Flow, cfs	300.000	200.000	50.000	50.000	25	500	224	182
Aluminum, Al (Tot) mg/l	2.470	(.001	0.280	0.440	0.000	81.000	12.100	22.925
Ammonia, NH3-N mg/l	(.01	0.050	0.500	0.050	0.000	0.800	0.255	0.241
Arsenic, As (Tot) mg/l	(.001	0.010	(.001	(.001	0.000	0.010	0.002	0.004
Barium, Ba (Tot) mg/l	0.100	0.340	0.060	0.050	0.020	0.990	0.289	0.316
Bicarbonate, HCO3 mg/l	261.000	252.500	407.000	431.000	252.500	457.500	355.885	70.599
Boron as B (Tot) mg/l	0.149	0.200	0.400	0.271	0.045	0.609	0.349	0.176
Cadmium, Cd (Tot) mg/l	(.001	(.001	(.001	(.001	0.000	0.015	0.002	0.004
Calcium, Ca mg/l	102.220	116.000	248.000	200.000	70.000	248.000	155.885	50.247
Carbonate as CO3 mg/l	(.01	(.01	(.01	(.01	0.000	0.000	0.000	0.000
Chloride, Cl mg/l	14.100	24.700	41.000	56.600	14.100	56.600	36.175	13.121
Chromium, Cr (Tot) mg/l	0.020	0.041	0.040	0.004	0.000	0.065	0.028	0.024
Conductivity umhos/cm	850.000	1450.000	3500.000	3000.000	800.000	3500.000	1931.667	873.974
Copper (Tot) mg/l	0.040	0.120	(.01	(.01	0.000	0.160	0.052	0.053
Fluoride, F mg/l	0.200	0.240	0.340	0.270	0.023	0.420	0.248	0.090
Hardness, CaCO3 mg/l	405.000	498.000	1190.000	1030.000	360.000	1190.000	695.667	269.386
Iron, Fe (Tot) mg/l	3.420	53.800	0.650	0.900	0.650	149.500	27.727	41.170
Lead, Pb (Tot) mg/l	0.008	0.004	0.036	(.001	0.000	0.390	0.073	0.118
Magnesium, Mg mg/l	36.100	50.200	136.000	127.200	24.000	136.000	73.558	38.729
Manganese, Mn (Tot) mgl	0.150	0.770	0.140	0.180	0.020	3.800	0.675	1.005
Mercury, Hg mg/l	(.0002	(.0002	(.0002	(.0002	0.000	0.000	0.000	0.000
Molybdenum as Mo (Tot) mg/l	(.001	(.01	0.020	0.027	0.000	0.027	0.006	0.009
ickel, Ni (Tot) mg/l	(.01	(.05	(.01	(.01	0.000	0.350	0.052	0.099
Nitrate, NO3-N mg/l	0.400	1.080	0.910	1.820	0.400	1.820	0.785	0.367
Nitrate as NO2-N mg/l	(.01	0.020	0.250	2.390	0.000	2.390	0.300	0.655
Phosphate PO4-P Ortho mg/l	0.240	0.020	0.240	0.620	0.020	0.620	0.217	0.200
Phosphate Tot mg/l	(.01	2.060	0.400	1.080	0.000	9.400	1.569	2.492
Potassium, K mg/l	2.600	11.100	6.450	5.460	2.600	11.100	6.208	2.788
Selenium Se (Tot) mg/l	(.001	(.002	(.010	(.001	0.000	0.000	0.000	0.000
Sodium, Na mg/l	40.620	123.000	285.000	239.000	34.100	285.000	148.452	88.551
Sulfate, SO4 mg/l	245.000	500.000	1376.000	1100.000	140.000	1376.000	650.500	379.102
Sulfide as S mg/l	(.01	2.800	(.10	(.01	0.000	2.800	0.243	0.772
Suspended Solids mg/l	2460.000	2039.000	29.000	58.000	10.000	14896.000	2554.250	4186.083
Total Dis. Solids mg/l	540.000	942.000	2310.000	2070.000	540.000	2310.000	1273.417	579.704
Zinc, An (Dis) mg/l	0.166	0.348	0.013	0.026	0.008	0.940	0.233	0.287
pH Units	7.400	8.000	7.950	7.800	7.200	8.000	7.625	0.258

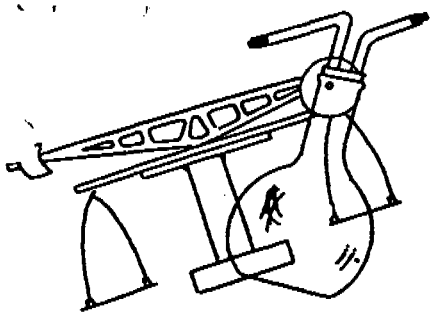
U. S. STEEL MINING CO., INC. - WELLINGTON COAL CLEANING PLANT

PRICE RIVER-DOWNSTREAM
SW-2

Sampling Date	07-31-85	9-26-85	11-22-85	MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
Flow cfs	200.000	50.000	50.000	25	500	224	182
Aluminum, Al (Tot) mg/l	(.001	0.240	0.420	0.000	119.900	14.945	32.521
Ammonia, NH3-N mg/l	0.030	0.900	3.100	0.000	3.100	0.527	0.834
Arsenic, As (Tot) mg/l	0.002	(.001	(.001	0.000	0.016	0.006	0.007
Barium, Ba (Tot) mg/l	0.360	0.050	0.040	0.040	1.350	0.346	0.450
Bicarbonate, HCO3 mg/l	312.300	401.000	411.000	259.000	622.200	372.817	88.311
Boron as B (Tot) mg/l	0.320	0.340	0.359	0.175	0.729	0.365	0.145
Cadmium, Cd (Tot) mg/l	(.001	(.001	(.001	0.000	0.014	0.001	0.004
Calcium, Ca mg/l	176.000	236.000	196.000	76.000	236.000	155.548	43.939
Carbonate as CO3 mg/l	(.01	(.01	(.01	0.000	0.000	0.000	0.000
Chloride, Cl mg/l	47.000	42.600	61.200	0.000	61.200	33.692	19.164
Chromium, Cr (Tot) mg/l	0.057	0.003	0.007	0.000	0.140	0.032	0.039
Conductivity umhos/cm	2980.000	3400.000	2700.000	850.000	3400.000	1955.000	862.327
Copper (Tot) mg/l	0.080	0.020	0.020	0.000	0.208	0.062	0.069
Fluoride, F mg/l	0.300	0.320	0.260	0.200	0.370	0.268	0.054
Hardness, CaCO3 mg/l	840.000	1150.000	1000.000	360.000	1150.000	710.500	248.043
Iron, Fe (Tot) mg/l	56.200	0.460	0.880	0.460	206.500	32.982	55.822
Lead, Pb (Tot) mg/l	0.037	0.007	0.002	0.002	0.390	0.057	0.107
Magnesium, Mg mg/l	96.000	134.400	122.400	24.000	134.400	77.283	36.014
Manganese, Mn (Tot) mgl	1.150	0.140	0.200	0.020	3.400	0.664	0.916
Mercury, Hg mg/l	(.0002	0.001	(.0002	0.000	0.001	.000	.000
Molybdenum as Mo (Tot) mg/l	(.01	0.020	0.022	0.000	0.022	0.006	0.008
ickel, Ni (Tot) mg/l	0.120	(.01	(.01	0.000	0.490	0.078	0.133
itrate, NO3-N mg/l	1.290	0.860	0.920	0.400	1.800	0.858	0.379
Nitrate as NO2-N mg/l	(.01	0.160	1.500	0.000	1.500	0.369	0.495
Phosphate PO4-P Ortho mg/l	0.050	0.400	0.640	0.020	5.080	0.612	1.363
Phosphate PO4-P Tot mg/l	2.700	0.500	0.880	0.000	6.400	1.133	1.732
Potassium, K mg/l	12.200	6.680	5.170	2.400	12.200	5.576	2.590
Selenium Se (Tot) mg/l	(.001	(.001	(.001	0.000	0.000	0.000	0.000
Sodium, Na mg/l	312.000	288.000	200.000	36.200	312.000	160.216	89.180
Sulfate, SO4 mg/l	1140.000	1320.000	995.000	180.000	1320.000	670.750	388.146
Sulfide as S mg/l	3.200	(.10	(.01	0.000	3.200	0.279	0.881
Suspended Solids mg/l	2299.000	20.000	77.000	20.000	9585.000	1864.833	2578.122
Total Dis. Solids mg/l	1930.000	2240.000	1944.000	550.000	2240.000	1389.333	574.943
Zinc, An (Tot) mg/l	0.266	0.020	0.024	0.008	0.948	0.171	0.251
pH Units	7.800	8.000	7.750	7.350	8.000	7.658	0.191

PRICE RIVER-DOWNSTREAM
#SW-2###

Sampling Date	1-13-84	3-14-84	5-11-84	7-27-84	9-21-84	11-27-84	1-29-85	3-18-85	5-28-85
Flow cfs	25	300	500	500	500	60.000	100.000	100.000	300.000
Aluminum, Al (Tot) mg/l	0.080	12.190	12.200	119.900	26.000	2.770	1.080	0.960	3.500
Ammonia, NH3-N mg/l	0.140	0.700	(.10	0.120	0.100	(.01	0.600	0.600	0.030
Arsenic, As (Tot) mg/l	(.001	0.016	0.015	0.013	0.015	0.005	(0.001	0.006	(.001
Barium, Ba (Tot) mg/l	0.050	0.330	0.300	1.290	1.350	0.080	0.060	0.140	0.100
Bicarbonate, HCO3 mg/l	402.600	341.600	335.500	292.800	335.500	622.200	406.300	354.000	259.000
Boron as B (Tot) mg/l	0.460	0.440	0.500	0.729	0.323	0.206	0.240	0.291	0.175
Cadmium, Cd (Tot) mg/l	(.001	(.010	(.0010	0.003	0.014	(.001	(0.001	(.001	(.001
Calcium, Ca mg/l	176.000	76.000	160.000	176.000	128.000	118.400	120.500	196.900	106.770
Carbonate as CO3 mg/l	(.01	(.01	(.01	(.01	(.01	(.01	(0.01	(.01	(.01
Chloride, Cl mg/l	50.000	5.000	21.300	39.4	35.000	27.000	47.000	54.000	14.200
Chromium, Cr (Tot) mg/l	0.011	0.039	0.040	(.001	0.060	(.001	(0.001	0.140	0.032
Conductivity umhos/cm	2500	850	990	1900	1500	1200	1700	2850	890.000
Copper (Tot) mg/l	0.020	0.090	0.010	0.208	0.200	(.001	0.010	0.040	0.040
Fluoride, F mg/l	0.280	0.210	0.370	0.350	0.240	0.200	0.230	0.240	0.220
Hardness, CaCO3 mg/l	890	360	500	715	620	520	515	993	423.000
Iron, Fe (Tot) mg/l	0.920	22.000	44.200	206.500	45.500	3.390	1.360	10.300	4.070
Lead, Pb (Tot) mg/l	0.002	0.036	0.021	0.390	0.140	0.017	0.015	0.004	0.010
Magnesium, Mg mg/l	108.000	40.800	24.000	66.000	72.000	52.800	51.500	120.800	38.690
Manganese, Mn (Tot) mgl	0.140	0.980	0.020	3.400	1.110	0.190	0.140	0.360	0.140
Mercury, Hg mg/l	(.0002	(.0002	(.0002	(.0002	(.0002	(.0002	(0.0002	(.0002	(.0002
Molybdenum as Mo (Tot) mg/l	.015	(.001	(.001	0.012	0.013	0.004	(0.05	(.001	(.001
Nickel, Ni (Tot) mg/l	0.040	0.070	0.070	0.490	0.140	(.01	(0.01	(.01	(.01
Nitrate, NO3-N mg/l	0.950	0.650	0.770	0.550	1.070	0.520	0.400	1.800	0.510
Nitrate as NO2-N mg/l	0.010	(.01	0.710	0.080	1.180	0.070	0.620	0.060	0.040
Phosphate PO4-P Ortho mg/l	0.550	0.040	0.030	0.030	0.140	0.140	5.080	0.220	0.020
Phosphate PO4-P Tot mg/l	0.460	0.030	0.050	6.400	0.220	0.680	(0.001	0.780	0.890
Potassium, K mg/l	6.400	2.600	2.400	7.850	6.350	3.950	5.080	5.270	2.960
Selenium Se (Tot) mg/l	(.001	(.001	(.001	(.001	(.001	(.001	(0.001	(.001	(.001
Sodium, Na mg/l	221.000	56.000	36.200	125.000	130.000	98.000	182.500	229.000	44.890
Sulfate, SO4 mg/l	910	199	250	680	550	180	490	1065	270.000
Sulfide as S mg/l	0.100	0.050	(.01	(.01	(.01	(.01	(0.01	(.01	(.01
Suspended Solids mg/l	21.0	1369.0	1896.0	9585.0	3488.0	301.0	69.0	533.0	2800.000
Total Dis. Solids mg/l	1670	550	644	1250	1128	786	1140	1850.000	580.000
Zinc, An (Tot) mg/l	0.030	0.190	0.010	0.948	0.262	0.056	0.008	0.093	0.148
pH Units	7.600	7.600	7.600	7.400	7.350	7.600	7.950	7.750	7.500



Ford Chemical LABORATORY, INC.

Bacteriological and Chemical Analysis

40 WEST LOUISE AVENUE

SALT LAKE CITY, UTAH 84115

PHONE 466-8761

DATE: 04/18/86

CERTIFICATE OF ANALYSIS

86-004178-02

FORD CHEMICAL LABORATORIES

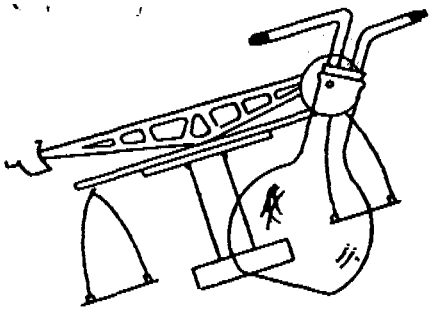
BALANCE SHEET FOR SAMPLE: (2) SW-1

C A T I O N S	mg/l	meq/l
Calcium, Ca mg/l SM303A	82.000	4.092
Magnesium, Mg mg/l SM303A	38.600	3.175
Sodium, Na mg/l SM303A	75.000	3.263
Potassium, K mg/l SM303A	4.160	.106
Ammonia, NH3-N mg/l SM417F	.490	.035

A N I O N S	mg/l	meq/l
Carbonate as CO3 mg/l SM403	.000	.000
Bicarbonate,HCO3 mg/l SM403	279.000	4.576
Sulfate, SO4 mg/l SM426D	269.000	5.601
Chloride, Cl mg/l SM407A	24.700	.697
Nitrate, NO3-N mg/l SM418C	.690	.011

B A L A N C E I N F O R M A T I O N

CATIONS:	10.671
ANIONS:	10.885
TOTAL:	21.556
DIFFERENCE:	.214
SIGMA:	.009



Ford Chemical LABORATORY, INC.

