Section 4.2.4 - Reclamation Costs - (Worst Case)

In accordance with Section 69-05.2-12-07 of the North Dakota Administrative Code, estimated costs for the following three items have been determined:

1. Backfilling and Grading
2. Replacing Suitable Plant Growth Material
3. Revegetation

The reclamation costs for NAFK-8405, -8705, and -9503 have been calculated by utilizing the methods and procedures as outlined by the Public Service Commission's "Guideline for estimating reclamation costs for establishing performance bond amounts for permit areas" dated December 31, 1985 and as revised on October 28, 1998. The following is a summary of the reclamation costs calculations.

Worst Case Reclamation Liability

The worst case reclamation liability was determined by utilizing the pits which need the greatest volume of material to backfill, in conjunction with the area over which the removal of suitable plant growth material is the largest. This would take place 2nd Quarter, 2011.

By utilizing the Reclamation Schedule - Section 4.2.2, it was determined that the worst case situation will require the inclusion of SPGM respread and revegetation costs under the mining disturbance category over the area indicated. Also included as part of the worst case situation are the associated active support structures. The Worst Case Bond Plan Map, Section 4.2.4b, of this permit revision depicts the disturbance areas associated with the worst case reclamation liability situation.

Certain general assumptions are made when determining the reclamation costs for each of the three operations. They are as follows:

1. Reclamation work will be completed by utilizing a 992G Loader, 777D trucks, 657E push-pull tractor-scrapers, D11N and D9R bulldozers, 16H motor graders, and a water wagon. The projected operating cost per hour for each piece of equipment was based on January, 2009 values.

2. Table of Equipment Costs:

	Equipment	Cost Per Hour
a)	657E push-pull tractor-scraper	$ 298.65
b)	D11N bulldozer	$ 287.87
c)	D9R bulldozer	$ 174.03
d)	16H motor grader	$ 128.86
e)	Water wagon	$ 128.86
f)	992G loader	$ 269.22
g)	777D trucks	$ 214.48

The scraper-truck breakeven haul distance was calculated at 4,300 feet. The truck-FEL fleet was utilized where haul distances exceed 4,300 feet.

3. Support Equipment Usage:

	Equipment	Process	Cost Factor
a)	16G motor grader	Final grading	1 hr./6 scraper hrs.
		SPGM respread	1 hr./6 scraper hrs.
		Loader/Truck fleet	1 hr./loader hr.
b)	Water wagon	SPGM respread	1 hr./12 scraper/truck hrs.
c)	D9R Dozer	SPGM Respread	1 hr/loader hr.

4. Backfilling and Grading (General):

Backfilling and grading volumetrics were calculated using the typical cross-sectional area multiplied by the pit length.

a) Average pit width is: 180' (9503), 160’ (8705), 160’ (8405)
b) Average angle of repose is: 35º
c) Average highwall angle is: 55º
d) The overburden will swell 5-10 percent after being removed from above the coal.

5. Normal Spoils:

Additional assumptions:

a) The normal spoil regrade costs were based on grading the area occupied by four spoil peaks from the open pit.

b) The spoil peaks will be regraded utilizing D-11N bulldozers and 657E push-pull scrapers.

c) The average push distances for the D-11N bulldozers and haul distance for the 657E scrapers were based on cross-sections (refer to Section 4.2.4a).

6. Open Pit and Spoil Placement Areas:

a) The balance of cut and fill material for the backfilling of the open pit is depicted in Section 4.2.4a.

b) The material located in the deferred reclamation area will be utilized to backfill a portion of the open pit.

c) The average push or haul distance will be determined by utilizing the centroids of the cut areas and fill location of the open pit.

7. Pit Slope Ramps (down to pit bottom):

The average slope of the pit ramp to access the active pit will be 8%. Bulldozers will be utilized to regrade the pit ramps.

Assumptions for Associated Disturbance

Associated disturbance includes all vegetation disturbance caused by the construction of facilities in support of the mining operation. Support facilities include haulroads, ponds, stockpiles, scraper trails, buildings, diversions, and any other facility not occurring within the mining disturbance area which has been constructed for the specific purpose of supporting mining operations. There are approximately 2,100 acres of associated disturbance within the permits. The following assumptions were used in calculating the volumes for reclaiming the associated disturbance areas under the worst case conditions.

1. Stockpiles were removed, as a part of SPGM respreading.

2. Topsoil thickness was estimated at 12 inches.

3. Subsoil thickness ranged from 12-36 inches, depending on the spoil characteristics of the area.

4. Pond costs were based on regrading fill material with D-11N class dozer or 657E scrapers. The amount of fill material required was based on the pond's detail design drawings.

5. Diversion costs were calculated on the length of the diversion times the average cross-sectional area. Diversions are designed with 3:1 side slopes, a 16 ft. bottom, and 3 ft. deep. Area = 75 $ft.^2$

6. For the purpose of worst case bonding, the haulage roads and dragline deadhead route were divided into three groups: roads built of subsoil, roads built of ashcrete, and roads built of spoil. The dragline deadhead route and other access roads were assumed to have been built of subsoil. The Worst Case Bonding Plan Map, Section 4.2.4b, shows the location of the different types of roads. Assumptions for calculation of reclamation costs for haulage roads and the deadhead route are as follows:

- Final reclamation of roads built with ashcrete will be accomplished by placing the fly ash/soil mixture in spoil regrade or the ditch bottoms and respreading a forty-eight inch total suitable plant growth material thickness.

