APPENDIX A

INVENTORY TABLES

TABLE A-1. DESIGN CRITERIA, RECLAIMED AML COAL SITES, WYOMING

Reclamation Site	County	Precipitation and Storm Distribution	Runoff Curve Number	Design Flow Recurrence Interval	Permissible Velocity (ft per sec)	Mannings 'n'	Method	Comment
6C-2 Rainbow Mine	Sweetwater	0.9 in short duration advanced type storm	83	10-yr, 1-hr	3-4	0.035	SCS Triangular Hydrograph	Critical shear limit of 0.2-0.5 lb/ft2
6C-4 College Hill	Sweetwater	1.3 in	c=0.4	10-yr, 1-hr 100-yr, 24-hr	8	0.040	Rational Formula	2 ft freeboard on 100-yr channel
6C-8 Colony Coal Co.	Sweetwater	0.9 in	83	10-yr, 1-hr	3-4	0.035	SCS Triangular Hydrograph	Critical shear limit of 0.60 lb/ft2
7-26	Carbon		NA	100-yr, 24-hr	8.9 for riprap		Craig and Rankl (1977)	
7-28 Toilet Bowl	Carbon							
7B-1 Elk Mtn. area	Carbon		80	2-yr 100-yr	3.7-4.1 9.3-10.6	0.030	SCS Triangular Hydrograph	
8-8	Johnson	2.3 in Type II	70	100-yr, 2-hr		0.038	SCS Triangular Hydrograph	Riprapped channel
8-13 Mine Fire Site	Sheridan		72	100-yr, 24-hr				
8-19 Hidden Waters	Sheridan							
8-23 Hidden Waters	Sheridan							
8-24	Sheridan							
9B-15	Fremont							Minor channel design
15A-22 Kaycee Site	Sheridan		80s				SCS Triangular Hydrograph	
5A-24 Pugsley Mine	Johnson		80s	10-yr, 24-hr	5		SCS Triangular Hydrograph	

TABLE A-2. DESIGNED CHANNEL CHARACTERISTICS, RECLAIMED AML COAL SITES, WYOMING

Site	Sub Basin	Drainage Area (acres)	Design Event	Design Discharge (cfs)	Velocity (fps)	Bottom Width* (ft)	Top Width* (ft)	Flow Depth (ft)	Top Width/ Depth	Channel Slope* (ft/ft)	Shear Stress (lb/ft2)	Hydraulic Length+ (ft)	Channel Depth (ft)	Side Slopes (H:V)	X-Sec Shape	Long Profile Shape	Pilot Channel	Comment
6C-2 Rainbow Mine	1	9.6	10-yr, 1-hr	2.9	2.35	3.04	4.90	0.31	15.81	0.020	0.39	1420		3:1	trap		2-4' wide	
	2	7.8		2.3	2.18	3.09	4.71	0.27	17.44	0.020	0.34	1330						
	3	4.3		1.5	1.94	2.87	4.19	0.22	19.05	0.020	0.27	730						
	4	6.7		2.3	2.49	3.11	4.55	0.24	18.96	0.030	0.45	860						
	5	5.3		1.3	1.83	2.95	4.15	0.20	20.75	0.020	0.25	1100						
	6	3.1		1.1	1.97	3.01	3.97	0.16	24.81	0.030	0.30	560						
	7	8.4		2.5	2.61	2.91	4.47	0.26	17.19	0.030	0.49	1580						
	8	1.4		0.6	1.97	3.11	3.65	0.09	40.56	0.060	0.34	440						
	9	7.1		1.8	2.31	3.07	4.33	0.21	20.62	0.030	0.39	1800						
	10	4.1		1.2	2.28	2.83	3.79	0.16	23.69	0.040	0.40	1150						
	11	3.9		1.3	2.45	3.08	3.98	0.15	26.53	0.050	0.42	870						
	12	2.6		0.9	2.57	2.86	3.52	0.11	32.00	0.080	0.55	950						
	13	2.4		0.8	2.27	3.21	3.81	0.10	38.10	0.070	0.44	860						
	14	4.0		1.3	1.83	2.95	4.15	0.20	20.75	0.020	0.25	1010						
	15	2.7		1.0	1.67	3.02	4.04	0.17	23.76	0.020	0.21	650						
	16	7.5		2.3	2.67	3.14	4.46	0.22	20.27	0.040	0.55	1100						
6C-4 College Hill	0 to 2		10-yr, 24-hr		4.7	10		1.8		0.010				1:1	trap	stepped	no	bedrock control
	2 to 2.75				7.4			1.2		0.040								
	2.75 to 4				5.5			1.6		0.016								
	4 to 4.6				5.6			1.5		0.017								
	4.6 to 7				4.3			1.9		0.008								
6C-6 Colony Mine	I	5.2	10-yr, 1-hr	1.7	2.8	4.17	5.34	0.13	41.08	0.075	0.55	700		4.5:1	trap	convex-concave	to form naturally, assumed 4' wide w/ 4.5:1 side slopes	
	II	17.0		3.1	2.9	4.12	6.01	0.21	28.62	0.048	0.53	1000						
	III	9.6		2.4	2.5	4.17	5.88	0.19	30.95	0.040	0.41	1000						
	IV	8.7		2.0	1.5	3.96	6.30	0.26	24.23	0.010	0.13	900						
7-26		154	100-yr, 24-hr	200		8				0.049		3925		4:1	trap		no	
7-28 Toilet Bowl										0.005				3:1				rock gallery
7B-1 Elk Mtn. area	SE Site					2				0.050				4:1	V in trap	concave-convex	3' deep	meandering plan

TABLE A-2. DESIGNED CHANNEL CHARACTERISTICS, RECLAIMED AML COAL SITES, WYOMING (cont.)