Bacteriological and Chemical Analysis

40 WEST LOUISE AVENUE

SALT LAKE CITY, UTAH 84115

PHONE 466-8761

DATE: 04/18/86

CERTIFICATE OF ANALYSIS

86-004178-03

FORD CHEMICAL LABORATORIES

BALANCE SHEET FOR SAMPLE: (3) SW-2

C A T I O N S	mg/l	meq/l
Calcium, Ca mg/l SM303A	58.000	2.894
Magnesium, Mg mg/l SM303A	54.500	4.483
Sodium, Na mg/l SM303A	60.000	2.610
Potassium, K mg/l SM303A	4.860	.124
Ammonia, NH3-N mg/l SM417F	.490	.035

A N I O N S	mg/l	meq/l
Carbonate as CO3 mg/l SM403	.000	.000
Bicarbonate,HCO3 mg/l SM403	282.000	4.625
Sulfate, SO4 mg/l SM426D	237.000	4.934
Chloride, Cl mg/l SM407A	24.100	.680
Nitrate, NO3-N mg/l SM418C	.670	.011

B A L A N C E I N F O R M A T I O N

CATIONS:	10.146
ANIONS:	10.250
TOTAL:	20.396
DIFFERENCE:	.104
SIGMA:	.005

Client : Kaiser Coal Company
Address : 102 South Tejon St, P.O. Box 2679
Colorado Springs, CO 80901-2679
Attn. : Mr. Jay Smaldone CC: Doug Pearce
P.O. No.:

Sample ID: SW-1
Sample Date Time: 05/12/86 17:05

Lab No.: 86-WI/02301
Date Received: 05/15/86

Parameters

Alkalinity as CaCO3	246.	mg/l
Bicarbonate as CaCO3	246.	mg/l
Boron, dissolved	.06	mg/l
Calcium, dissolved	79	mg/l
Carbonate as CaCO3	0.	mg/l
Chloride	16.	mg/l
Conductivity @ 25C	765.	umhos/cm
Fluoride	.25	mg/l
Hardness as CaCO3	366.	mg/l
Hydroxide as CaCO3	0.	mg/l
Magnesium, dissolved	41	mg/l
Nitrogen, ammonia	.21	mg/l
Nitrogen, nitrate	.40	mg/l
pH (lab)	8.3	units
Phosphorus, ortho	.06	mg/l
Phosphorus, total	.55	mg/l
Potassium, dissolved	2	mg/l
SAR in water	1.10	
Sodium, dissolved	48	mg/l
Sulfate	177.	mg/l
Sulfide as S	-.2	mg/l
Cations (sum)	9.48	meq/l
Anions (sum)	9.08	meq/l
Cation-Anion Balance	2.16	%
Solids, total dissolved	514.	mg/l
Solids, total suspended	438.	mg/l
Aluminum, total recov.	1.05	mg/l
Arsenic, total recov.	.001	mg/l
Barium, total recov.	.10	mg/l
Cadmium, total recov.	-.005	mg/l
Copper, total recov.	-.01	mg/l
Chromium, total recov.	-.01	mg/l
Iron, total	7.10	mg/l
Lead, total recov.	-.02	mg/l
Manganese, total recov.	.15	mg/l
Mercury, total recov.	-.0002	mg/l
Molybdenum, total recov.	-.05	mg/l
Nickel, total recov.	-.02	mg/l
Selenium, total recov.	.001	mg/l
Zinc, total recov.	.01	mg/l

Remarks:

Ralph V. Poulsen

Ralph V. Poulsen, Director

Client : Kaiser Coal Company
Address : 102 South Tejon St, P.O. Box 2679
Colorado Springs, CO 80901-2679
Attn. : Mr. Jay Smaldone CC: Doug Pearce
P.O. No.:

Sample ID: SW-2
Sample Date Time: 05/13/86 12:00

Lab No.: 86-WI/02302
Date Received: 05/15/86

Parameters

Alkalinity as CaCO3	242.	mg/l
Bicarbonate as CaCO3	242.	mg/l
Boron, dissolved	.05	mg/l
Calcium, dissolved	73	mg/l
Carbonate as CaCO3	0.	mg/l
Chloride	15.	mg/l
Conductivity @ 25C	771.	umhos/cm
Fluoride	.55	mg/l
Hardness as CaCO3	355.	mg/l
Hydroxide as CaCO3	0.	mg/l
Magnesium, dissolved	42	mg/l
Nitrogen, ammonia	.14	mg/l
Nitrogen, nitrate	.32	mg/l
pH (lab)	8.3	units
Phosphorus, ortho	.05	mg/l
Phosphorus, total	.64	mg/l
Potassium, dissolved	2	mg/l
SAR in water	1.24	
Sodium, dissolved	53	mg/l
Sulfate	189.	mg/l
Sulfide as S	-.2	mg/l
Cations (sum)	9.48	meq/l
Anions (sum)	9.23	meq/l
Cation-Anion Balance	1.34	%
Solids, total dissolved	526.	mg/l
Solids, total suspended	370.	mg/l
Aluminum, total recov.	1.01	mg/l
Arsenic, total recov.	.001	mg/l
Barium, total recov.	.10	mg/l
Cadmium, total recov.	-.005	mg/l
Copper, total recov.	-.01	mg/l
Chromium, total recov.	-.01	mg/l
Iron, total	6.70	mg/l
Lead, total recov.	-.02	mg/l
Manganese, total recov.	.14	mg/l
Mercury, total recov.	-.0002	mg/l
Molybdenum, total recov.	-.05	mg/l
Nickel, total recov.	-.02	mg/l
Selenium, total recov.	.002	mg/l
Zinc, total recov.	.01	mg/l

Remarks:

Ralph V. Poulsen

Ralph V. Poulsen, Director

KAISER COAL COPRORATION - WELLINGTON PREPARATION PLANT - ACT/007/012
1987 WATER MONITORING DATA

SAMPLE LOCATION: SW-1

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Flow (cfs)												
pH											6.2	
Temp. (°C)											1.	
Conductiv.											2600.	
Aluminum											3.08	
Arsenic											0.018	
Barium											<.01	
Bicarbon.											474.	
Boron											0.42	
Cadmium											<.01	
Calcium											232.	
Carbonate											15.8	
Chloride											71.8	
Chromium											<.01	
Copper											<.01	
Fluoride											1.67	
Hardness											1470.	
Iron											3.05	
Lead											0.015	
Magnesium											188.	
Manganese											0.255	
Mercury											<.0002	
Molybdenum											0.060	
Nickel											<.01	
Ammonia											1.20	
Nitrate											1.13	
Nitrite											0.043	
Oil & Greas												
Phosphate											0.299	
Potassium											11.4	
Selenium											0.0021	
Sodium											382.	
Sulfate											1900.	
Sulfide											<.1	
TDS											3210.	
TSS											130.	
Sett. Solid											0.2	
Zinc											<.01	
C-A Balance												

KAISER COAL CORPORATION - WELLINGTON PREPARATION PLANT - ACT/007/012
1987 WATER MONITORING DATA

SAMPLE LOCATION: SW-2

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Flow (cfs)												
pH											6.17	
Temp. (°C)											1.	
Conductiv.											2700.	
Aluminum											1.02	
Arsenic											0.011	
Carium											<.01	
Bicarbon.											450.	
Boron											0.43	
Cadmium											<.01	
Calcium											261.	
Carbonate											0.	
Chloride											86.9	
Chromium											<.01	
Copper											<.01	
Fluoride											1.03	
Hardness											1460.	
Iron											0.77	
Lead											<.01	
Magnesium											192.	
Manganese											0.188	
Mercury											<.0002	
Molybdenum											<.01	
Nickel											<.01	
Ammonia											0.88	
Nitrate											1.41	
Nitrite											0.066	
Oil & Greas												
Phosphate											0.539	
Potassium											11.8	
Selenium											<.002	
Sodium											386.	
Sulfate											1880.	
Sulfide											<.1	
TDS											3280.	
TSS											65.	
Sett. Solid											<.1	
Zinc											<.01	
C-A Balance												

KAISER COAL CORPORATION
WELLINGTON PREPARATION PLANT
ACT/007/012

1988 WATER MONITORING DATA

SAMPLE LOCATION: SW - 1 * Parameters not available from lab

Parameter	Units	Jan 88	Feb 88	Mar 88	Apr 88	May 88	June 88	July 88	Aug 88	Sep 88	Oct 88	Nov 88	Dec 88
Flow	(gpm)				?						8000		
pH	standard				7.93						8.51		
Temp	o C				8						19		
Conductivity	umhos/cm				1500						4300		
Diss. Oxygen	ppm				>15						5.5		
Aluminum	mg/l				<.1						<0.10		
Arsenic	mg/l				<.01						<0.004		
Barium	mg/l				<.01						<0.10		
Bicarbonate	mg/l				263						415		
Boron	mg/l				0.2						0.46		
Cadmium	mg/l				<.01						<0.005		
Calcium	mg/l				143						242		
Carbonate	mg/l				0						0		
Chloride	mg/l				51.1						105		
Chromium	mg/l				<.01						<0.05		
Copper	mg/l				<.01						<0.03		
Flouride	mg/l				0.58						0.26		
Hardness	mg/l				688						1500		
Iron Total	mg/l				16.72						0.1		
Lead	mg/l				<.01						<0.05		
Magnesium	mg/l				102						218		
Manganese	mg/l				0.011						0.03		
Mercury	mg/l				<.0002						<0.001		
Molybdenum	mg/l				<.01						<0.10		
Nickel	mg/l				<.01						<0.05		
Ammonia	mg/l				0.72						0.41		
Nitrate	mg/l				0.75						<0.05		
Nitrite	mg/l				1.36						2.21		
Oil & Grease	mg/l				1.29						<2.0		
Phosphate	mg/l				0.19						0.32		
Potassium	mg/l				4.7						10.4		
Selenium	mg/l				<.002						<0.004		
Sodium	mg/l				113						486		
Sulfate	mg/l				690						2010		
Sulfide	mg/l				<.1						<0.4		
TDS	mg/l				1180						2600		
TSS	mg/l				1110						*		
Sett. Solids	mg/l				0.4						*		
Zinc	mg/l				<.01						<0.01		
C - A Balance	meq/l				0.74						*		

KAISER COAL CORPORATION
WELLINGTON PREPARATION PLANT
ACT/007/012

1988 WATER MONITORING DATA

SAMPLE LOCATION: SW - 2 * Parameters not available from lab

Parameter	Units	Jan 88	Feb 88	Mar 88	Apr 88	May 88	June 88	July 88	Aug 88	Sep 88	Oct 88	Nov 88	Dec 88
Flow	(gpm)				?						9400		
pH	standard				7.75						8.5		
Temp	o C				8						19		
Conductivity	umhos/cm				1600						4900		
Diss. Oxygen	ppm				>15						7		
Aluminum	mg/l				<.1						<0.10		
Arsenic	mg/l				<.01						<0.004		
Barium	mg/l				<.01						<0.10		
Bicarbonate	mg/l				270						354		
Boron	mg/l				0.18						0.54		
Cadmium	mg/l				<.01						<0.005		
Calcium	mg/l				144						260		
Carbonate	mg/l				0						0		
Chloride	mg/l				47.7						99.4		
Chromium	mg/l				<.01						<0.05		
Copper	mg/l				<.01						<0.03		
Flouride	mg/l				0.71						0.3		
Hardness	mg/l				530						1475		
Iron Total	mg/l				0.95						0.11		
Lead	mg/l				<.01						<0.05		
Magnesium	mg/l				105						200		
Manganese	mg/l				<.01						<0.01		
Mercury	mg/l				<.0002						<0.001		
Molybdenum	mg/l				<.01						<0.10		
Nickel	mg/l				<.01						<0.05		
Ammonia	mg/l				0.42						0.81		
Nitrate	mg/l				0.98						<0.05		
Nitrite	mg/l				0.805						1.63		
Oil & Grease	mg/l				<.5						<2.0		
Phosphate	mg/l				0.14						0.22		
Potassium	mg/l				5.1						10.1		
Selenium	mg/l				<.002						<0.004		
Sodium	mg/l				113						537		
Sulfate	mg/l				680						1978		
Sulfide	mg/l				<.1						<0.4		
TDS	mg/l				1220						2790		
TSS	mg/l				902						*		
Sett. Solids	mg/l				0.4						*		
Zinc	mg/l				<.01						<0.01		
C - A Balance	meq/l				2.21						*		

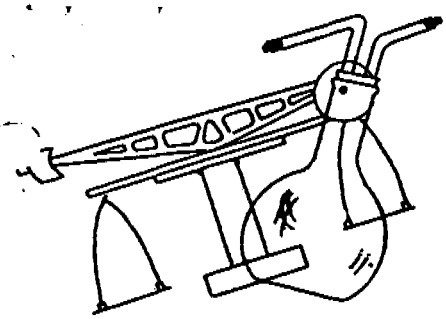
U. S. STEEL MINING CO., INC. - WELLINGTON COAL CLEANING PLANT

AUXILIARY POND (Potential Discharge 004)
SW-8*

Sampling Date	1-13-84	3-14-84	5-11-84	7-27-84	9-21-84	11-27-84	1-29-85	3-18-85	5-29-85	07-31-85
Flow Not Applic.	0	0	0	0	0				0.000	
Aluminum, Al (Tot) mg/l	0.088	1.920	1.800	2.050	1.570	7.436	0.850	0.900	0.940	(.001
Ammonia, NH3-N mg/l	0.350	0.250	(.10	0.160	0.150	0.100	1.000	0.230	0.070	0.050
Arsenic, As (Tot) mg/l	0.008	(.001	(.001	(.001	0.017	0.008	(0.001	(.001	(.001	(.001
Barium, Ba (Tot) mg/l	0.170	0.430	0.050	0.530	0.600	1.750	0.160	0.130	0.140	0.180
Bicarbonate, HCO3 mg/l	378.200	451.400	317.200	347.700	311.500	317.200	375.800	372.000	294.000	244.000
Boron as B (Tot) mg/l	0.290	0.260	0.250	0.555	0.672	0.833	0.470	0.540	0.566	0.500
Cadmium, Cd (Tot) mg/l	(.001	(.010	(.0010	(.001	0.009	(.001	(0.001	(.001	(.001	(.001
Calcium, Ca mg/l	160.000	150.000	40.000	84.000	104.000	138.800	140.500	186.200	143.100	136.000
Carbonate as CO3 mg/l	(.01	(.01	(.01	(.01	(.01	(.01	(0.01	(.01	(.01	(.01
Chloride, Cl mg/l	102.000	75.000	141.000	67.500	95.000	65.000	78.600	79.000	84.800	86.100
Chromium, Cr (Tot) mg/l	(.001	0.053	0.035	(.001	0.020	(.001	0.005	0.006	0.031	0.007
Conductivity umhos/cm	5100	5200	2500	2700	3600	3300	3050	3800	3800.000	3780.000
Copper (Tot) mg/l	0.035	0.070	0.010	0.033	0.030	0.050	0.003	0.030	0.050	0.010
Fluoride, F mg/l	0.540	2.970	0.370	0.580	0.610	0.560	0.400	0.430	0.610	0.460
Hardness, CaCO3 mg/l	1170	840	700	615	725	770	851	1040	894.000	850.000
Iron, Fe (Tot) mg/l	1.470	2.810	1.340	2.720	0.740	11.200	0.680	1.130	0.690	1.110
Lead, Pb (Tot) mg/l	0.004	(.001	(.001	(.001	0.070	(.001	(0.010	0.002	0.004	0.004
Magnesium, Mg mg/l	184.500	111.600	144.000	97.200	111.600	101.500	120.000	138.600	129.700	122.000
Manganese, Mn (Tot) mgl	0.210	0.130	0.010	0.200	0.080	0.290	0.190	0.190	0.120	0.100
Mercury, Hg mg/l	(.0002	(.0002	(.0002	(.0002	(.0002	(.0002	(0.0002	(.0002	(.0002	(.0002
Molybdenum as Mo (Tot) mg/l	0.016	(.001	(.001	0.007	0.008	0.004	(0.05	(.001	(.001	(.01
Nickel, Ni (Tot) mg/l	0.050	0.030	(.01	(.01	0.060	(.01	0.040	(.01	0.020	(.05
Nitrate, NO3-N mg/l	1.130	1.620	0.820	0.270	0.630	0.040	0.650	0.740	0.530	0.070
Nitrite as NO2-N mg/l	0.110	(.01	0.700	0.030	(.01	0.030	0.060	0.010	(.01	(.01
Phosphate PO4-P Ortho mg/l	0.530	0.060	(.02	(.02	0.010	0.060	0.300	0.110	0.040	0.020
Phosphate PO4-P Tot mg/l	0.330	0.050	0.060	0.060	1.200	0.700	0.320	0.460	0.130	0.080
Potassium, K mg/l	8.500	6.000	4.600	6.600	9.500	6.400	7.700	7.020	6.780	8.500
Selenium Se (Tot) mg/l	(.001	(.001	(.001	(.001	(.001	(.001	(0.001	(.001	(.001	(.001
Sodium, Na mg/l	675.000	476.000	301.000	361.000	508.000	377.000	382.000	428.000	481.000	478.000
Sulfate, SO4 mg/l	1080	1340	845	995	1380	1200	1230	1470	1500.000	1515.000
Sulfide as S mg/l	0.210	(.01	(.01	(.01	(.01	(.01	(0.01	(.01	(.01	(.10
Suspended Solids mg/l	309.0	622.0	206.0	80.0	53.0	2476.0	200.0	234.0	138.000	238.000
Total Dis. Solids mg/l	3390	3380	1630	1775	2488	2170	2456	2498	2480.000	2546.000
Zinc, An (Tot) mg/l	0.040	0.080	0.010	0.107	0.058	0.242	0.035	0.056	0.122	0.039
pH Units	7.90	8.00	9.25	8.00	8.20	7.80	7.95	8.05	7.600	7.900