Haulage Road Width	200	feet (for SPGM respread)
Gravel Surface Width	70	feet (for gravel removal)
Deadhead Route Width	200	feet
Gravel Removal	1.30	$yd.^3$/ft. of haul road
Haul Road Length	169,000	feet
Average Road Base Width	100	feet
Average Depth	3	feet
Push Distance	100	feet

7. The assumptions for the calculation of the reclamation costs of the cable belt route are as follows:

Cable Belt Route Width	30	feet
Gravel Removal	1.11	$yd.^3$/ft. of route

The cut/fill $yd.^3$/ft. of conveyor route is based on approximately 88,000 $yd.^3$ of cut/fill over the 16,000 feet of conveyor not on an elevated surface. Gravel can be hauled to the pit, the remote truck dump, or a pond for disposal.

8. Respread of topsoil/subsoil was estimated using a 657E class scraper, a 992G loader and 777D trucks.

9. Support equipment costs were estimated using a 16H class motor grader, a 10,000 gallon water truck, and a D9 bulldozer.

10. The average haulage distance for SPGM will be determined by utilizing a haulage road or existing route between the centroids of the respread area and stockpile whenever possible.

11. Reclamation of county and township roads are accounted for as follows:

- Gravel is assumed to be $16,000/mile.
- Culverts are assumed to be $5,000/mile.
- Respreading topsoil in road ditches not located in worst case reclamation area - 6" with 20' wide ditches - assume 5,000' haul.
- Grading cost for public roadway construction - assume 40'wide by 3.5' deep and a 1000' haul.

12. Structures located within the permit that will need to be disassembled and removed:

a) Drive House, NW¼, Section 8: 50' x 50' building constructed of 56 tons of steel. Run of Belt: Belting and concrete sleepers will be sold, given away, or disposed of in accordance with North Dakota solid waste regulations. Line stands weighing approximately 550 pounds and wire rope to be sold for salvage.

15,200'/16 ft. between linestands = 1,000 linestands x 550#/linestand = 275 tons

Wire rope – 15,200 (4 runs)(7#/ft.) = 213 tons

Bridge Structure, W½, Section 34 (8405): 800' of bridging steel crossing U.S. Highway 83 and the DMVW Railroad and will require approximately 135 tons of steel to be dismantled and removed.

Truck Dump, NE ¼, Section 27 (8405): The truck dump will contain approximately 150 tons of steel and will require approximately 138,000 cubic yards of earthwork. The dirt will be used to grade the truck dump area to meet the approved post-mining topography.

Total Disassembly = 56 tons + 275 tons + 213 tons + 135 tons + 150 tons
= 829 tons

Assume 35% of erection costs: $700 x .35 = $250/ton
- $40/ton (salvage) = $210/ton

829 tons x $210/ton = $174,100

b) Demolition of the heat enclosure building in Section 25 (9503): Use 10% of installation cost or $26,000.

c) Removal of bridge structure located in Sections 22/23, T146N, R82W and reconstruction of section of Highway 200 is estimated at $350,000.

EARTHWORK CALCULATIONS

D11 DOZER

PIT RAMP CALCULATIONS:

Spoil Angle	**35**	degrees
Ramp Width	**70**	ft.
Ramp Slope	**8.0%**	

Riverdale - (9503)	Depth of OB To Top Seam	Area at Pit Bottom	Volume (cy)
Ramp R1	**50**	7,070	81,833
Ramp R2	**73**	12,721	214,955
Ramp R3	**40**	5,085	47,084
Total			343,871
Center (E/W) - (8705)			
Ramp 1	**73**	12,721	214,955
Ramp 2	**73**	12,721	214,955
Total			429,909
NE - (8405)			
Ramp 1	**55**	8,170	104,018
Ramp 2	**74**	13,001	222,694
Ramp 3	**74**	13,001	222,694
Total			549,407
East - (8405)			
Ramp 1	**86**	16,583	330,116
Total			330,116
Riverdale South - (9503)			
Ramp 1	**40**	5,085	47,084
Ramp 2	**40**	5,085	47,084
Total			94,167
Total			188,335
Overall Total			**1,841,638**

ASSOCIATED DISTURBANCE

Miscellaneous Projects:

D11 Dozer	C.Y.	Push (ft.)	Hours	Length
Ramps	**1,841,638**	**300**	2,632	
D/L Deadhead Route (ss)	**40,000**	**100**	21	
D/L Deadhead Route/HR Sec B (ss)	**13,250**	**100**	7	
Scraper Access Road (ss)	**11,305**	**100**	6	
Access Road (ss)	**39,897**	**100**	21	
Cable Belt (ss)	**73,000**	**100**	39	
Haulroad Subsoil	**456,709**	**100**	243	50,000
Gravel Pits (8705)	**193,000**	**400**	359	
Dragline Rebuild Site (8705)	**150,000**	**300**	214	
TOTALS	2,818,799		3,542	
AVERAGE		262		

Ponds:

D11 Dozer	C.Y.	Push (ft.)	Hours
P-E12-01	**10,000**	**200**	10
P-E12-02	**50,000**	**200**	49
P-E13-01	**58,000**	**200**	57
P-E13-02	**8,000**	**200**	8
P-E13-03	**5,000**	**200**	5
P-E13-04	**5,000**	**200**	5
P-E13-05	**15,000**	**200**	15
P-E14-01	**26,000**	**200**	26
P-E15-01	**44,000**	**200**	43
P-E16-04	**60,000**	**200**	59
P-E18-01	**20,000**	**200**	20
P-E18-02	**10,000**	**200**	10
P-E21-01	**7,500**	**200**	7
P-E23-01	**20,000**	**200**	20
P-E23-04	**14,000**	**200**	14
P-E23-05	**9,000**	**200**	9
P-E23-06	**10,000**	**200**	10
P-E24-01	**62,700**	**200**	62
P-E24-02	**5,000**	**150**	4
P-E26-01	**16,800**	**300**	24
P-E26-02	**7,500**	**200**	7
P-E34-01	**10,300**	**250**	12
P-E34-02	**10,000**	**250**	12
P-E34-03	**9,800**	**250**	12
P-E34-04	**11,200**	**150**	9
P-E34-05	**10,200**	**250**	12
P-E34-07	**12,800**	**200**	13
P-E34-08	**1,500**	**75**	1
P-E35-01	**10,600**	**250**	13
P-E35-02	**11,500**	**100**	6
P-R4-01	**50,000**	**200**	49
P-R4-02	**35,000**	**250**	42
P-R4-03	**75,000**	**150**	57
P-R9-01	**20,000**	**125**	13
P-R9-02	**20,000**	**175**	17
P-R13-02	**16,000**	**300**	23
P-R14-01	**9,000**	**100**	5
P-R15-01	**220,000**	**200**	217
P-R19-02	**108,100**	**300**	154
P-R25-03	**20,700**	**300**	30
P-R25-04	**32,300**	**300**	46
P-R30-01	**62,600**	**300**	89
P-R30-03	**31,500**	**300**	45
P-R36-02	**25,000**	**200**	25
P-W04-01	**10,000**	**300**	14
P-W04-02	**2,500**	**150**	2
P-W04-03	**10,000**	**150**	8
P-W05-01	**11,100**	**200**	11
P-W05-02	**4,200**	**150**	3

Ponds:

D11 Dozer	C.Y.	Push (ft.)	Hours
P-W05-03	**4,200**	**200**	4
P-W05-04	**3,200**	**200**	3
P-W05-05	**14,500**	**250**	18
P-W06-02	**30,000**	**300**	43
P-W06-03	**4,900**	**200**	5
P-W06-04	**20,000**	**100**	11
P-W06-05	**6,000**	**250**	7
P-W06-06	**15,000**	**300**	21
P-W06-07	**19,300**	**350**	32
P-W08-02	**9,000**	**200**	9
P-W08-03	**9,000**	**200**	9
P-W22-01	**13,000**	**300**	19
P-W28-01	**2,100**	**250**	3
P-W28-02	**3,700**	**250**	4
P-W27-01	**3,400**	**100**	2
P-W29-04	**11,200**	**200**	11
P-W30-03	**10,000**	**250**	12
P-W31-03	**26,400**	**250**	32
P-W32-01	**3,000**	**200**	3
P-W32-02	**6,000**	**400**	11
P-W33-01	**9,700**	**350**	16
P-W33-02	**5,600**	**350**	9
TOTALS	1,518,100		1,687
AVERAGE		223	

Diversions:

D11 Dozer	C.Y.	Push (ft.)	Hours
D-E23-01	**7,500**	**75**	3.1
D-E23-02	**770**	**75**	0.3
D-E23-03	**660**	**75**	0.3
D-E23-04	**880**	**75**	0.4
D-E26-01	**1,500**	**75**	0.6
D-E26-02	**2,500**	**75**	1.0
D-E34-02	**1,330**	**75**	0.6
D-E34-03	**4,270**	**75**	1.8
D-E34-04	**2,050**	**75**	0.9
D-E34-05	**2,270**	**75**	0.9
D-E34-06	**2,470**	**75**	1.0
D-E34-07	**7,050**	**75**	2.9
D-E34-08	**4,560**	**75**	1.9
D-E35-01	**4,000**	**75**	1.7
D-E35-02	**2,140**	**75**	0.9
D-W22-03	**3,889**	**75**	1.6
D-W22-01	**7,778**	**75**	3.2
D-W31-03	**8,444**	**75**	3.5

TOTALS	64,061		26.8
AVERAGE		75	

GRAND TOTAL DOZER	4,400,960	246	5,256

EARTHWORK CALCULATIONS

657E SCRAPER

Ponds\ Diversions:	C.Y.	Haul (ft.)	Hours	Length
P-E34-06	**34,100**	**1,900**	99	
P-E34-07	**5,500**	**600**	9	
P-R13-01	**42,000**	**1,500**	106	
P-R13-02	**50,000**	**800**	103	
D-R13-01	**12,527**	**1,200**	26	3,020
D-R13-02	**3,879**	**1,201**	10	935
P-R14-01	**35,700**	**1,000**	73	
D-R14-01	**5,807**	**1,000**	12	1,400
P-R14-02	**14,700**	**1,000**	30	
D-R18-01	**3,837**	**1,200**	9	925
P-R36-01	**100,000**	**1,900**	292	
P-W04-10	**6,200**	**500**	10	
P-W05-05	**14,500**	**2,600**	40	
P-W06-01	**14,800**	**800**	28	
P-W06-02	**30,000**	**1,500**	76	
P-W06-06	**31,900**	**1,000**	66	
P-W06-07	**19,300**	**1,000**	40	
P-W28-01	**284,000**	**1,000**	583	
P-W29-02	**26,500**	**600**	44	
Legal Drain Diversion	**216,000**	**3,000**	651	
TOTALS	951,250	1,617	2,306	