Site	Sub Basin	Drainage Area (acres)	Design Event	Design Discharge (cfs)	Velocity (fps)	Bottom Width* (ft)	Top Width* (ft)	Flow Depth (ft)	Top Width/ Depth	Channel Slope* (ft/ft)	Shear Stress (lb/ft2)	Hydraulic Length+ (ft)	Channel Depth (ft)	Side Slopes (H:V)	X-Sec Shape	Long Profile Shape	Pilot Channel	Comment
8-8							40						~4	5:1	V		no	riprapped
8-13 Mine Fire Site			100-yr, 24-hr	350						0.005						concave & convex		
8-19 Hidden Waters	Channel 1						72							20:1	V in V		12' wide 4:1	
	Channel 2						40			0.027				15:1	V in V		10' wide 5:1	
8-23 Hidden Waters	Type A						30			0.020			2.5	10:1	V in V		10' wide 1.5' deep	
	Type B						15			0.005			1.25	6:1	V		no	
8-24							40			0.030				20:1	V in V		8' wide 4:1	
9B-15							8			0.130			2	2:1	V ditch			
15A-22 Kaycee Site	Type I Grassed		10-yr, 24-hr		5	12	28	2 min		0.004				4:1	V in trap		1' deep 2:1	
	Type III							2 min						3:1	V			
15A-24 Pugsley Mine	Type I	5.3	10-yr, 24-hr		5	12	28	2 min		0.022				4:1	V in trap		' deep 2:1	

Notes:

* Calculated using FlowMaster and available design information, or estimated from design plans
At Rainbow and Colony Mines, top width indicates flow top width associated with design event, all others are channel top width.
Design plans for Colony Mine indicate a 12' bottom width for reclaimed channels, whereas calculation indicate 3-4'.

\+ Hydraulic Length is straight line length along basin (TR55 input)

TABLE A-3. DRAINAGE BASIN CHARACTERISTICS, RECLAIMED AML COAL SITES, WYOMING

Reclamation Site	Sub Basin/ Station	Drainage Area (acres)	Basin Slope	Drainage Density* (ft/acre)	Constant of Channel Maintanence (acre/ft)	Stream Order	Transition Zones	Basin Shape	Basin Aspect
6C-2 Rainbow Mine	1	9.6	0.27	147.92	0.007	1st	transition channels designed to route drainage offsite	elongate	south
	2	7.8	0.22	170.51	0.006	1st			south
	3	4.3	0.21	169.77	0.006	1st			south
	4	6.7	0.23	128.36	0.008	1st			south
	5	5.3	0.06	207.55	0.005	1st			south
	6	3.1	0.12	180.65	0.006	2nd			south
	7	8.4	0.29	188.10	0.005	1st			north
	8	1.4	0.21	314.29	0.003	2nd			north
	9	7.1	0.21	253.52	0.004	1st			north
	10	4.1	0.19	280.49	0.004	1st			north
	11	3.9	0.20	223.08	0.004	1st			north
	12	2.6	0.28	365.38	0.003	1st			north
	13	2.4	0.25	358.33	0.003	1st			north
	14	4.0	0.22	252.50	0.004	1st			north
	15	2.7	0.24	240.74	0.004	1st			north
	16	7.5	0.18	146.67	0.007	1st			west
6C-4 College Hill	0 to 2	~100							east
	2 to 2.75								
	2.75 to 4								
	4 to 4.6								
	4.6 to 7								
6C-8 Colony Mine		5.2	0.12	134.36	0.007	1st	transition channels		north
	II	17.0	0.05	58.82	0.017	1st			
	III	9.6	0.07	104.38	0.010	2nd			
	IV	8.7	0.04	104.05	0.010	1st			
7-26		154	0.10	25.49	0.039	1st		elongate	south
7-28 Toilet Bowl						1st			north
7B-1 Elk Mtn. area	SE Site					1st			west/ south
8-8						1st			
8-13 Mine Fire Site									
8-19 Hidden Waters	Channel 1								
	Channel 2					2nd			
8-23 Hidden Waters	Type A								
	Type B								
8-24									
9B-15									
15A-22 Kaycee Site	Type I					1st			
	Type II								
15A-24 Pugsley Mine	Type I	5.3				1st			

* Drainage density does not strictly apply to 1st order streams, however, it was used to calculate constant of channel maintenance. Constant of channel maintenance describes the number of acres required to sustain a foot of channel.

TABLE A-4. MISCELLANEOUS DESIGN FEATURES AND MONITORING INFORMATION, RECLAIMED COAL SITES, WYOMING

Reclamation Site	Depth of Top Soil	Surface Amendments	Surface Manipulations	Revegetation Success*
6C-2 Rainbow Mine	top soil not used on reclaimed site		pitted	
6C-4 College Hill	12"		mulched pitted	
6C-8 Colony Hill Mine				
7-26	8" min 12" max	fertilizer mulch	disced crimped fenced	good 80% veg cover
7-28 Toilet Bowl				good 60% veg cover
7B-1 Elk Mtn. area	8"	mulch fertilizer	scarified disced straw dikes crimped	
8-8			pitted	good 80% cover
8-13 Mine Fire Site				
8-19 Hidden Waters		mulch	chiseled	good 90% cover
8-23 Hidden Waters		mulch	chiseled	good 90% cover
8-24				poor to good
9B-15				
15A-22 Kaycee Site				
15A-24 Pugsley Mine		chemical		

* Compiled from various AML Monitoring Summary Reports