AUXILIARY POND
SW-8

Sampling Date	9-26-85	11-22-85	MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
Flow Not Applic.			0	0	0	
Aluminum, Al (Tot) mg/l	1.760	0.350	0.000	7.436	1.639	1.878
Ammonia, NH3-N mg/l	0.200	0.100	0.000	1.000	0.222	0.252
Arsenic, As (Tot) mg/l	0.002	0.002	0.000	0.017	0.003	0.005
Barium, Ba (Tot) mg/l	0.270	0.560	0.050	1.750	0.415	0.441
Bicarbonate, HCO3 mg/l	299.000	366.000	244.000	451.400	339.500	51.456
Boron as B (Tot) mg/l	0.690	0.478	0.250	0.833	0.589	0.171
Cadmium, Cd (Tot) mg/l	(.001	(.001	0.000	0.009	0.001	0.002
Calcium, Ca mg/l	212.000	230.000	48.000	230.000	143.717	50.176
Carbonate as CO3 mg/l	(.01	(.01	0.000	0.000	0.000	0.000
Chloride, Cl mg/l	87.200	185.000	65.000	141.000	88.850	19.656
Chromium, Cr (Tot) mg/l	0.020	0.005	0.000	0.053	0.015	0.016
Conductivity umhos/cm	4500.000	4320.000	2500.000	5200.000	3804.167	824.777
Copper (Tot) mg/l	0.060	0.050	0.003	0.070	0.036	0.020
Fluoride, F mg/l	0.540	0.440	0.370	2.970	0.709	0.686
Hardness, CaCO3 mg/l	1090.000	1200.000	615.000	1200.000	895.417	181.575
Iron, Fe (Tot) mg/l	1.890	0.550	0.550	11.200	2.194	2.811
Lead, Pb (Tot) mg/l	0.016	0.005	0.000	0.070	0.009	0.019
Magnesium, Mg mg/l	134.400	150.000	97.200	184.500	128.758	23.040
Manganese, Mn (Tot) mgl	0.100	0.180	0.010	0.290	0.150	0.071
Mercury, Hg mg/l	(.0002	(.0002	0.000	0.000	0.000	0.000
Molybdenum as Mo (Tot) mg/l	0.030	0.035	0.000	0.035	0.008	0.012
Nickel, Ni (Tot) mg/l	(.01	0.040	0.000	0.050	0.020	0.022
Nitrate, NO3-N mg/l	0.190	0.470	0.040	1.620	0.597	0.436
Nitrite as NO2-N mg/l	0.030	0.170	0.000	0.700	0.095	0.189
Phosphate PO4-P Ortho mg/l	(.01	0.270	0.000	0.530	0.117	0.159
Phosphate PO4-P Tot mg/l	0.200	0.430	0.050	1.200	0.335	0.325
Potassium, K mg/l	7.580	6.570	4.600	9.500	7.146	1.253
Selenium Se (Tot) mg/l	(.001	0.002	0.000	0.002	.000	0.001
Sodium, Na mg/l	526.000	474.000	301.000	675.000	455.583	92.622
Sulfate, SO4 mg/l	1820.000	1730.000	845.000	1820.000	1342.083	276.966
Sulfide as S mg/l	(.10	(.01	0.000	0.210	0.018	0.058
Suspended Solids mg/l	850.000	86.000	53.000	2476.000	457.667	648.808
Total Dis. Solids mg/l	2964.000	3042.000	1630.000	3390.000	2568.250	533.517
Zinc, An (Tot) mg/l	0.094	0.355	0.010	0.355	0.103	0.095
pH Units	8.150	8.000	7.600	9.250	8.067	0.387



Ford Chemical LABORATORY, INC.

Bacteriological and Chemical Analysis

40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

DATE: 04/18/86

CERTIFICATE OF ANALYSIS

86-004178-07

FORD CHEMICAL LABORATORIES

BALANCE SHEET FOR SAMPLE: (7) SW-8

C A T I O N S	mg/l	meq/l
Calcium, Ca mg/l SM303A	246.000	12.275
Magnesium, Mg mg/l SM303A	394.800	32.472
Sodium, Na mg/l SM303A	1505.000	65.468
Potassium, K mg/l SM303A	6.240	.160
Ammonia, NH3-N mg/l SM417F	.990	.071

A N I O N S	mg/l	meq/l
Carbonate as CO3 mg/l SM403	.000	.000
Bicarbonate,HCO3 mg/l SM403	414.000	6.790
Sulfate, SO4 mg/l SM426D	4520.000	94.106
Chloride, Cl mg/l SM407A	355.000	10.015
Nitrate, NO3-N mg/l SM418C	.090	.001

B A L A N C E I N F O R M A T I O N

CATIONS:	110.446
ANIONS:	110.912
TOTAL:	221.358
DIFFERENCE:	.466
SIGMA:	.002

Client : Kaiser Coal Company
Address : 102 South Tejon St, P.O. Box 2679
Colorado Springs, CO 80901-2679
Attn. : Mr. Jay Smaldone CC: Doug Pearce
P.O. No.:

Sample ID: SW-8
Sample Date Time: 05/13/86 08:00

Lab No.: 86-WI/02306
Date Received: 05/15/86

Parameters

Alkalinity as CaCO3	360.	mg/l
Bicarbonate as CaCO3	360.	mg/l
Boron, dissolved	.73	mg/l
Calcium, dissolved	280	mg/l
Carbonate as CaCO3	0.	mg/l
Chloride	520.	mg/l
Conductivity @ 25C	9740.	umhos/cm
Fluoride	.50	mg/l
Hardness as CaCO3	3201.	mg/l
Hydroxide as CaCO3	0.	mg/l
Magnesium, dissolved	610	mg/l
Nitrogen, ammonia	.08	mg/l
Nitrogen, nitrate	.02	mg/l
pH (lab)	8.0	units
Phosphorus, ortho	.05	mg/l
Phosphorus, total	.20	mg/l
Potassium, dissolved	9	mg/l
SAR in water	14.93	
Sodium, dissolved	1920	mg/l
Sulfate	5935.	mg/l
Sulfide as S	.2	mg/l
Cations (sum)	148.73	meq/l
Anions (sum)	146.39	meq'l
Cation-Anion Balance	.79	%
Solids, total dissolved	9958.	mg/l
Solids, total suspended	60.	mg/l
Aluminum, total recov.	.40	mg/l
Arsenic, total recov.	.001	mg/l
Barium, total recov.	.02	mg/l
Cadmium, total recov.	-.005	mg/l
Copper, total recov.	-.01	mg/l
Chromium, total recov.	-.01	mg/l
Iron, total	.70	mg/l
Lead, total recov.	.02	mg/l
Manganese, total recov.	.12	mg/l
Mercury, total recov.	-.0002	mg/l
Molybdenum, total recov.	-.05	mg/l
Nickel, total recov.	-.02	mg/l
Selenium, total recov.	.002	mg/l
Zinc, total recov.	.01	mg/l

Remarks:

Ralph V. Poulsen

Ralph V. Poulsen, Director

KAISER COAL CORPORATION - WELLINGTON PREPARATION PLANT - ACT/007/012
1987 WATER MONITORING DATA

SAMPLE LOCATION: SW-8

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Level (ft)												
pH											8.15	
Temp. (°C)											4.	
Conductiv.											1900.	
Aluminum											0.40	
Arsenic											0.011	
Barium											<.01	
Bicarbon.											167.	
Boron											0.41	
Cadmium											<.01	
Calcium											124.	
Carbonate											0.	
Chloride											74.3	
Chromium											<.01	
Copper											<.01	
fluoride											0.78	
Hardness											741.	
Iron											0.21	
Lead											<.01	
Magnesium											141.	
Manganese											0.020	
Mercury											<.0002	
Molybdenum											0.070	
Nickel											<.01	
Ammonia											0.26	
Nitrate											<.01	
Nitrite											0.019	
Oil & Greas												
Phosphate											0.014	
Potassium											11.5	
Selenium											<.002	
Sodium											332.	
Sulfate											1270.	
Sulfide											<.1	
TDS											2060.	
TSS											16.	
Sett. Solid											<.1	
Zinc											<.01	
C-A Balance												

KAISER COAL CORPORATION
WELLINGTON PREPARATION PLANT
ACT/007/012

1988 WATER MONITORING DATA

SAMPLE LOCATION: SW - 8

Parameter	Units	Jan 88	Feb 88	Mar 88	Apr 88	May 88	June 88	July 88	Aug 88	Sep 88	Oct 88	Nov 88	Dec 88
Flow	(gpm)				POND						Dry		
pH	standard				6.9								
Temp	o C				8								
Conductivity	umhos/cm				5000+.								
Aluminum	mg/l				<.1								
Arsenic	mg/l				<.01								
Barium	mg/l				<.01								
Bicarbonate	mg/l				173								
Boron	mg/l				0.22								
Cadmium	mg/l				<.01								
Calcium	mg/l				57.2								
Carbonate	mg/l				0								
Chloride	mg/l				47.7								
Chromium	mg/l				<.01								
Copper	mg/l				<.01								
Flouride	mg/l				0.5								
Hardness	mg/l				295								
Iron Total	mg/l				0.88								
Lead	mg/l				<.01								
Magnesium	mg/l				48.4								
Manganese	mg/l				<.01								
Mercury	mg/l				<.0002								
Molybdenum	mg/l				<.01								
Nickel	mg/l				<.01								
Ammonia	mg/l				<.1								
Nitrate	mg/l				<.01								
Nitrite	mg/l				1.29								
Oil & Grease	mg/l				0.71								
Phosphate	mg/l				0.038								
Potassium	mg/l				5.6								
Selenium	mg/l				<.002								
Sodium	mg/l				118								
Sulfate	mg/l				368								
Sulfide	mg/l				<.1								
TDS	mg/l				763								
TSS	mg/l				137								
Sett. Solids	mg/l				0.1								
Zinc	mg/l				<.01								
C - A Balance	meq/l				1.25								

MATERIALS THAT MAY AFFECT DISCHARGE 005

ANALYSES OF COAL SIMILAR TO THAT HANDLED ON PAD IN SCREENING + LOADING AREA

Mine: Somerset Mine

Coal Seam: B-2

Type of Sample: Composite Coal Sample 12/6 - 12/13/84
Taken at Wellington Coal Cleaning Plant

Analyzed by: Ford Chemical Laboratory
Certificate of Analysis 85-005027

RESULTS

Acidity as CaCo3 PPM	<.10
Alkalinity as CaCO3 PPM	11,400
Aluminum as Al PPM SM303C	66.000
Arsenic as As Tot. PPM Sm304	.027
Barium as Ba (Tot) PPM SM303C	5.60
Boron as B PPM	2.160
Cadmium as Cd Tot. PPM SM304	.020
Chromium as Cr Tot. PPM SM303A	<.001
Conductivity umhos/cm SM205	410
Copper as Cu (Tot) PPM SMS03	.002
Iron as Fe (Tot) PPM SM303A	1.90
Lead, Pb (Tot) PPM SM303A	1.158
Manganese Mn Tot. PPM SM303A	.20
Marcasite %	.01
Mercury as Hs PPM SM320A	<.0002
Molybdenum as Mo PPM SM303C	.05
Nickel as Ni (Tot) PPM SM303A	.10
Organic Sulfur % ASTM D2492	.30
Pyritic Sulfur %	.130
Selenium as Se Tot PPM SM304	<.001
Total Combustable Solids %	85.3
Total Dis. Solids mg/l SM209B	268
Zinc as Zn (Tot) PPM SM303A	.436
pH Units SM423	9.50

Table 2. Laboratory analysis of leachate from the refuse pile.

Parameter	Analyses
%Clay	1.5
%Coal	<0.01
%Gravel	83.5
%Sand	2.50
%Silt	12.50
Texture	Gravel
pH Initial units	8.40
Acidity as CaCO3 ppm	<0.01
Alkalinity as CaCO3 ppm	142
Calcium as Ca ppm	76.00
Conductivity mmhos/cm	250
Magnesium as Mg ppm	18.20
% Saturation	20.40
Sodium Adsorption Ratio	33.97
Sodium as Na ppm	1,270
Total Dissolved Solids mg/l	7,040

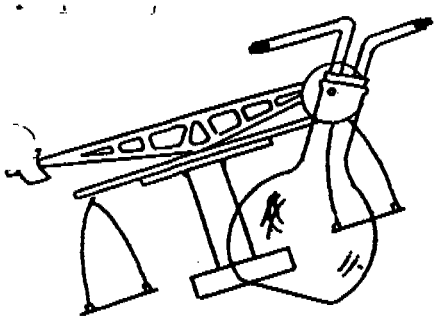
U. S. STEEL MINING CO., INC. - WELLINGTON COAL CLEANING PLANT

SW-4 (Potential Discharge 008)