Miscellaneous Projects:	C.Y.	Haul (ft.)	Hours	Length	Loader Production	Loader Hours	Truck Prod/trk	Truck Hours	Number of Trucks
Haulroad Gravel	**210,000**	**4,500**	826						
Haulroad Grading (8405)	**525,000**	**1,800**	1,481						
Haulroad Grading (8705)	**520,000**	**3,000**	1,567		966.5	538	399.8	1,300.7	2.42
Haulroad Grading (9503)	**500,000**	**2,500**	1,353						
Cable Belt Cut/Fill	**87,000**	**2,600**	241						
Cable Belt Gravel Disposal	**20,000**	**6,500**			966.5	21	272.2	73.5	3.55
DL Deadhead Route Grading (ss)	**260,000**	**1,000**	534						
Dragline Rebuild Site Gravel	**7,500**	**1,600**	20						
Dragline Rebulid Site Grading	**20,000**	**500**	32						
Dragline Rebuild Site Concrete	**850**	**1,600**	2						
TOTAL	2,150,350	2,483	6,056	0		559		1,374	

Public Road Reconstruction (Grading)

NAFK-9503			
Construct E-W S22/27 - 1 mile	**27,000**	**1,000**	55.5
Construct N-S S14/15 - 1 mile	**27,000**	**1,000**	55.5
Remove E-W between S26/35 &S25/36 - 2 mile	**54,756**	**1,000**	112.5
Construct N-S S22/23 - 1 mile	**27,000**	**1,000**	55.5
Construct N-S S26/27 - 1 mile	**27,000**	**1,000**	55.5
Construct E-W S35&S36/4 - 0.5 mile	**13,500**	**1,000**	27.7
Gravel	**5,000**	**1,000**	10.3
NAFK-8705			
N-S between S32/5 & S33/4 - 1 miles	**27,378**	**1,000**	56.2
NAFK-8405			
Construct E-W S12/13 - .5 miles	**13,500**	**1,000**	27.7
Remove E-W between S22/27 - 1.75 miles	**47,250**	**1,000**	97.1
Construct Dumpground Road - Mid S23 - .5 miles	**13,500**	**1,000**	27.7
TOTALS	282,883	1,000	581
GRAND TOTAL SCRAPER	3,384,483	2,116	8,943

MINING DISTURBANCE

Backfill Open Pit:

NAFK - 9503				
Riv Pit - 13,800 ft.		C.Y.	Haul/Push (ft.)	Hours
Spoil Side				
	Grading - D11N Dozer	**5,038,500**	**350**	8,294
	Scrapers	**4,115,500**	**900**	8,061
Highwall Side				
	D11N Dozer	**2,060,800**	**250**	2,492
TOTAL		11,214,800		

NAFK - 8405 (NE)				
NE Mine Area - 8,500 ft.		C.Y.	Haul/Push (ft.)	Hours
Spoil Side -				
	Grading - D11N Dozer	**2,452,917**	**350**	4,038
	657E Scraper	**1,157,900**	**900**	2,268
Highwall Side				
	D11N Dozer	**1,482,500**	**250**	1,792
	657E Scraper	**1,146,600**	**900**	2,246
TOTAL		6,239,917		

NAFK - 8405 (E)				
East Mine Area - 3,700 ft.		C.Y.	Haul/Push (ft.)	Hours
Spoil Side -				
	Grading - D11N Dozer	**1,605,500**	**250**	1,941
	657E Scraper	**2,093,100**	**1,200**	10,275
Highwall Side				
	D11N Dozer	**166,500**	**100**	89
TOTAL		3,865,100		

NAFK - 8705 (Center)				
Center Mine Area (E/W) - 5,000'		C.Y.	Haul/Push (ft.)	Hours
Spoil Side				
	Grading - D11N Dozer	**566,900**	**350**	933
	657E Scraper	**880,200**	**700**	1,556
Highwall Side				
	D11N Dozer	**1,150,200**	**250**	1,391
TOTAL		2,597,300		

NAFK - 9503 (Riv South)				
Riv South Mine Area -5,500'		C.Y.	Haul/Push (ft.)	Hours
Spoil Side				
	Grading - D11N Dozer	**1,353,000**	**300**	1,934
	657E Scraper	**256,850**	**700**	454
Highwall Side				
	D11N Dozer	**523,463**	**125**	338
	657E Scraper	**235,263**	**500**	371
TOTAL		2,368,575		

Summary	657E SCRAPER	D11N DOZER	
			48,471
Pit Grading Spoil	22,613	17,140	
Pit Grading Highwall	2,617	6,101	
Total	25,230	23,241	48,471

Revision 18, NAFK-9503
December, 2009

SPGM RESPREAD HOURS SUMMARY
Mining Disturbance Area

Machine type: **657E** **Equation:** 1 (1=PSC,0=Falkirk)