Sampling Date	1-13-84	3-14-84	5-11-84	7-27-84	9-21-84	11-27-84	1-25-85	3-18-85	5-28-85
Flow gpm	15	25	50	500	500	40.000	40.000	100.000	400.000
Aluminum, Al (Tot) mg/l	0.055	0.257	0.250	1.790	1.830	0.136	0.410	0.450	0.390
Ammonia, NH3-N mg/l	0.300	(.10	0.150	0.370	0.380	0.200	(0.01	0.050	(.01
Arsenic, As (Tot) mg/l	0.002	(.001	(.001	(.001	(.010	(.001	(0.001	(.001	(.001
Barium, Ba (Tot) mg/l	0.040	0.020	0.040	0.080	0.050	0.020	0.020	(.01	0.050
Bicarbonate, HCO3 mg/l	534.360	634.400	433.100	338.500	457.500	634.400	546.600	511.000	356.000
Boron as B (Tot) mg/l	0.610	0.650	0.400	0.215	0.522	0.697	0.740	0.794	0.320
Cadmium, Cd (Tot) mg/l	(.001	(.010	(.0010	(.001	0.010	0.001	(0.001	(.001	(.001
Calcium, Ca mg/l	424.000	352.000	460.00	118.000	264.000	428.000	430.900	431.100	188.000
Carbonate as CO3 mg/l	(.01	(.01	(.01	(.01	(.01	(.01	(0.01	(.01	(.01
Chloride, Cl mg/l	102	150	174	29	75	209	250	97	36.900
Chromium, Cr (Tot) mg/l	(.001	0.002	0.001	(.001	.010	(.001	(0.001	0.005	0.008
Conductivity umhos/cm	7700	7690	8400	1500	4300	7400	7300	7450	2640.000
Copper (Tot) mg/l	0.040	0.050	0.020	0.026	0.030	0.010	0.020	0.030	(.01
Fluoride, F mg/l	0.340	0.380	0.260	0.300	0.300	0.360	0.300	0.290	0.300
Hardness, CaCO3 mg/l	2260	205	2400	545	1285	2230	2246	2235	953.000
Iron, Fe (Tot) mg/l	0.720	0.520	0.240	2.900	0.390	0.020	0.650	0.200	0.740
Lead, Pb (Tot) mg/l	0.003	(.001	(.001	0.037	0.120	0.001	(0.010	(.001	(.001
Magnesium, Mg mg/l	288.000	280.000	300.000	60.000	150.000	278.400	280.600	278.600	116.400
Manganese, Mn (Tot) mgl	0.350	0.300	0.010	0.090	0.310	0.370	0.300	0.240	0.120
Mercury, Hg mg/l	(.0002	(.0002	(.0002	(.0002	(.0002	(.0002	(0.0002	(.0002	(.0002
Molybdenum as Mo (Tot) mg/l	0.022	(.001	(.001	(.005	0.006	0.008	(0.05	0.011	(.001
Nickel, Ni (Tot) mg/l	0.050	(.01	(.01	(.01	0.070	0.010	(0.01	(.01	(.01
Nitrate, NO3-N mg/l	0.820	1.670	1.100	0.150	0.070	0.660	0.780	1.540	0.290
Nitrate as NO2-N mg/l	0.020	(.01	0.650	(.01	(.01	0.030	(0.01	(.01	(.01
Phosphate PO4-P Ortho mg/l	0.450	0.020	0.020	0.070	(.01	0.030	0.030	0.010	0.100
Phosphate PO4-P Tot mg/l	0.220	0.020	0.040	0.700	0.290	0.260	0.050	0.080	0.280
Potassium, K mg/l	16.300	15.600	16.000	9.350	9.700	13.600	12.000	13.190	5.410
Selenium Se (Tot) mg/l	(.001	(.001	(.001	(.001	(.001	(.001	(0.001	(.001	(.001
Sodium, Na mg/l	796.000	848.000	840.000	120.000	432.000	743.000	690.000	716.000	206.800
Sulfate, SO4 mg/l	3250	3025	3470	470	1660	2850	2800	3070	990.000
Sulfide as S mg/l	0.300	0.100	1.500	1.600	1.500	1.800	(0.01	(.01	(.01
Suspended Solids mg/l	24.0	28.0	35.0	125.0	14.0	49.0	29.0	39.0	36.000
Total Dis. Solids mg/l	5150	5250	5460	980	2850	4830	4796	4868	1710.000
Zinc, An (Tot) mg/l	0.050	0.100	0.020	0.071	0.023	(.001	0.012	0.011	0.110
pH Units	7.60	7.70	7.20	8.00	8.10	7.65	7.80	7.70	7.600

U. S. STEEL MINING CO., INC. - WELLINGTON COAL CLEANING PLANT

SW-4 ampling Date	07-31-85	9-26-85	11-22-85	MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
Flow gpm	2000.000	200.000	100.000	15	2000	331	533
Aluminum, Al (Tot) mg/l	(.001	0.520	1.080	0.000	1.830	0.597	0.684
Ammonia, NH3-N mg/l	(.01	0.100	1.300	0.000	1.300	0.238	0.349
Arsenic, As (Tot) mg/l	(.001	(.001	(.001	0.000	0.002	.000	0.001
Barium, Ba (Tot) mg/l	0.050	0.040	0.020	0.000	0.080	0.036	0.020
Bicarbonate, HCO3 mg/l	309.900	460.000	51.000	51.000	634.400	438.897	154.714
Boron as B (Tot) mg/l	0.250	0.530	0.679	0.215	0.794	0.534	0.188
Cadmium, Cd (Tot) mg/l	(.001	(.001	(.001	0.000	0.010	0.001	0.003
Calcium, Ca mg/l	148.000	338.000	422.000	0.000	431.100	295.400	142.814
Carbonate as CO3 mg/l	(.01	(.01	(.01	0.000	0.000	0.000	0.000
Chloride, Cl mg/l	39.700	65.200	104.000	28.900	250.000	110.975	67.976
Chromium, Cr (Tot) mg/l	0.006	0.004	0.006	0.000	0.008	0.003	0.003
Conductivity umhos/cm	2250.000	5500.000	6900.000	1500.000	8400.000	5752.500	2346.551
Copper (Tot) mg/l	(.01	(.01	0.020	0.000	0.050	0.021	0.015
Fluoride, F mg/l	0.250	0.320	0.310	0.250	0.380	0.309	0.036
Hardness, CaCO3 mg/l	740.000	1715.000	2165.000	285.000	2400.000	1581.583	760.368
Iron, Fe (Tot) mg/l	1.330	0.790	1.500	0.020	2.980	0.840	0.767
Lead, Pb (Tot) mg/l	0.002	0.012	0.002	0.000	0.120	0.015	0.033
Magnesium, Mg mg/l	88.000	213.600	266.400	60.000	300.000	216.733	84.637
Manganese, Mn (Tot) mgl	0.060	0.430	0.580	0.010	0.580	0.263	0.160
Mercury, Hg mg/l	(.0002	(.0002	(.0002	0.000	0.000	0.000	0.000
Molybdenum as Mo (Tot) mg/l	(.01	0.020	0.048	0.000	0.048	0.010	0.014
Nickel, Ni (Tot) mg/l	0.070	(.01	0.030	0.000	0.070	0.019	0.027
Nitrate, NO3-N mg/l	0.370	0.730	1.250	0.070	1.670	0.786	0.582
Nitrate as NO2-N mg/l	(.01	(.01	1.020	0.000	1.020	0.143	0.319
Phosphate PO4-P Ortho mg/l	0.020	(.01	(.01	0.000	0.450	0.063	0.120
Phosphate PO4-P Tot mg/l	0.250	0.060	0.040	0.020	0.700	0.192	0.184
Potassium, K mg/l	7.300	10.670	11.010	5.410	16.300	11.678	3.301
Selenium Se (Tot) mg/l	(.001	0.002	0.003	0.000	0.003	.000	0.001
Sodium, Na mg/l	212.000	472.000	598.000	120.000	848.000	556.150	251.100
Sulfate, SO4 mg/l	840.000	2266.000	3100.000	470.000	3470.000	2315.917	1007.751
Sulfide as S mg/l	2.400	(.10	(.01	0.000	2.400	0.767	0.871
Suspended Solids mg/l	66.000	42.000	82.000	14.000	125.000	47.417	29.338
Total Dis. Solids mg/l	1482.000	3630.000	4980.000	980.000	5460.000	3832.167	1577.951
Zinc, An (Tot) mg/l	0.033	0.028	0.016	0.000	0.110	0.040	0.034
pH Units	7.900	7.700	7.750	7.200	8.100	7.725	0.217



Ford Chemical LABORATORY, INC.

Bacteriological and Chemical Analysis

40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

DATE: 04/18/86

CERTIFICATE OF ANALYSIS

86-004178-04

FORD CHEMICAL LABORATORIES

BALANCE SHEET FOR SAMPLE: (4) SW-4

C A T I O N S	mg/l	meq/l
Calcium, Ca mg/l SM303A	400.000	19.960
Magnesium, Mg mg/l SM303A	267.600	22.010
Sodium, Na mg/l SM303A	610.000	26.535
Potassium, K mg/l SM303A	9.780	.250
Ammonia, NH3-N mg/l SM417F	.550	.039

A N I O N S	mg/l	meq/l
Carbonate as CO3 mg/l SM403	.000	.000
Bicarbonate,HCO3 mg/l SM403	539.000	8.840
Sulfate, SO4 mg/l SM426D	2885.000	60.066
Chloride, Cl mg/l SM407A	90.200	2.545
Nitrate, NO3-N mg/l SM418C	.450	.007

B A L A N C E I N F O R M A T I O N

CATIONS:	68.794
ANIONS:	71.458
TOTAL:	140.252
DIFFERENCE:	2.664
SIGMA:	.018

Client : Kaiser Coal Company
Address : 102 South Tejon St, P.O. Box 2679
Colorado Springs, CO 80901-2679
Attn. : Mr. Jay Smaldone CC: Doug Pearce
P.O. No.:

Sample ID: SW-4
Sample Date Time: 05/12/86 16:45

Lab No.: 86-WI/02303
Date Received: 05/15/86

Parameters

Alkalinity as CaCO3	282.	mg/l
Bicarbonate as CaCO3	282.	mg/l
Boron, dissolved	.22	mg/l
Calcium, dissolved	133	mg/l
Carbonate as CaCO3	0.	mg/l
Chloride	29.	mg/l
Conductivity @ 25C	1680.	umhos/cm
Fluoride	.31	mg/l
Hardness as CaCO3	681.	mg/l
Hydroxide as CaCO3	0.	mg/l
Magnesium, dissolved	85	mg/l
Nitrogen, ammonia	.03	mg/l
Nitrogen, nitrate	.03	mg/l
pH (lab)	8.3	units
Phosphorus, ortho	-.02	mg/l
Phosphorus, total	.21	mg/l
Potassium, dissolved	5	mg/l
SAR in water	3.07	
Sodium, dissolved	182	mg/l
Sulfate	731.	mg/l
Sulfide as S	-.2	mg/l
Cations (sum)	21.76	meq/l
Anions (sum)	21.80	meq/l
Cation-Anion Balance	-.09	%
Solids, total dissolved	1362.	mg/l
Solids, total suspended	86.	mg/l
Aluminum, total recov.	.72	mg/l
Arsenic, total recov.	.001	mg/l
Barium, total recov.	.04	mg/l
Cadmium, total recov.	-.005	mg/l
Copper, total recov.	-.01	mg/l
Chromium, total recov.	-.01	mg/l
Iron, total	1.75	mg/l
Lead, total recov.	-.02	mg/l
Manganese, total recov.	.10	mg/l
Mercury, total recov.	-.0002	mg/l
Molybdenum, total recov.	-.05	mg/l
Nickel, total recov.	-.02	mg/l
Selenium, total recov.	-.001	mg/l
Zinc, total recov.	.01	mg/l

Remarks:

Ralph V. Poulsen

Ralph V. Poulsen, Director

KAISER COAL CORPORATION - WELLINGTON PREPARATION PLANT - ACT/007/012
1987 WATER MONITORING DATA

SAMPLE LOCATION: SW-4

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Flow (gpm)												
pH											7.7	
Temp. (°C)											7.	
Conductiv.											3700.	
Aluminum											0.10	
Arsenic											<.01	
Barium											<.01	
Bicarbon.											371.	
Boron											.57	
Cadmium											<.01	
Calcium											182.	
Carbonate											0.	
Chloride											65.9	
Chromium											<.01	
Copper											<.01	
Fluoride											1.16	
Hardness											1290.	
Iron											0.058	
Lead											<.01	
Magnesium											166.	
Manganese											0.082	
Mercury											<.0002	
Molybdenum											<.01	
Nickel											<.01	
Ammonia											0.42	
Nitrate											0.42	
Nitrite											0.027	
Oil & Greas												
Phosphate											<.01	
Potassium											14.2	
Selenium											<.002	
Sodium											692.	
Sulfate											2390.	
Sulfide											<.1	
TDS											3900.	
TSS											9.2	
Sett. Solid											<.1	
Zinc											<.01	
C-A Balance												

KAISER COAL CORPORATION
WELLINGTON PREPARATION PLANT
ACT/007/012

1988 WATER MONITORING DATA

SAMPLE LOCATION: SW - 4 * Parameters not available from lab

Parameter	Units	Jan 88	Feb 88	Mar 88	Apr 88	May 88	June 88	July 88	Aug 88	Sep 88	Oct 88	Nov 88	Dec 88
Flow	(gpm)				10						1		
pH	standard				2.22						7.54		
Temp	o C				12						18		
Conductivity	umhos/cm				5000+.						5000+.		
Diss. Oxygen	ppm				>15						4.4		
Aluminum	mg/l				<.1						<0.10		
Arsenic	mg/l				<.01						<0.004		
Barium	mg/l				<.01						<0.10		
Bicarbonate	mg/l				298						494		
Boron	mg/l				0.53						0.91		
Cadmium	mg/l				<.01						<0.005		
Calcium	mg/l				236						348		
Carbonate	mg/l				0						0		
Chloride	mg/l				102						142		
Chromium	mg/l				<.01						<0.05		
Copper	mg/l				<.01						<0.03		
Flouride	mg/l				1.22						0.29		
Hardness	mg/l				1780						2375		
Iron Total	mg/l				0.15						0.61		
Lead	mg/l				<.01						<0.05		
Magnesium	mg/l				225						366		
Manganese	mg/l				<.01						0.54		
Mercury	mg/l				<.0002						<0.001		
Molybdenum	mg/l				<.01						<0.10		
Nickel	mg/l				<.01						<0.05		
Ammonia	mg/l				0.18						<0.05		
Nitrate	mg/l				0.27						<0.05		
Nitrite	mg/l				0.643						<0.05		
Oil & Grease	mg/l				<.5						<2.0		
Phosphate	mg/l				<.01						<0.05		
Potassium	mg/l				16.4						21.1		
Selenium	mg/l				<.002						<0.004		
Sodium	mg/l				1035						1218		
Sulfate	mg/l				3450						4400		
Sulfide	mg/l				<.1						<0.4		
TDS	mg/l				5910						6170		
TSS	mg/l				60						*		
Sett. Solids	mg/l				<.1						*		
Zinc	mg/l				<.01						<0.01		
C - A Balance	meq/l				-2.51						*		

35°-40°F

LOCATION	SAMPLE NO.	DATE	TIME	SAMPLERS INITIALS	NUMBER OF SAMPLES & TYPE	FLOW G.P.M. (CFS)	COMMENTS
Price River - Upstream	SW-1	3/11/86	4:45 P.M.	J.S.	PG + HNO_3	200	
Price River - Downstream	SW-2	3/11/86	5:00 P.M.	J.S.	PG + HNO_3	200	
Diversion Ditch - Upstream	SW-3						NO FLOW
Diversion Ditch - Downstream	SW-4	3/11/86	4:30 P.M.	J.S.	PG + HNO_3	V: 1.67 FPS A: .35 FT²	
Upper Refuse Pond	SW-5	3/12/86		J.S.	—	—	NO SAMPLE TAKEN
Lower Refuse Pond	SW-6	3/11/86	5:30 P.M.	J S	PG + HNO_3		
Clearwater Pond	SW-7	3/11/86	5:45 P.M.	J S	PG - HNO_3		
Auxiliary Pond	SW-8	3/11/86	4:15 P.M.	J S	PG - HNO_3		
Below Clearwater Pond	BCW	3/11/86	5:10 P.M.	J S	PG + HNO_3	SLIGHTLY	FLOW [illegible]

CLEAN ANN
5- P

LOCATION	SAMPLE NO.	DATE	TIME	SAMPLERS INITIALS	NUMBER OF SAMPLES & TYPE	FLOW G.P.M.	COMMENTS
Price River - Upstream	SW-1	5-12-86	5:05 P.M.	J.S.	5 2- RAW 3- PRESERVED	300 CFS	MUDDY
Price River - Downstream	SW-2				5 "	300 CFS	
Diversion Ditch - Upstream	SW-3	NO FLOW				NO FLOW	
Diversion Ditch - Downstream	SW-4	5-12-86	4.45 P.M.	J.S.	5 "	.25 CFS	CLOUDY
Upper Refuse Pond	SW-5	NO WATER					
Lower Refuse Pond	SW-6	5-12-86	5:30 P.M		5 "		
Clearwater Pond	SW-7	5-12-86	5:45 P.M.		5 "		
Auxiliary Pond	SW-8	5-13-86	8:00 AM		5 "		
Below Clearwater Pond	BCW	5-12-86	5:20 P.M	NO SAMPLE		NO FLOW	

LOCATION	SAMPLE NO.	DATE	TIME	SAMPLERS INITIALS	NUMBER OF SAMPLES & TYPE	FLOW G.P.M.	COMMENTS
Price River - Upstream	SW-1	12/2/86	11:00 A.M.	J. S,	3	< 100 CFS CLEAR	PH: 8.81 COND.: 1900 T- 3°C
Price River - Downstream	SW-2	12/2/86	11:30 A.M	JS	3	< 100 CFS CLEAR	PH - 8.73 COND.- 1900 T- 3°C
Diversion Ditch - Upstream	SW-3	NO FLOW					
Diversion Ditch - Downstream	SW-4	12/2/86	10:30 A.M.	J. S.	3	40 GPM	PH - 8.08 CLEAR COND.- 2600 T- 4°C
Upper Refuse Pond	SW-5	NO WATER					
Lower Refuse Pond	SW-6	12/2/86	NO WATER				
Clearwater Pond	SW-7	12/2/86	12:30 AM	J.S.	3	FROZE ON TOP	PH- 8.92 COND.- 3150 T- 4°C
Auxiliary Pond	SW-8	FROZEN - NO SAMPLE					
Below Clearwater Pond	BCW	NO FLOW					

KAISER COAL CORPORATION
WELLINGTON PREPARATION PLANT

SURFACE WATER MONITORING

LOCATION	SAMPL NO.	DATE	TIME	SAMPLER	TEMP (°C)	FLOW (GPM)	pH	COND.	DISSOLV OXYGEN	COMMENTS
Price River - Upstream	SW-1	4/5/88	[illegible]5	BG	8°	?	7.93	1500	>15	
Price River - Downstream	SW-2		2:00		8°	?	7.75	1600	>15	
Diversion Ditch - Upstream	SW-3				DRY					
Diversion Ditch - Downstream	SW-4		1:00		12°	10 GPM	7.22	5000+	>15	
Upper Refuse Pond	SW-5		DRY							
Lower Refuse Pond	SW-6		DRY							
Clearwater Pond	SW-7		1:30		6°	Pond	8.05	5100+	X	
Auxiliary Pond	SW-8	4/5/88	9:00	BG	8°C	Pond	6.9	5000+	X	Pond is very low & brackish
CLEAR WATER SEEP	SW-9	DRY								

KAISER COAL CORPORATION
WELLINGTON PREPARATION PLANT

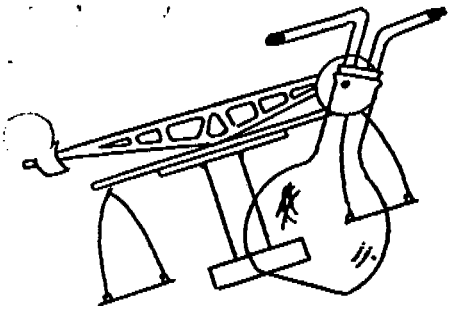
SURFACE WATER MONITORING

LOCATION	SAMPL NO.	DATE	TIME	SAMPLER	TEMP (°C)	FLOW (GPM)	pH	COND.	DISSOLV OXYGEN	COMMENTS
Price River - Upstream	SW-1	10-6-88	4:24pm	KRH	19°C	8000	8.51	4300	5.5	20' x 15' .71 vel
Price River - Downstream	SW-2	10-6-88		KRH	17°C	9400	8.50	4900	7.0	18' x 17" .82 vel
Diversion Ditch - Upstream	SW-3	10-6-88	4:55	KRH	—	DRY	—	—	—	
Diversion Ditch - Downstream	SW-4	10-6-88	4:35pm	KRH	18°C	1gpm	7.54	5000+	4.4	
Upper Refuse Pond	SW-5	10-6-88	4:52	KRH	—	DRY	—	—	—	
Lower Refuse Pond	SW-6	10-6-88	4:50	KRH	—	DRY	—	—	—	
Clearwater Pond	SW-7	10-6-88	4:45	KRH	—	DRY	—	—	—	
Auxiliary Pond	SW-8	10-6-88	5:42	KRH	—	DRY	—	—	—	
BCW		" "	6:00	" "		0				

KAISER COAL CORPORATION
WELLINGTON PREPARATION PLANT

SURFACE WATER MONITORING

LOCATION	SAMPL NO.	DATE	TIME	SAMPLER	TEMP (°C)	FLOW (GPM)	pH	COND.	DISSOLV OXYGEN	COMMENTS
Price River - Upstream	SW-1	6-3-89	5:20 pm	K. Housekeeper	18°C		8.48	5000+	6.2	10'/sec 30'W 1 & 1 used sonic
Price River - Downstream	SW-2	6-3-89	6:39 pm	K. Housekeeper	18°C		8.68	5000+	6.9	[redacted]
Diversion Ditch - Upstream	SW-3	6-3-89	5:50 pm	K. Housekeeper			DRY			
Diversion Ditch - Downstream	SW-4	6-3-89	5:10 pm	K. Housekeeper	14°C	.5	7.66	5000+	4.3	
Upper Refuse Pond	SW-5	6-3-89	5:53 pm	K. Housekeeper			DRY			
Lower Refuse Pond	SW-6	6-3-89	6:02 pm	K. Housekeeper			DRY			
Clearwater Pond	SW-7	6-3-89	6:20 pm	K. Housekeeper			DRY			
Auxiliary Pond	SW-8	6-3-89	1:35 pm	K. Housekeeper			DRY			



Ford Chemical LABORATORY, INC.

Bacteriological and Chemical Analysis

40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

DATE: 04/18/86

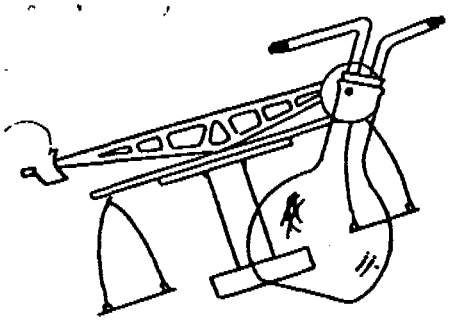
CERTIFICATE OF ANALYSIS

KAISER COAL CORP.
ATTN: DOUG PEARCE
SUNNYSIDE, UT
84539

86-004178

SAMPLE: WATER SAMPLES RECEIVED 3-27-86 FOR ANALYSIS.

	BCW	SW-1	SW-2 (002)	SW-4 (008)	SW-6
Aluminum as Al mg/l SM 303C	<.01	7.21	9.63	.42	.23
Ammonia, NH3-N mg/l SM417F	3.32	.49	.49	.55	.43
Arsenic, As mg/l SM304	.030	.010	.004	.002	<.001
Barium, Ba mg/l SM303C	<.01	.26	.27	<.01	.04
Bicarbonate,HCO3 mg/l SM403	551.00	279.00	282.00	539.00	272.00
Boron as B mg/l SM 404A	1.30	.19	.30	.78	.95
Cadmium, Cd mg/l SM304	<.001	<.001	<.001	<.001	<.001
Calcium, Ca mg/l SM303A	400.00	82.00	58.00	400.00	150.00
Carbonate as CO3 mg/l SM403	<.01	<.01	<.01	<.01	<.01
Chloride, Cl mg/l SM407A	426	24.7	24.1	90.2	95.6
Chromium, Cr mg/l SM304	.030	.040	.030	.030	.020
Conductivity umhos/cm SM205	12,840	970	924	6,900	4,490
Copper, Cu mg/l SM303A	.09	.06	.06	.03	.04



Ford Chemical LABORATORY, INC.

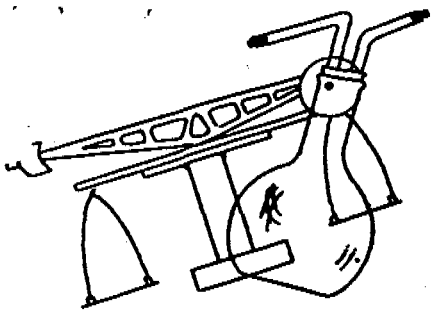
Bacteriological and Chemical Analysis

40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

CERTIFICATE OF ANALYSIS

86-004178

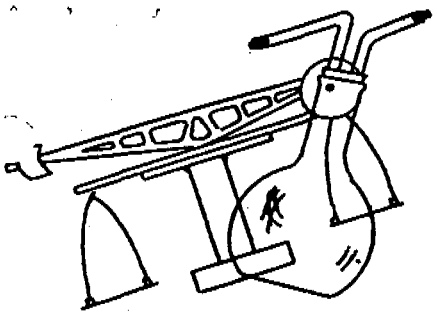
	BCW	SW-1	SW-2	SW-4	SW-6
Fluoride, F mg/l SM413B	.81	.19	.19	.29	.63
Hardness,CaCO3 mg/l SM314B	4,150	366	372	2,115	990
Iron, Fe (Tot) mg/l SM303A	.18	16.30	19.10	.54	.36
Lead, Pb mg/l SM304	.003	.013	.168	<.001	<.001
Magnesium, Mg mg/l SM303A	756.00	38.60	54.50	267.60	147.60
Manganese, Mn mg/l SM303A	.09	.63	.70	.62	.04
Mercury, Hg mg/l SM320A	<.0002	<.0002	<.0002	<.0002	<.0002
Molybdenum as Mo mg/l SM303C	.14	.03	.05	.05	.06
Nickel, Ni mg/l SM303A	<.01	<.01	<.01	<.01	<.01
Nitrate, NO3-N mg/l SM418C	.02	.69	.67	.45	.10
Nitrite as NO2-N mg/l SM419	.04	.02	<.01	.02	.02
Phosphate PO4-P T.mg/l SM424G	.74	.53	.47	.04	.02
Phosphate as PO4-P Dis.	.12	.08	.07	.03	.02
Potassium, K mg/l SM303A	54.13	4.16	4.86	9.78	8.84
Selenium, Se mg/l SM304	.002	<.001	<.001	<.001	.003
Sodium, Na mg/l SM303A	2,120.00	75.00	60.00	610.00	565.00
Sulfate, SO4 mg/l SM426D	7,660	269	237	2,885	1,820



Ford Chemical
LABORATORY, INC.
Bacteriological and Chemical Analysis
40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

CERTIFICATE OF ANALYSIS
86-004178

	BCW	SW-1	SW-2	SW-4	SW-6
Sulfide as S mg/l EPA 9030	<.10	<.10	<.10	<.10	<.10
Suspended Solids mg/l SM 209D	33.0	918	1,066	63.0	35.0
Total Dis. Solids mg/l SM209B	12,734	630	585	4,550	2,950
Zinc, Zn mg/l SM303A	.048	.215	.102	<.001	.017
pH Units SM423	8.25	8.15	8.15	7.80	8.20



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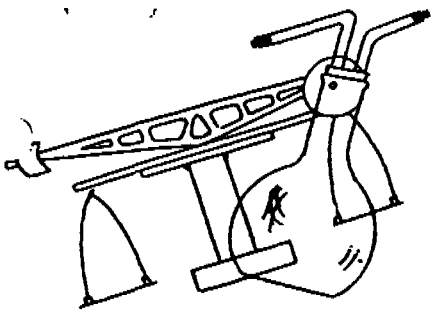
Bacteriological and Chemical Analysis

40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

CERTIFICATE OF ANALYSIS
86-004178

	SW-7 (001)	SW-8 (004)
Aluminum as Al mg/l SM 303C	<.01	.10
Ammonia, NH3-N mg/l SM417F	.76	.99
Arsenic, As mg/l SM304	<.001	.015
Barium, Ba mg/l SM303C	.01	<.01
Bicarbonate,HCO3 mg/l SM403	376.00	414.00
Boron as B mg/l SM 404A	.55	.54
Cadmium, Cd mg/l SM304	<.001	<.001
Calcium, Ca mg/l SM303A	218.00	246.00
Carbonate as CO3 mg/l SM403	<.01	<.01
Chloride, Cl mg/l SM407A	81.2	355
Chromium, Cr mg/l SM304	<.010	.050
Conductivity umhos/cm SM205	3,800	10,100
Copper, Cu mg/l SM303A	.04	.04
Fluoride, F mg/l SM413B	.38	.32
Hardness,CaCO3 mg/l SM314B	1,230	2,260
Iron, Fe (Tot) mg/l SM303A	.16	.20
Lead, Pb mg/l SM304	<.001	<.001



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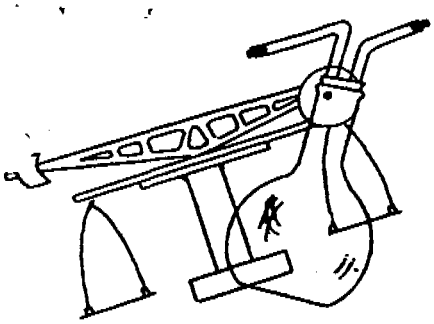
Bacteriological and Chemical Analysis

40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

CERTIFICATE OF ANALYSIS
86-004178

	SW-7	SW-8
Magnesium, Mg mg/l SM303A	164.40	394.80
Manganese, Mn mg/l SM303A	.20	.09
Mercury, Hg mg/l SM320A	<.0002	<.0002
Molybdenum as Mo mg/l SM303C	.03	.08
Nickel, Ni mg/l SM303A	<.01	<.01
Nitrate, NO3-N mg/l SM418C	.36	.09
Nitrite as NO2-N mg/l SM419	.03	<.01
Phosphate PO4-P T.mg/l SM424G	.15	.03
Phosphate as PO4-P Dis.	.16	.03
Potassium, K mg/l SM303A	5.64	6.24
Selenium, Se mg/l SM304	<.001	.002
Sodium, Na mg/l SM303A	340.00	1,505.00
Sulfate, SO4 mg/l SM426D	1,530	4,520
Sulfide as S mg/l EPA 9030	<.10	<.10
Suspended Solids mg/l SM 209D	30.0	58.0
Total Dis. Solids mg/l SM209B	2,520	6,950
Zinc, Zn mg/l SM303A	.019	.015



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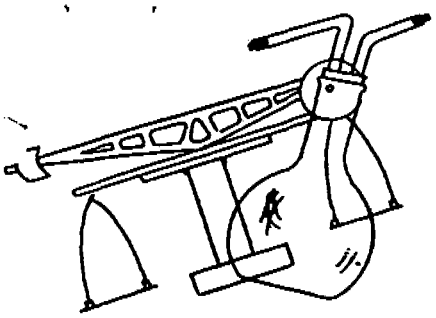
LABORATORY, INC.
Bacteriological and Chemical Analysis

40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

CERTIFICATE OF ANALYSIS
86-004178

	SW-7	SW-8
pH Units SM423	7.85	7.85

FORD CHEMICAL LABORATORY, INC.



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Bacteriological and Chemical Analysis
40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

DATE: 03/04/86

CERTIFICATE OF ANALYSIS

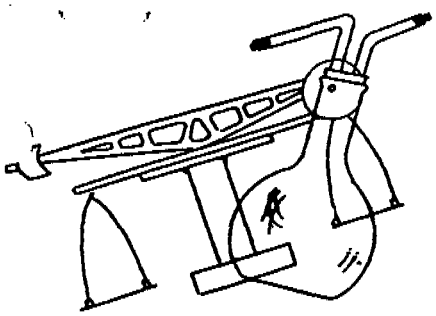
KAISER COAL CORP.
SUNNYSIDE, UT

84539

86-003508

SAMPLE: SURFACE WATER SAMPLES COLLECTED 1-30-86 RECEIVED 2-12-86
FOR ANALYSIS UNDER P.O. #28002591.