Land owner, legal description	Topsoil area (acres)	Subsoil area (acres)	Soil Depth (in.)	Volume (cu yds)	Stockpile Location	Haul Dist.	Production (cu yds/hr)	Efficiency Factor	Scraper Hours	Loader Production	Loader Hours	Truck Prod/trk	Truck Hours	Number of Trucks			
NAFK - 9503 (T145N R83W)																	
Section 4	**82.5**	**27.7**	**12**	177,789.3	**Section 4**	**3,000**	395	0.84	536						Section 4		
		22.8	**24**	73,568.0	**Section 4**	**3,000**	395	0.84	222						-		
		32	**36**	154,880.0	**Section 4**	**3,000**	395	0.84	467						-		
															-		
Section 15	**337.7**		**12**	544,822.7	**TS-297/293**	**19,000**				778.8	700	129.8	4,197.4	6.00	Section 15	19,000	544,823
		205.2	**24**	662,112.0	**SS-170**	**16,950**				854.4	775	142.4	4,649.7	6.00	-	16,950	662,112
		132.5	**36**	641,300.0	**SS-158/178/182**	**18,600**				792.0	810	132.0	4,858.3	6.00	-	18,600	641,300
															-		
Section 22	**432.9**		**12**	698,412.0	**TS-389/361/295**	**15,500**				910.2	767	151.7	4,603.9	6.00	Section 22	15,500	698,412
		341.3	**24**	1,101,261.3	**SS-160/180**	**19,300**				769.2	1,432	128.2	8,590.2	6.00	-	19,300	1,101,261
		91.6	**36**	443,344.0	**SS-154/156/172**	**19,000**				778.8	569	129.8	3,415.6	6.00	-	19,000	443,344
															-		
Section 26	**43.2**		**12**	69,696.0	**TS-455**	**3,000**	395	0.84	210						Section 26		
		8.5	**12**	13,713.3	**SS-210**	**3,000**	395	0.84	41						-		
		34.7	**36**	167,948.0	**SS-210**	**3,000**	395	0.84	506						-		
															-		
															-		
Section 27	**454**		**12**	732,453.3	**TS-317/319/375**	**22,500**				749.4	977	124.9	5,864.3	6.00	Section 27	22,500	732,453
		333	**24**	1,074,480.0	**Section 30**	**22,000**				749.4	1,434	124.9	8,602.7	6.00	-	22,000	1,074,480
		121	**36**	585,640.0	**SS-210/186/172/174/New**	**22,500**				749.4	781	124.9	4,688.9	6.00	-	22,500	585,640
															-		
Section 35	**57.1**	**7.4**	**12**	104,060.0	**Section 36**	**3,000**	395	0.84	314						Section 35		
		49.7	**36**	240,548.0	**Section 36**	**3,000**	395	0.84	725						-		
															-		
Section 36	**82.3**	**82.3**	**12**	265,554.7	**Section 36**	**3,000**	395	0.84	800						Section 36		
NAFK - 8405 (T146N R82W)																	
Section 21	**9.8**		**12**	15,810.7	**TS-231**	**11,400**				966.5	16	189.5	83.4	5.10	Section 21	11,400	15,811
		9.8	**24**	31,621.3	**SS-132**	**15,300**				920.4	34	153.4	206.1	6.00	-	15,300	31,621
															-		
Section 22	**250.6**		**12**	404,301.3	**TS-187/187A/199**	**13,000**				966.5	418	173.1	2,335.7	5.58	Section 22	13,000	404,301
		213.6	**24**	689,216.0	**SS-114A/132**	**11,000**				966.5	713	194.4	3,545.3	4.97	-	11,000	689,216
		37.0	**12**	59,693.3	**SS-114A/132**	**11,000**				966.5	62	194.4	307.1	4.97	-	11,000	59,693
															-		
Section 23	**189.6**		**12**	305,888.0	**TS-199/231/255**	**10,500**				966.5	316	201.0	1,521.8	4.81	Section 23	10,500	305,888
		118.8	**12**	191,664.0	**SS-132/144**	**10,500**				966.5	198	201.0	953.6	4.81	-	10,500	191,664
		70.8	**24**	228,448.0	**SS-132/144**	**10,500**				966.5	236	201.0	1,136.6	4.81	-	10,500	228,448
															-		
Section 24	**11.1**		**12**	17,908.0	**TS-255**	**1,800**	422	0.84	51						Section 24		
		11.1	**12**	17,908.0	**SS 144**	**2,500**	440	0.84	48						-		
															-		
															-		
															-		
TOTALS	**1950.8** Acres			9,714,041 C.Y.				TS AND SS HOURS =	3,919		10,240		59,561				

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SPGM RESPREAD HOURS SUMMARY
Mining Disturbance Area

Machine type: **657E** **Equation:** 1 (1=PSC,0=Falkirk)