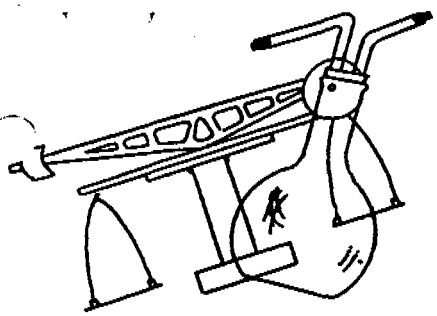
	SW-1	SW-2 (002)	SW-4 (004)	SW-6	SW-7 (001)
Aluminum as Al mg/l SM 303C	.67	.48	<.01	<.01	<.01
Ammonia, NH3-N mg/l SM417F	.12	<.01	<.01	.05	.85
Arsenic, As mg/l SM304	<.001	<.001	<.001	<.001	<.001
Barium, Ba mg/l SM303C	.05	.05	.03	.04	.03
Bicarbonate, HCO3 mg/l SM403	373.00	378.00	551.00	298.00	449.00
Boron as B mg/l SM 404A	.29	.23	.63	.89	.52
Cadmium, Cd mg/l SM304	<.001	<.001	<.001	.001	<.001
Calcium, Ca mg/l SM303A	160.00	170.00	402.00	198.00	228.00
Carbonate as CO3 mg/l SM403	<.01	<.01	<.01	30.00	<.01
Chloride, Cl mg/l SM407A	44.7	48.9	87.5	117	76.4
Chromium, Cr mg/l SM303A	.003	.002	.004	.006	.003
Conductivity umhos/cm SM205	2,500	2,600	7,100	6,500	4,800
Copper, Cu mg/l SM303A	.02	<.01	.02	.02	.02



Ford Chemical
LABORATORY, INC.
Bacteriological and Chemical Analysis
40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

CERTIFICATE OF ANALYSIS
85-003508

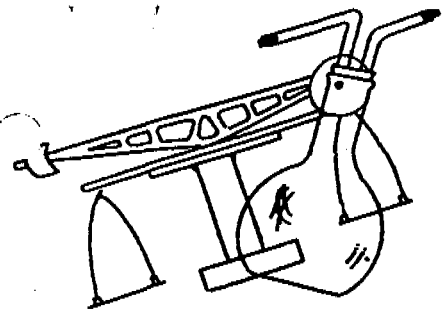
	SW-1	SW-2	SW-4	SW-6	SW-7
Fluoride, F mg/l SM413B	.22	.23	.32	.73	.40
Hardness,CaCO3 mg/l SM314B	805	810	2,040	1,235	1,275
Iron, Fe (Tot) mg/l SM303A	1.34	.99	.48	.04	.06
Lead, Pb mg/l SM303A	<.001	<.001	.002	.005	.017
Magnesium, Mg mg/l SM303A	97.20	92.40	248.40	177.60	169.20
Manganese, Mn mg/l SM303A	.14	.13	.15	.03	.20
Mercury, Hg mg/l SM320A	<.0002	<.0002	<.0002	<.0002	<.0002
Molybdenum as Mo mg/l SM303C	<.01	<.01	<.01	<.01	<.01
Nickel, Ni mg/l SM303A	.03	<.01	<.01	<.01	<.01
Nitrate, NO3-N mg/l SM418C	1.48	1.67	.69	.38	.23
Nitrite as NO2-N mg/l SM419	<.01	.02	.02	<.01	<.01
Phosphate PO4-P Ortho mg/l	.40	.38	.21	.13	.80
Phosphate PO4-P T.mg/l SM424G	.30	.35	.04	<.01	.13
Potassium, K mg/l SM303A	4.36	4.07	8.65	11.18	6.67
Selenium, Se mg/l SM304	<.001	<.001	<.001	.002	<.001
Sodium, Na mg/l SM303A	215.00	211.00	676.00	865.00	530.00
Sulfate, SO4 mg/l SM426D	857	879	2,780	2,500	1,800



Ford Chemical
LABORATORY, INC.
Bacteriological and Chemical Analysis
40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

CERTIFICATE OF ANALYSIS
85-003508

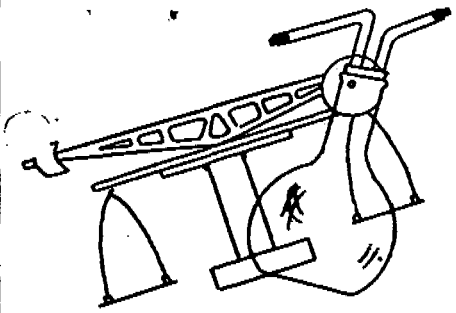
	SW-1	SW-2	SW-4	SW-6	SW-7
Sulfide as S mg/l EPA 9030	<.10	<.10	<.10	<.10	<.10
Suspended Solids mg/l SM 209D	46.0	29.0	20.0	7.0	6.0
Total Dis. Solids mg/l SM209B	1,648	1,714	4,628	4,190	3,138
Zinc, Zn mg/l SM303A	<.001	.006	<.001	<.001	<.001
pH Units SM423	8.05	7.90	7.80	8.20	7.75



Ford Chemical
LABORATORY, INC.
Bacteriological and Chemical Analysis
40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

CERTIFICATE OF ANALYSIS
85-003508

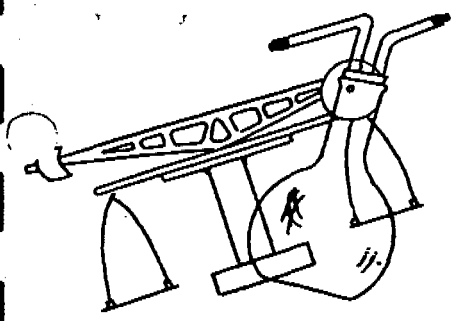
	SW-8 (004)
Aluminum as Al mg/l SM 303C	.03
Ammonia, NH3-N mg/l SM417F	.18
Arsenic, As mg/l SM304	<.001
Barium, Ba mg/l SM303C	.04
Bicarbonate,HCO3 mg/l SM403	356.00
Boron as B mg/l SM 404A	.48
Cadmium, Cd mg/l SM304	<.001
Calcium, Ca mg/l SM303A	218.00
Carbonate as CO3 mg/l SM403	36.00
Chloride, Cl mg/l SM407A	101
Chromium, Cr mg/l SM303A	.006
Conductivity umhos/cm SM205	5,100
Copper, Cu mg/l SM303A	.02
Fluoride, F mg/l SM413B	.41
Hardness,CaCO3 mg/l SM314B	1,290
Iron, Fe (Tot) mg/l SM303A	.71
Lead, Pb mg/l SM303A	.002



Ford Chemical
LABORATORY, INC.
Bacteriological and Chemical Analysis
40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

CERTIFICATE OF ANALYSIS
85-003508

	SW-8
Magnesium, Mg mg/l SM303A	178.80
Manganese, Mn mg/l SM303A	.15
Mercury, Hg mg/l SM320A	.0031
Molybdenum as Mo mg/l SM303C	<.01
Nickel, Ni mg/l SM303A	<.01
Nitrate, NO3-N mg/l SM418C	.87
Nitrite as NO2-N mg/l SM419	<.01
Phosphate PO4-P Ortho mg/l	.36
Phosphate PO4-P T.mg/l SM424G	.33
Potassium, K mg/l SM303A	6.08
Selenium, Se mg/l SM304	<.001
Sodium, Na mg/l SM303A	650.00
Sulfate, SO4 mg/l SM426D	2,080
Sulfide as S mg/l EPA 9030	<.10
Suspended Solids mg/l SM 209D	17.0
Total Dis. Solids mg/l SM209B	3,314
Zinc, Zn mg/l SM303A	.006



Ford Chemical
LABORATORY, INC.
Bacteriological and Chemical Analysis
40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 466-8761

CERTIFICATE OF ANALYSIS
85-003508

	SW-8
pH Units SM423	8.35

FORD CHEMICAL LABORATORY, INC.

CHEMTECH
CHEMICAL AND BACTERIOLOGICAL ANALYSES

367 SOUTH COMMERCE LOOP
OREM, UTAH 84057
(801) 226-8822

2875 MAIN
SUITE #101
SALT LAKE CITY, UTAH 84115
(801) 483-1162

December 22, 1986

TO: Kaiser Coal Co.
P.O. Box 10
Sunnyside, UT 84539

SAMPLE SOURCE: Wellington Prep. Plant, 12-10-86

CERTIFICATE OF ANALYSIS

SAMPLE ID:	SW-1	SW-2	SW-4	SW-7
LAB #:	U016269	U016270	U016271	U016272
PARAMETER	(Point 002)		(008)	(001)
Settleable Solids, ml/l	<.1	<.1	<.1	<.1
TSS, mg/l	6.0	6.0	<1	6.0
TDS, mg/l	2,550	2,680	5,320	3,890
Hardness as $CaCO_3$, mg/l	1,220	1,190	2,170	1,330
Bicarbonate as HCO_3, mg/l	454	509	581	157
Carbonate as CO_3, mg/l	0	0	0	0
Calcium as Ca, mg/l	98.2	87.9	134	124
Chloride as Cl, mg/l	60.1	74.7	79.6	120
Iron as Fe, mg/l	0.68	0.72	0.030	0.070
Magnesium as Mg, mg/l	151	158	292	216
Manganese as Mn, mg/l	0.35	0.30	0.17	0.25
Potassium as K, mg/l	8.0	8.9	13.5	12.4
Sodium as Na, mg/l	330	320	699	602
Sulfate as SO_4, mg/l	1270	1260	2600	2360
Oil & Grease, mg/l	<.5	<.5	<.5	<.5

Rex Henderson

O. Point 001 No toxic or priority pollutants expected

Point 002 "

Point 003 "

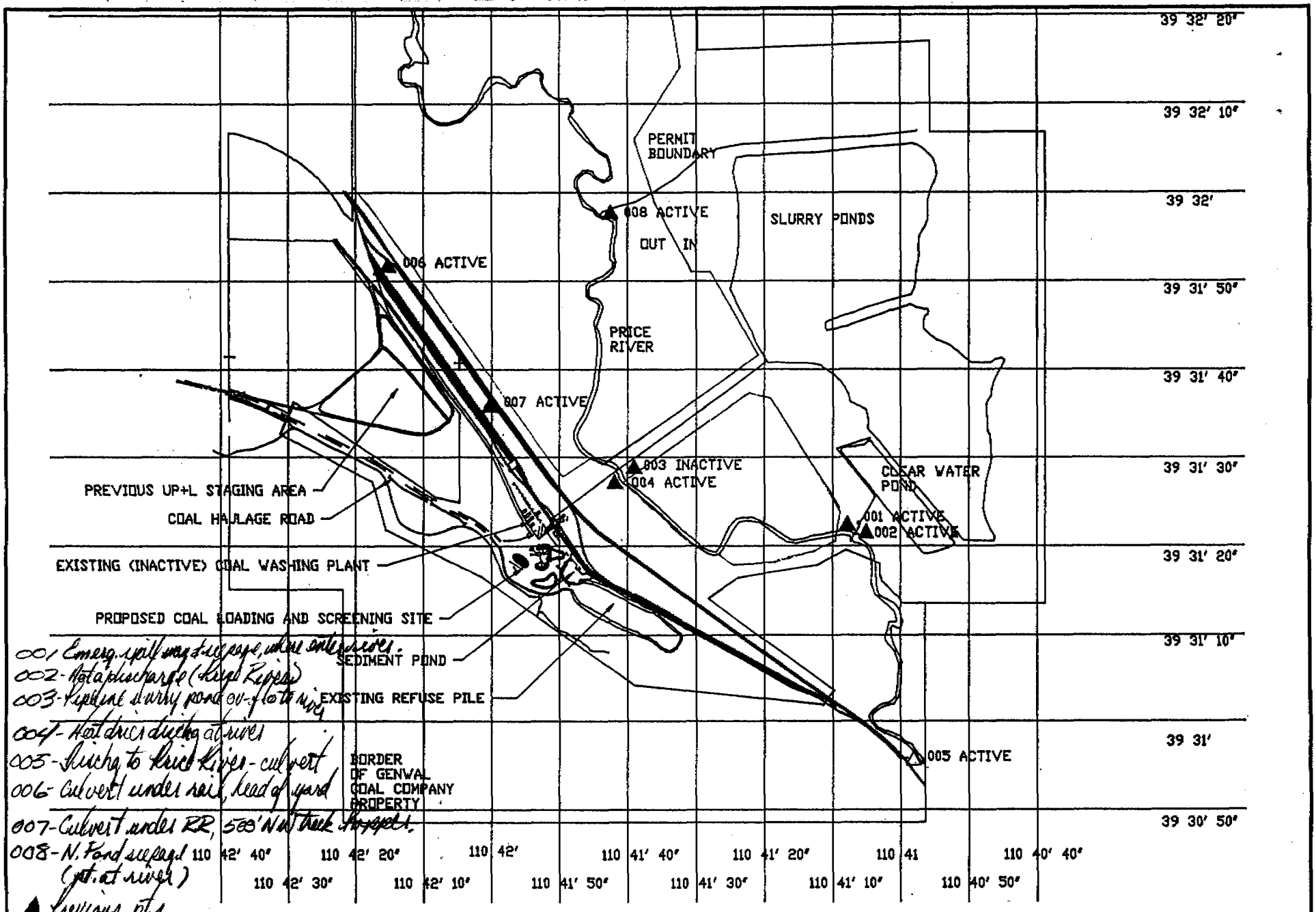
Point 004 "

Point 005 "

Point 006 "

Point 007 "

Point 008 "



COAL SYSTEMS, Inc.
SALT LAKE CITY, UTAH
801-281-4500

GENWAL COAL COMPANY, P.O. BOX 766, WELLINGTON, UT. 84542
WELLINGTON COAL SCREENING AND LOADING FACILITY

LOCATION OF PRESENT AND FUTURE DISCHARGE POINTS
UPDES PERMIT APPLICATION UTG040000

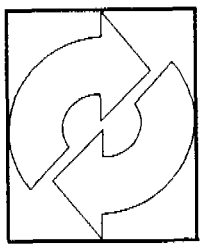
CHECKED BY I.L.	DIRECTED BY L.G.M.	SCALE:	1 INCH = 1,800 FEET
APPROVED BY L.G.M.	DATE: AUG. 14, 1998	JOB NO.	4067-6
DRAWN BY: AUTOCAD	OPERATOR: S. C. PAUL	DWG. NO.	4067-6-11

WELLINGTON FINES REMOVAL

CASTLE VALLEY RESOURCES/GENWAL COAL COMPANY
ACT/007/012
APPLICATION FOR PERMIT AMENDMENT

WELLINGTON FINES REMOVAL

CASTLE VALLEY RESOURCES/GENWAL COAL COMPANY
ACT/007/012
APPLICATION FOR PERMIT AMENDMENT



Prepared by

MT. NEBO SCIENTIFIC RESEARCH & CONSULTING
Post Office Box 337
Springville, Utah 84663
(801) 489-6937

for

CASTLE VALLEY RESOURCES/GENWAL MINING COMPANY
P.O. BOX 766
Wellington, Utah 84542

April 25, 1991

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WELLINGTON FINES REMOVAL

CASTLE VALLEY RESOURCES/GENWAL COAL COMPANY
ACT/007/012
APPLICATION FOR PERMIT AMENDMENT

INTRODUCTION

This document is to be considered an application for an amendment of the Operation and Reclamation Plan (ORP) for Castle Valley Resources/Genwal Coal Company's Wellington Preparation Plant and Load-Out Facility. An earlier version of this amendment was submitted to the State of Utah, Division of Oil, Gas, & Mining (DOGM) dated December 6, 1989. This document is the result of several meetings and communications with DOGM concerning the proposed new activity.

The ORP for the Wellington facility was amended previously to allow coal screening and loading activities. The entire permit is in the process of revision, to be completed December 1, 1991.

The new activity, for which this permit revision is being sought, will be an attempt to remove fine coal refuse material (fines) from the slurry ponds east of the Price River to prepare for future reclamation efforts. The fine coal refuse material

(fines) remains from coal washing operations of the previous property owners (U.S. Steel Corporation and Kaiser Coal Company).

Reclamation Advantages of Fines Removal

With preliminary investigations suggesting the possibility of high boron, selenium, salinity and other detrimental conditions that could inhibit reclamation success, removing the fines may prove to be a viable alternative to extensive topsoiling and/or reclamation research on these fines. Removing the fines would also bring the elevation at final reclamation much closer to the groundwater level (or pre-disturbance level), thus greatly increasing the possibility for successful revegetation by more desirable and productive native plant species.

By removing layers of fines, one would also expect to remove some of the more harmful properties of them. Some of these conditions i.e. boron, selenium and salinity (EC) are highest in the upper levels of the fines due to upward migration and evaporation (see Appendix for fine sampling results). There also remains the possibility that topsoil suitable for reclamation remains beneath the fines.

Removal of the Fines

The fine removal plan proposed in this permit revision is experimental in nature and is intended to develop the answer to three questions.

1. Can fines removal create a more desirable environment for revegetation of the area?

2. Using known commercial equipment, is it possible to remove the fine refuse material from the old slurry ponds at a reasonable cost?

3. Is it possible to develop and maintain markets for fines that would be profitable, or at least appreciably offset the extraction price?

The experimental plan would effect a maximum of 100,000 tons of fine coal refuse. If the experimental program is successful, a full scale plan for fines removal will be proposed, along with a change in the final reclamation plan for the refuse pond area. The activities in the experimental program include: loading refuse into trucks or the existing slurry line, transporting refuse off the Wellington Property, handling refuse material at the newly permitted load-out site, sampling of refuse and the

underlying soil, and laying coarse refuse over the pond bottom, much as is required by the existing reclamation plan.

This experimental plan involves no change in permit area boundaries, and does not anticipate the creation of any disturbance outside of already existing disturbed areas. No new facilities would be constructed, and no existing facility would be changed.

No new roads would be built, however, haulage routes would necessarily transgress onto the old slurry pond surface. Existing roads would be used for at least part of the required haulage. These roads receive maintenance care which could include, re-graveling, repair of erosion damage and ruts, replacement or enhancement of existing road ballast, and treatment with water or magnesium chloride.

No new water diversions or impoundments are planned for this program other than removal of refuse from the slurry ponds, which may create depressions into which water entering the pond area may collect.

See figure 1 for a location of the refuse ponds, the load-out site, roads and slurry lines that may be used for this experimental project.

IDENTIFICATION OF INTERESTS

Names and Addresses

(1) Permit Applicant:

Castle Valley Resources/Genwal Coal Company
2835 S. Jones
Las Vegas, Nevada 89102
(702) 252-5001

The office representing the Permit Applicant is:

Castle Valley Resources/Genwal Coal Company
P.O. Box 766
Wellington, Utah 84542
(801) 637-2342
(801) 637-4979 (alternate)

(2) Legal or Equitable Owners of Record:

The legal or equitable owner of the areas to be affected by the surface operators and facilities of the permit applicant is:

Genwal Coal Company
2835 S. Jones
Las Vegas, Nevada 89102

(3) There are no holders of record of any leasehold interest in the area to be affected by surface operation and facilities.

(4) There are no purchasers of record under a real estate contract of the areas affected by surface operations and facilities.

(5) The operator is:

Castle Valley Resources/Genwal Coal Company
2835 S. Jones
Las Vegas, Nevada 89102

(6) The resident agent of the applicant who will accept

service of process is:

Mr. Candy Manzanares
Castle Valley Resources/Genwal Coal Company
P.O. Box 766
Wellington, Utah 84542
(801) 637-2342

The Applicant

The applicant, Castle Valley Resources/Genwal Coal Company, is incorporated under the laws of the State of Virginia.

(1) Names and addresses of officers of the company:

Charlie Vaughn - President
Robert Mower - Vice President
Richard Hinckley - Secretary

Castle Valley Resources/Genwal Coal Company
2835 S. Jones
Las Vegas, Nevada 89102

(2) Nevada Electric Investment Company (NEICO) holds 100 percent of all issued and outstanding shares of Castle Valley Resources/Genwal Coal Company. The address of NEICO is:

2835 S. Jones
Las Vegas, Nevada 89102

(3) The applicant currently operates a coal mine under the name Genwal Coal Company.

(4) Genwal Coal Company holds a coal mining permit, ACT/015/032 for the Genwal Mine. This permit was issued by the Utah Division of Oil, Gas and Mining.

Surface and Subsurface Ownership

Owners of record of surface and subsurface areas contiguous to permit areas:

Surface previously owned by:

Kaiser Coal Corp.
102 S. Teton
Colorado Springs, Colorado 80803

is now owned by:

Castle Valley Resources/Genwal Coal Company
2835 S. Jones
Las Vegas, Nevada 89102

COMPLIANCE INFORMATION

Statement of Compliance

Neither the Applicant, nor any of its subsidiaries, affiliates, or persons controlled by or under common control with the Applicant has had a federal or state mining permit suspended or revoked in the last five years; nor have they forfeited a mining bond or similar security deposited in lieu of bond.

Violation Notices

Violation Notices received by the Applicant in connection with any underground or surface coal mining activities within the last three years:

DOGM NOV#	DATE ISSUED	DATE ABATED	NATURE OF VIOLATION
89-27-2-1	2-22-89	3-03-89	Failure to submit small area exemptions, (truck turnaround area and No. 3 stockpile area.) A field exemption was granted.
89-27-4-1	3-07-89	3-13-89	Failure to protect topsoil from water

			erosion. Area was repaired.
89-16-1-1	5-01-89	5-08-89	Failure to submit Annual Report in a timely manner. Report was submitted May 4, 1989.
89-27-7-2	5-11-89	5-11-89	Failure to comply with the terms and conditions of the permit. (Failure to drill monitor well MW-3 as per permit. Ground and surface water monitoring/error in parameter list.) NOV was rescinded.
91-28-1-1	3-7-91	3-26-91	Failure to comply meet schedule outlined in stipulation. NOV was abated.

RIGHT OF ENTRY AND OPERATIONS INFORMATION

Applicant, Castle Valley Resources/Genwal Coal Company, has obtained the legal right to enter and begin activities on the property. These rights were conveyed to Genwal Coal Company by Kaiser Coal Corporation, by Deed and Assignment, dated August 2, 1989. The conveyance documents have been submitted to DOGM with the Permit Transfer and Reclamation Agreement documents.

PERSONAL INJURY AND PROPERTY DAMAGE INSURANCE

The Certificate of Liability Insurance has been submitted to the DOGM with the Reclamation Agreement.

OTHER PERMITS

Castle Valley Resources/Genwal Coal Company has two other permits that apply to the experimental fines removal program. The company has an Air Quality Permit from the Bureau of Air Quality for fines recovery. This permit was issued on December 30, 1981, to U.S. Steel Company, and has subsequently been transferred, first to Kaiser Coal Company, and now to Castle Valley Resources/Genwal. Castle Valley Resources/Genwal also has an NPDES permit, from the Utah Bureau of Water Pollution Control, for the discharge from the slurry ponds and the slurry line extending to the old preparation plant building.

Of course, Castle Valley Resources/Genwal has permits for its other activities, including mining coal in Crandall Canyon and for screening and loading coal near the existing preparation plant on the Wellington Site.

OPERATION PLAN: GENERAL REQUIREMENTS

Fine coal refuse will be removed from the Wellington slurry ponds. The fines are often quite wet, generally containing 20% to 35% moisture. Because there is significant risk of equipment becoming grounded (or stuck) in the fines, the experimental plan has not committed to any specific equipment. Instead, the following loading devices may be tested.

1. Front End Loaders
2. Front End Loaders with balloon tires
3. Scrapers
4. Paddle-Wheel Scrapers
5. Back-Hoes
6. Draglines
7. Dredges
8. Shovels
9. Bulldozers

These loading devices may be used experimentally in the operations from the edge of the ponds, from the fines surface, from the original topography at the bottom of the pond, or on a layer of coarse refuse.

These loading devices will feed either trucks or slurry mixers. They may either load trucks directly or place the

material in piles along the edge of the pond, which will then be loaded into trucks by other equipment. If a slurry mixer is used, then the loading devices will either feed the mixer directly or place material in stockpiles along the edge of the pond, which will then be fed to the slurry mixer.

When trucks are used for haulage, they will drive over the pond and over existing access roads to the ponds, to the existing county road, and then join either the existing plant access road or the new Castle Valley Resources/Genwal Class I coal haulage road. Trucks will either carry fine coal refuse directly away to market or to the Wellington Coal Load-Out area for mixing with incoming coal, or be loaded directly to railcars.

If slurry mixers are used, refuse slurry will be pumped back to the old preparation plant through the existing slurry line. Dewatering of refuse slurries may be accomplished by one or a combination of the following techniques:

1. Thickeners in the existing preparation plant,
2. Cyclones in the existing preparation plant,
3. Screens in the existing preparation plant,
4. An air drying pile of less than 10,000 tons on the pad area at the existing load-out site or,
5. Use of the thermal dryers at the existing preparation plant.

The fine coal refuse does contain enough carbonaceous material to have heating value. As such, the preferred disposal method is sales to coal using industries. Fine coal refuse will either be sold to customers that can burn the material directly or will be mixed with coal routinely loaded at the Castle Valley Resources/Genwal site.

The proposed maximum tonnage to be affected by this experimental program is 100,000 tons of slurry pond fines. The maximum daily production rate will be 1,000 tons.

If a coarse refuse fill is used in the pond, it will be made of material from the coarse slurry (refuse) piles on the west side of the upper slurry pond. Material will be moved either by truck or by scraper to the pond area, where it will be dozed into place. If trucks are used, they will be loaded by shovel or front loader.

The proposed operation pose a significant risk that equipment may become grounded. For this reason, a bulldozer (with winch and cable) will be kept on hand to retrieve equipment.

Out of necessity, the above plan contains many options for materials handling. One major objective of this program is to

find feasible ways for loading refuse material out of slurry ponds. The above ideas will be tried in sequence and in combination. If a feasible and economically attractive method of loading the refuse can be developed, it will be detailed in any subsequent application for full scale recovery of fines from the slurry ponds.

Vegetation Information

Vegetation associated with the operation plan including the area covered by the boundary change has been described in the ORP.

Land use Information

Land in the area affected by the operation plan including the area covered by the boundary change has been described in the ORP.

Maps

Most maps required for a permit application are found in the existing Operation and Reclamation Plan. Figure 1 shows the

location of the slurry ponds, loading facilities, roads, and pipelines that may play a role in this refuse removal experiment.

Ponds and Embankments

The slurry ponds already have approved dams and embankments. No new dams or embankments would be built, nor would existing dams and embankments be modified. Removal of fines from the pond may create depressions in the pond, which may collect run-off into the pond. Since the ponds were previously filled with water during operation of the cleaning plant, water will be impounded in areas previously used for water impoundment.

Overburden and Topsoil Handling

Because this plan creates no new disturbed areas and will not affect areas in which usable topsoil material is immediately available, there will be no topsoil or overburden piles.

Handling, Storage & Drainage Control

The fine refuse material in the old slurry ponds is composed in part of coal fines. This material will be removed, handled, and stored as described previously. Small stockpiles may be

built for reloading along the edge of the pond and a stockpile no larger than 10,000 tons may be set up on the pad area just south of the existing preparation plant. The roads and slurry lines considered for haulage are already in existence. Similarly, all drying and loading facilities needed for this program already exist. The existing ORP addresses final disposal of these facilities where applicable.

Existing drainage control structures at the Wellington facility will be maintained and are sufficient to control drainage of the temporarily stored fine material.

Coal and Noncoal Wastes

The proposed fines removal program should not produce coal processing waste or noncoal waste. If such waste is produced, the existing ORP specifies disposal methods. Such wastes would likely be limited to waste oil from oil changes of loading and hauling equipment, spare parts for the same equipment, and possibly some ash or solids, if the thermal dryer is used.

Facilities

Facilities at the Wellington Preparation Plant and Load-out are described in the existing ORP and the recent revision and

incidental boundary change. No new facilities are planned for this refuse removal program.

Water Pollution Control Facilities

Water pollution control systems for the slurry ponds already exist and discharge permits have been obtained. No new systems are planned as part of this program.

Existing Structures

Fig. 1 shows the location of roads and structures to be used as part of this experimental program. Fig. 2 shows the preparation plant and thermal dryer, and the existing slurry line. The load-out pad and equipment plan was submitted to DOGM previously. Details can be found there.

The preparation plant and thermal dryer are already permitted for use in coal drying and dewatering. Loading equipment at the load-out are already permitted for use in coal loading. No changes in use are anticipated as part of this program. These facilities will be run according to rules of their respective permits.

Relocation or Use of Public Roads

No public roads will be relocated in connection with the fines removal experiment. A county road runs from the new county Ridge Road down to the slurry ponds. When truck haulage of fines is used, almost all haulage will be across existing public roads. If refuse is being truck-hauled directly away from the site, they will drive from the ponds, north on the county road, to the Ridge Road, then to U.S. Highway 6. If the refuse is to be mixed with incoming coal or loaded to railcars, trucks will drive the Ridge Road to where it intersects the existing new plant access road (Class I haul road) to the load-out site.

Diversions

No new diversions are proposed.

Transportation Facilities

No new transportation facilities are proposed other than access routes across the pond surface. Several existing short service roads along the edge of the pond and several county roads as previously described would be used. The load-out site

facilities were described in a previous permit revision. There is a possibility of reversing the direction of flow in the existing slurry line and slurrying refuse back to the load site.

Air Pollution Control Plan

The refuse in the slurry ponds is about 30% moisture, so loading operations should not be a major dust generator. Some of the haul roads are dirt or gravel and these roads would be watered or treated with magnesium chloride. Attempts will be made to minimize airborne coal fines. Wind erosion of dry fines stockpiles will be controlled by restricting size to no more than 10,000 tons and by spraying water or dust suppressant on the surface if needed. Conveyors at the load-out site are already covered. Additional information can be found in the Bureau of Air Quality Permits for the Wellington Load-Out and for fines recovery.

unneccesary during extraction procedures. It would, however, be necessary to sample the level to be reclaimed if fine removal is successful. If fines removal procedures are successful, the "topsoil" will be sampled and analyzed for reclamation feasibility. Parameters will include, but not be limited to, the following: pH, EC, SAR, Se, acid base potenitial, Org. C, and texture. Sample design, parameters, and frequency will be pre-approved by DOGM.

Experimental Fine Removal Results

Several outcomes may result from the fine removal expermentation. Some of these are listed below.

(1) It may be found unsafe, unfeasible, or too costly to remove fine refuse from the ponds. If this were found, the ponds would likely have to be reclaimed in a manner similar to that proposed in the existing ORP.

(2) It may be found that the fine refuse can be removed, but the original topography would be so contaminated with leached salts and so saturated and unstable that it must be covered in order to operate equipment for fines recovery. In this case, the original topography would be cleared of fine salty refuse and covered with coarse refuse as a routine part of

the experimental operation. This would leave the coarse refuse pad in place and ready for topsoiling, as described in the existing Operation and Reclamation Permit. The added benefit would be that the first step of reclamation would be complete for areas from which fines had been removed, and also the chance for successful revegetation would be improved, since a major salt source would be removed.