Land owner, legal description	Topsoil area (acres)	Subsoil area (acres)	Soil Depth (in.)	Volume (cu yds)	Stockpile Location	Haul Dist.	Production (cu yds/hr)	Efficiency Factor	Scraper Hours	Loader Production	Loader Hours	Truck Prod/trk	Truck Hours	Number of Trucks			
NAFK - 8405 (T146N, R82W)																	
Section 12	**9.6**		**12**	15,488.0	**TS - Sect 18**	**4,200**	317	0.84	58						Section 12		
		9.6	**12**	15,488.0	**SS - Sect 18**	**4,200**	317	0.84	58						-		
															-		
Section 13	**362.9**		**12**	585,478.7	**TS - Sect 18**	**5,800**				966.5	606	290.3	2,016.8	3.33	Section 13	5,800	585,479
		362.9	**12**	585,478.7	**SS - Sect 18**	**5,800**				966.5	606	290.3	2,016.8	3.33	-	5,800	585,479
				0.0											-		
Section 14	**170.7**		**12**	275,396.0	**TS - Sect 13**	**7,500**				966.5	285	249.7	1,102.9	3.87	Section 14	7,500	275,396
		170.7	**12**	275,396.0	**SS - Sect 13**	**7,500**				966.5	285	249.7	1,102.9	3.87	-	7,500	275,396
															-		
Section 18 (T146N, R81W)	**14**		**12**	22,586.7	**TS - Sect 18**	**2,000**	395	0.84	68						18 (T146N, R81W)		
		14	**12**	22,586.7	**SS - Sect 18**	**2,000**	395	0.84	68						-		
															-		
															-		
															-		
															-		
NAFK 8705 (T146N, R82W)															705 (T146N, R82W)		
															-		
Section 28	**169.5**		**12**	273,460.0	**TS - 259**	**5,500**				966.5	283	298.5	916.1	3.24	Section 28	5,500	273,460
		169.5	**24**	546,920.0	**TS - 140**	**8,500**				966.5	566	231.1	2,366.6	4.18	-	8,500	546,920
															-		
Section 29	**234.3**		**12**	378,004.0	**TS - 259**	**3,000**	395	0.84	1,139						Section 29		
		128.2	**12**	206,829.3	**TS - 140**	**5,600**				966.5	214	296.3	698.0	3.26	-	5,600	206,829
		106.1	**24**	342,349.3	**TS - 140**	**5,600**				966.5	354	296.3	1,155.4	3.26	-	5,600	342,349
															-		
				0.0											-		
				0.0											-		
															-		
															-		
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															-		
															-		
															-		
TOTALS	**961.0**	Acres		3,545,461	C.Y.			TS AND SS HOURS =	1,391		3,198		11,376				
Overall Totals	**2,911.8**			13,259,503	C.Y.			Scraper TS and SS Hours =	5,311	Loader Hrs.=	13,439	Truck Hrs.=	70,936				

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SPGM RESPREAD HOURS SUMMARY

Associated Disturbance Area

Machine type: **657E**

Land owner, legal description	Stockpiles, Misc. Topsoil Area (acres)	Stockpiles, Misc. Subsoil Area (acres)	Ponds & Diversions Topsoil Area (acres)	Ponds & Diversions Subsoil Area (acres)	Roads & Trails Topsoil Area (acres)	Roads & Trails Subsoil Area (acres)	Soil depth (in.)	Volume (cu yds)	Stockpile Location	Haul Distance	Production (cu yds/hr)	Efficiency Factor	Scraper Hours	Loader Production	Loader Hours	Truck Prod/trk	Truck Hours	Number of Trucks
NAFK-9503																		
Section 4																		
Ponds			**12.3**	**6.6**			**12**	30,492	**TS-391/377/375**	**1500**	470	0.84	77					
Ponds				**5.7**			**24**	18,392			470	0.84	63					
Diversions			**1.1**	**1.1**			**12**	3,549	**TS-393**	**2000**	395	0.84	11					
Overburden pile			**2.1**	**2.1**			**12**	6,776	**SPGM Storage Area (Section 9)**	**3000**	395	0.84	20					
Haulroads					**7.0**		**12**	11,293	**TS-393**	**1000**	579	0.84	23					
Section 7																		
Substation	**0.90**						**12**	1,452	**TS-SECT 7**	**2500**	440	0.84	4					
Borrow Pit	**3.60**						**24**	11,616	**TS-279/HR**	**600**	712	0.63	26					
Haulroads					**39.5**		**12**	63,727	**TS-SECT 7**	**2500**	440	0.84	172					
Access Trails					**8.6**		**12**	13,875	**TS-SECT 7**	**1000**	579	0.84	29					
Section 9																		
Ponds			**6.3**	**6.3**			**12**	20,328	**SPGM Storage Area (Section 9)**	**1300**	508	0.84	48					
Diversions			**1.5**	**1.5**			**12**	4,840	**SPGM Storage Area (Section 9)**	**1100**	554	0.84	10					
Overburden pile			**1.4**	**1.4**			**12**	4,517	**SPGM Storage Area (Section 9)**	**500**	755	0.63	9					
SPGM Piles							**12**	0	**SPGM Storage Area (Section 9)**	**200**	919	0.63	0					
Section 10																		
Ponds			**8.7**				**12**	14,036	**TS-R-10-01**	**800**	639	0.63	35					
Section 13																		
Ponds			**42.3**				**12**	68,244	**SPGM-R14-01/TS-385/299/399**	**1000**	579	0.84	140					
Diversions			**2.4**				**12**	3,872	**TS-385/TS-299**	**1600**	453	0.84	10					
Borrow Pit	**25.4**						**24**	81,957	**TS-417**	**800**	639	0.63	204					
Subsoil Piles	**21.60**						**12**	34,848	**TS-293/TS-299**	**1200**	530	0.84	78					
Haulroads					**26.0**		**12**	41,947	**TS-293**	**3500**	359	0.84	139					
Overburden pile	**4.10**						**24**	13,229	**TS-385**	**1000**	579	0.84	27					
Section 14																		
Ponds			**10.8**				**12**	17,424	**TS-399**	**1000**	579	0.84	36					
Subsoil Piles	**2.60**						**12**	4,195	**TS-400**	**2000**	395	0.84	13					
Diversions			**4.0**				**12**	6,453	**TS-400**	**2000**	395	0.84	19					
Haulroads					**29**		**12**	46,787	**TS-389**	**4500**	0			966.5	48	331.9	141.0	2.91
Section 15																		
Ponds			**39.6**				**12**	63,888	**TS - 463**	**1000**	579	0.84	131					
Haulroads					**7**		**12**	11,293	**TS - 461**	**5200**	0			966.5	12	307.8	36.7	3.14
Section 18																		
Diversions			**0.5**				**12**	807	**TS-293**	**1000**	579	0.84	2					
Borrow Pits	**35.50**						**12**	57,273	**TS-291/323/289**	**1200**	530	0.84	129					
Haulroads					**42.8**		**12**	69,051	**TS-293**	**3000**	395	0.84	208					
Section 19																		
Ponds			**35.5**				**12**	57,273	**TS-295**	**1200**	530	0.84	129					
Ponds				**35.5**			**12**	57,273	**SS-178**	**1200**	530	0.84	129					
Subsoil Piles	**14.70**						**12**	23,716	**TS-295/361**	**800**	639	0.63	59					
Haulroads					**6**		**12**	9,680	**TS-293**	**1000**	579	0.84	20					
Section 22																		
Haulroads					**7**		**12**	11,293	**TS - 461**	**5200**	0			966.5	12	307.8	36.7	3.14
Section 23																		
Subsoil Piles	**7.10**						**12**	11,455	**TS-441/449**	**1000**	579	0.84	24					
Haulroads					**48.0**		**12**	77,440	**TS-449**	**900**	608	0.63	202					
Section 24																		
Subsoil Piles	**8.90**						**12**	14,359	**TS-297**	**600**	712	0.63	32					
Haulroads					**38.3**		**12**	61,791	**TS-359/387/441/449**	**1000**	579	0.84	127					
Haulroads						**30.0**	**12**	48,400	**SS-182**	**2200**	372	0.84	155					
Access Trails					**0.6**		**12**	968	**TS-361**	**500**	755	0.63	2					
Section 25																		
Ponds			**21.9**				**12**	35,332	**TS-375/377**	**2100**	383	0.84	110					
Subsoil Piles	**16.50**						**12**	26,620	**TS-303**	**2700**	421	0.84	75					
Haulroads					**23.9**		**12**	38,559	**TS-375/377**	**2500**	440	0.84	104					
Haulroads						**11.5**	**12**	18,553	**SS-180**	**1000**	579	0.84	38					
Access Trails					**2.9**		**12**	4,679	**TS-303**	**2200**	372	0.84	15					
Overburden pile	**4.10**						**48**	26,459	**TS-301**	**3000**	395	0.84	80					
Section 26																		
Subsoil Piles	**9.90**						**12**	15,972	**TS-303**	**2700**	421	0.84	45					
Haulroads					**20**		**12**	32,267	**TS-377/375**	**4000**	328	0.84	117					
Section 26																		
Haulroads					**7**		**12**	11,293	**TS-455**	**4000**	328	0.84	41					
Section 30																		
Subsoil Piles	**33.7**						**12**	54,369	**TS-301/307/311**	**1000**	579	0.84	112					
Access Trails					**2.0**		**12**	3,227	**TS-303**	**2300**	361	0.84	11					