(3) It may be found that the original topography has been contaminated with salts leached from the refuse. If this were the case, the ponds would be ready for reclamation similar to the methods described in the existing ORP. However, even if contaminated, the original topography would probably be less concentrated with salt and other toxins than the existing fine refuse. Thus, the chances for successful revegetation could be enhanced.

(4) It is possible that the original topography may be covered with usable topsoil material that was never recovered (the ponds were put in 1957-58 before topsoil recovery was required), but the surface is so saturated that equipment for fines removal cannot be operated on its surface. If this is the case, topsoil can be removed and stockpiled as fines recovery proceeds and before placement of a coarse refuse working pad. This would leave a coarse refuse pad with a topsoil stockpile ready for placement and

revegetation. If usable topsoil is found, DOGM will be contacted for approval of a topsoil storage plan that will be developed when the quality and quantity of topsoil is known.

(5) It is possible that fines removal will find stable uncontaminated topsoil on which equipment can operate. If this were the case, the fines removal experiment will leave an area of open topsoil ready for revegetation. If the topsoil is compacted by equipment operating on the surface, it can be ripped prior to reseeding.

Since a prime purpose of the proposed fines removal experiment is to obtain information on how to best reclaim the ponds, no detailed reclamation plan is submitted with this amendment. Several possible findings are outlined and the actions that would be taken with each finding are suggested. Since Castle Valley Resources/Genwal wishes to begin the fines removal experiment this spring, at least some information should be available for use in the revision of the ORP which is scheduled for completion in December 1991.

(6) The fines recovery program would maximize the recovery of coal resources by exploring the possibility of using existing coal processing waste as a low grade coal fuel

source. The experimental program would determine the cost of recovery and includes a large enough amount of coal fines to develop a market, if such a market exists. If successful, this pilot program could provide a basis for recovery of most or all of the low grade material contained in the slurry ponds.

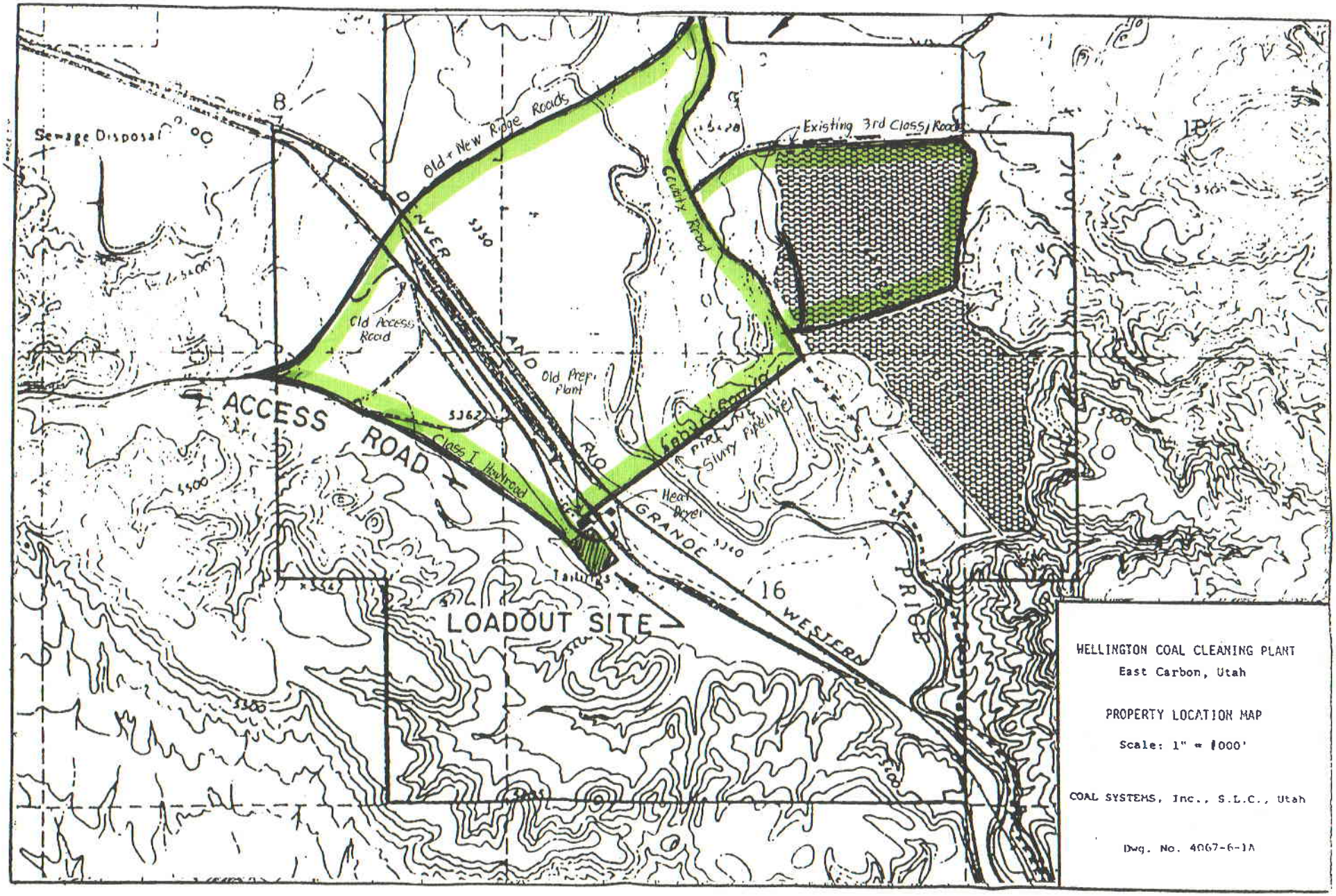
(7) The fines removal experiment and any subsequent full scale fines removal are already permitted through the Bureau of Air Quality and air would be protected by following the conditions of that approval order.

Protection of Hydrologic Balance

The hydrologic balance should be basically unaffected by the fines removal experiment. No diversions or changes to the drainage pattern are anticipated other than water may be collected first in lower areas of the slurry pond created by fines removal.

Ponds, Impoundments, Banks, Dams & Embankments

No new ponds, impoundments, banks, dams, or embankments are planned.


Sewage Disposal
Old + New Ridge Roads
Existing 3rd Class Road
DENVER
AND
RIO
GRANDE
WESTERN
Old Access Road
Old Prep. Plant
County Road
Slurry Pipeline
Heat Dryer
Tailings
Class I Roadway
ACCESS ROAD
LOADOUT SITE
PRICE
5350
5362
5300
5320
5340
16
15
WELLINGTON COAL CLEANING PLANT
East Carbon, Utah
PROPERTY LOCATION MAP
Scale: 1" = 1000'
COAL SYSTEMS, Inc., S.L.C., Utah
Dwg. No. 4067-6-1A

4/25/91

Fig. 1

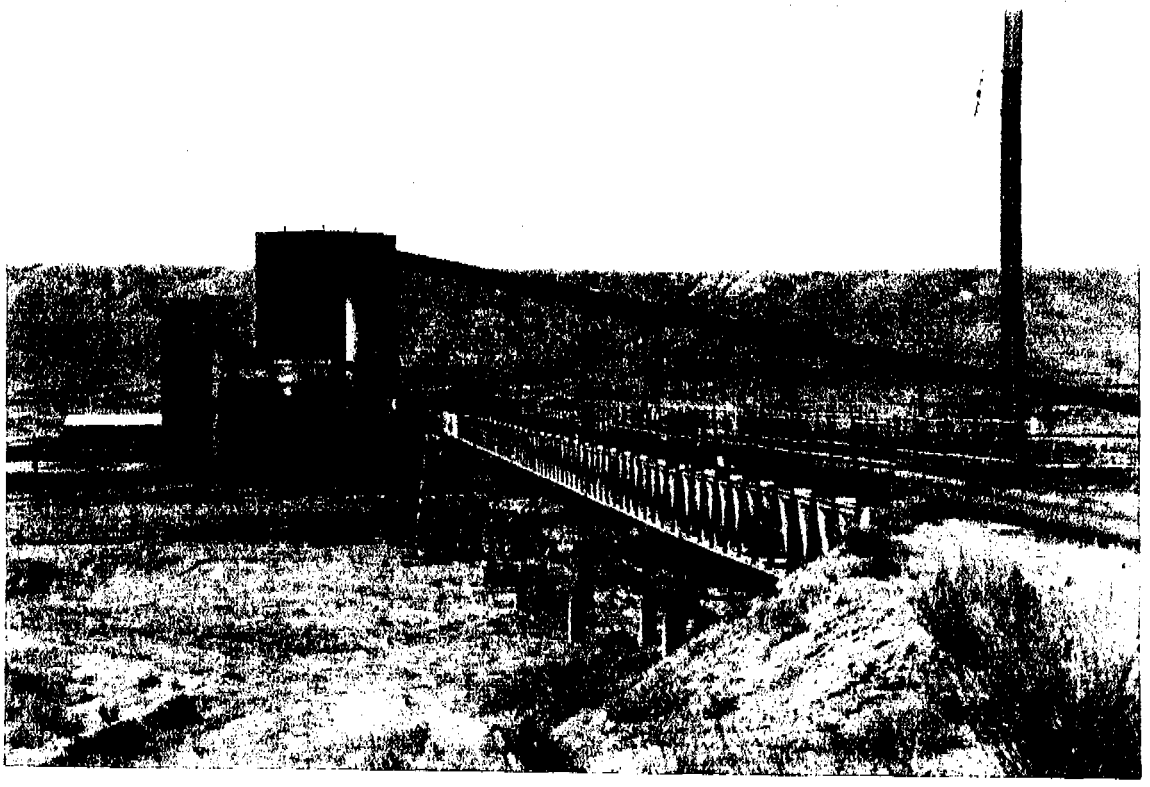


Fig. 2 Preparation Plant and Thermal Dryer and Existing Slurry Line

APPENDIX

(Preliminary Sampling Results)

Drill Site No. 1

WELLINGTON FINES
21 Dec 1990
MT. NEBO SCI.

	pH	EC	SAR	B ppm	Se mg/L	Acid Bas Po	%S	%CaCO3	%OC
1A, 0-6	7.80	6.40	7.12	8.89	0.26	20.54	0.78	4.50	28.30
1B, 6-12	7.90	2.30	2.78	6.04	0.40	21.84	0.78	4.63	18.80
1C, 12-24	7.90	3.30	4.10	6.04	0.29	49.71	0.69	7.13	30.90
1D, 24-36	7.70	3.00	1.92	5.17	0.19	51.06	0.57	6.88	11.90
1E, 36-48	7.90	1.90	1.75	4.40	0.15	29.44	1.02	6.13	13.30
1F, 48-60	8.20	1.90	4.18	4.24	0.36	37.04	0.90	6.50	30.30
1G, 60-72	7.70	5.20	2.65	2.20	0.57	49.17	0.83	7.50	9.40
1H, 72-84	7.80	4.00	4.32	2.42	0.32	21.14	1.16	5.75	18.60
1I, 84-96	8.00	2.40	4.46	1.54	0.33	18.10	0.94	4.75	11.30
1J, 96-108	7.80	2.60	4.49	2.18	0.33	5.52	1.28	4.56	22.34
1K, 108-120	7.80	2.50	4.12	3.14	0.34	1.78	1.43	4.63	24.00
1L, 120-132	7.90	2.00	3.41	2.37	0.45	34.92	0.98	6.56	18.60
1M, 132-144	7.80	1.85	2.88	2.91	0.29	5.30	1.05	3.81	11.70
1N, 144-156	7.70	2.50	4.06	4.29	0.52	16.27	1.26	5.56	24.80

WELLINGTON FINES
21 Dec 1990
MT. NEBO SCI.

	%Sand	%Silt	%Clay	PPM Ca	PPM Mg	PPM Na
1A, 0-6	55.82	26.18	18.00	489.50	234.00	768.00
1B, 6-12	55.28	34.72	10.00	105.50	86.50	160.00
1C, 12-24	50.00	26.00	24.00	172.50	133.50	296.00
1D, 24-36	63.28	28.00	8.72	273.50	149.50	160.00
1E, 36-48	65.84	25.44	8.72	93.00	59.00	88.00
1F, 48-60	53.28	26.36	20.36	41.50	35.00	152.00
1G, 60-72	68.56	20.72	10.72	501.50	363.00	320.00
1H, 72-84	50.56	30.72	18.72	247.00	210.00	384.00
1I, 84-96	55.28	31.44	13.28	90.00	69.00	232.00
1J, 96-10	48.92	27.80	23.28	119.50	75.50	256.00
1K, 108-1	53.28	30.72	16.00	130.00	66.00	232.00
1L, 120-1	53.28	34.72	12.00	91.50	45.00	160.00
1M, 132-1	60.56	31.44	8.00	95.00	44.50	136.00
1N, 144-1	46.56	27.44	26.00	132.50	68.50	232.00

Drill Site No. 2

	pH	EC	SAR	B ppm	Se mg/L	Acid Bas Po	%S	%CaCO3	%OC
2A, 0-6	7.60	5.40	4.67	10.49	0.25	66.23	0.94	9.56	27.50
2B, 6-12	7.60	3.70	1.26	8.40	0.25	36.66	0.83	6.25	18.50
2C, 12-24	7.80	2.55	2.63	7.21	0.30	44.19	0.59	6.25	26.60
2D, 24-36	7.80	3.40	2.85	6.69	0.26	72.22	0.63	9.19	20.20
2E, 36-48	8.00	2.35	3.06	5.24	0.29	48.27	0.88	7.56	30.30
2F, 48-60	7.70	4.40	2.44	4.92	0.38	35.92	0.71	5.81	20.40
2G, 60-72	7.70	5.40	3.99	9.40	0.39	31.15	0.73	5.38	27.00
2H, 72-84	7.80	4.60	2.88	5.51	0.22	22.81	0.69	4.44	23.40
2I, 84-96	7.90	3.20	4.53	3.73	0.26	42.42	0.88	7.00	11.30
2J, 96-108	8.00	2.70	5.27	2.77	0.53	57.55	1.52	10.50	14.40
2K, 108-120	7.60	4.30	3.44	5.26	0.36	16.51	1.13	5.19	16.70
2L, 120-132	7.90	2.65	3.92	3.08	0.20	6.95	1.22	4.50	12.80
2M, 132-144	7.90	3.20	6.49	4.02	0.19	4.33	1.08	3.81	16.30
2N, 144-156	7.90	3.20	7.99	6.52	0.29	18.85	1.22	5.69	26.20

	%Sand	%Silt	%Clay	PPM Ca	PPM Mg	PPM Na
2A, 0-6	52.56	29.08	18.36	475.00	243.00	504.00
2B, 6-12	53.28	31.08	15.64	473.50	186.00	128.00
2C, 12-24	55.28	26.72	18.00	151.50	94.00	168.00
2D, 24-36	57.28	28.36	14.36	245.00	154.00	232.00
2E, 36-48	50.56	24.72	24.72	90.50	82.50	168.00
2F, 48-60	56.56	29.08	14.36	501.50	229.50	264.00
2G, 60-72	52.56	28.72	18.72	509.00	267.00	448.00
2H, 72-84	58.56	24.72	16.72	451.50	234.00	304.00
2I, 84-96	61.84	27.44	10.72	161.00	118.50	312.00
2J, 96-10	62.56	24.77	12.72	105.00	80.00	296.00
2K, 108-1	62.56	24.16	11.28	424.50	198.00	344.00
2L, 120-1	65.28	28.72	6.00	133.00	90.00	240.00
2M, 132-1	53.28	28.72	18.00	96.50	94.50	376.00
2N, 144-1	48.56	27.44	24.00	86.00	81.00	432.00