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SPGM RESPREAD HOURS SUMMARY
Associated Disturbance Area

Machine type: **657E**

Land owner, legal description	Stockpiles, Misc. Topsoil Area (acres)	Stockpiles, Misc. Subsoil Area (acres)	Ponds & Diversions Topsoil Area (acres)	Ponds & Diversions Subsoil Area (acres)	Roads & Trails Topsoil Area (acres)	Roads & Trails Subsoil Area (acres)	Soil depth (in.)	Volume (cu yds)	Stockpile Location	Haul Distance	Production (cu yds/hr)	Efficiency Factor	Scraper Hours	Loader Production	Loader Hours	Truck Prod/trk	Truck Hours	Number of Trucks
Section 36																		
Ponds			**12.5**				**12**	20,167	**TS-391/377/375**	**1500**	470	0.84	51					
Ponds				**6.4**														
SPGM Piles	**20.8**						**12**	33,557	**TS-392**	**600**	712	0.63	75					
Overburden pile	**1.2**						**24**	3,872	**TS-391**	**250**	888	0.63	7					
Haulroads					**16.8**		**12**	27,104	**TS-393**	**1000**	579	0.84	56					
NAFK-8705																		
Section 3, T145 N, R82W																		
Gravel Pit	**18.4**						**12**	29,685	**TS-47/51**	**700**	674	0.63	70					
Dragline DH Route					**2.5**		**12**	4,033	**TS-451**	**600**	712	0.63	9					
Haul Road					**11.0**		**12**	17,747	**TS-45**	**1600**	453	0.84	47					
Subsoil Piles	**3.5**						**12**	5,647	**TS-47/51**	**800**	639	0.63	14					
Section 4, T145 N, R82W								0										
Diversions			**0.6**				**12**	968	**TS-419**	**1300**	508	0.84	2					
Ponds			**16.6**				**12**	26,781	**TS-9/197/263**	**2500**	440	0.84	72					
Dragline DH Route					**7.9**		**12**	12,745	**TS-191**	**800**	639	0.63	32					
Subsoil Piles	**5.9**						**12**	9,519	**TS-197**	**500**	755	0.63	20					
Haul Road					**42.5**		**12**	68,567	**TS-45/419**	**2100**	383	0.84	213					
Access Trails					**1.8**		**12**	2,904	**TS-137**	**600**	712	0.63	6					
Section 5, T145 N, R82W								0										
Ponds			**12.9**				**12**	20,812	**TS-5/49/63**	**500**	755	0.63	44					
Subsoil Piles	**14.5**						**12**	23,393	**TS-39**	**500**	755	0.63	49					
Haul Road					**31.2**		**12**	50,336	**TS-5/39**	**500**	755	0.63	106					
Haul Road						**13.1**	**12**	21,135	**SS-12**	**1500**	470	0.84	54					
Haul Road (Ashcrete)						**5.9**	**36**	28,556	**SS-12**	**1500**	470	0.84	72					
Section 6, T145 N, R82W																		
Ponds			**25.6**				**12**	41,301	**TS-21/23/25/67/85**	**800**	639	0.63	103					
Subsoil Piles	**34.4**						**12**	55,499	**TS-21/25/35/37**	**700**	674	0.63	131					
Haul Road					**42.7**		**12**	68,889	**TS-21/35/37/71**	**3700**	346	0.84	237					
Haul Road						**19.0**	**12**	30,653	**SS-18/20**	**2500**	440	0.84	83					
Access Trails					**11.0**		**12**	17,747	**TS-25/85/105**	**800**	639	0.63	44					
Access Trails						**1.0**	**12**	1,613	**TS-8**	**500**	755	0.63	3					
Section 22, T146 N, R83W																		
Ponds			**6.3**				**12**	10,164	**TS-235**	**800**	639	0.63	25					
Diversion			**1.7**				**12**	2,743	**TS-235**	**900**	608	0.63	7					
Dragline Storage					**24.2**		**12**	39,043	**TS-211**	**1600**	453	0.84	103					
Section 26, T146N, R83W																		
Haul Road					**22**		**12**	35,493	**TS-177**	**2200**	372	0.84	114					
Section 27, T146N, R83W																		
Ponds			**4.9**				**12**	7,905	**TS-209**	**600**	712	0.63	18					
Diversions			**0.2**				**12**	323	**TS-209**	**300**	858	0.63	1					
Section 28, T146N, R82W																		
Ponds			**40.0**				**12**	64,533	**TS-427/429/431/435**	**800**	639	0.63	160					
Overburden	**4.0**						**12**	6,453	**TS-435,437**	**300**	858	0.63	12					
Overburden		**4.0**					**12**	6,453	**SS-196,198**	**500**	755	0.63	14					
Subsoil Piles	**2.0**						**12**	3,227	**TS-437/435**	**300**	858	0.63	6					
Haul Roads					**24.0**		**12**	38,720	**TS - 451**	**8500**				966.5	40	231.1	167.5	4.18
Section 29, T146N, R82W																		
Ponds			**11.7**				**12**	18,876	**TS-109/121**	**1500**	470	0.84	48					
Subsoil Piles	**5.3**						**12**	8,551	**TS-121/151**	**700**	674	0.63	20					
Section 30, T146N, R82W																		
Ponds			**1.4**				**12**	2,259	**TS-151**	**600**	712	0.63	5					
Subsoil Piles	**2.2**						**12**	3,549	**TS-151**	**1000**	579	0.84	7					
Section 31, T146N, R82W																		
Ponds			**5.6**				**12**	9,035	**S1/2 Section 6**	**6000**				966.5	9	284.8	31.7	3.39
Ponds				**5.6**			**12**	9,035	**S1/2 Section 6**	**6000**				966.5	9	284.8	31.7	3.39
Diversions			**1.7**				**12**	2,743	**S1/2 Section 6**	**6000**				966.5	3	284.8	9.6	3.39
Haul Roads					**4.7**		**12**	7,583	**S1/2 Section 6**	**6000**				966.5	8	284.8	26.6	3.39
Section 32, T146N, R82W																		
Ponds			**27.6**				**12**	44,528	**S1/2 Section 6**	**7000**				966.5	46	260.1	171.2	3.72
Diversions			**4.0**				**12**	6,453	**TS-123**	**2000**	395	0.84	19					
Subsoil Piles	**18.7**						**12**	30,169	**S1/2 Section 6**	**7000**				966.5	31	260.1	116.0	3.72
Haul Roads					**7.4**		**12**	11,939	**TS-203**	**500**	755	0.63	25					
Haul Roads						**5.3**	**12**	8,551	**SS-134**	**500**	755							
Haul Roads (Ashcrete)						**2.1**	**36**	10,164	**SS-134**	**500**	755							
Section 33, T146N, R82W								0 0										
Diversions			**0.4**				**12**	645	**TS-123**	**2000**	395	0.84	2					
Haul Roads					**40.0**		**12**	64,533	**TS-419**	**1500**	470	0.84	163					
Section 35, T146N, R83W								0 0										
Haul Road					**3.5**		**12**	5,647	**TS-155**	**4000**	328	0.84	20					
Section 36, T146N, R83W																		
Haul Road					**30.8**		**12**	49,691	**TS-153/157**	**2800**	412	0.84	144					
Haul Road						**7.3**	**12**	11,777	**SS-84**	**800**	639	0.63	29					

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SPGM RESPREAD HOURS SUMMARY
Associated Disturbance Area

Machine type: **657E**

Land owner, legal description	Stockpiles, Misc. Topsoil Area (acres)	Stockpiles, Misc. Subsoil Area (acres)	Ponds & Diversions Topsoil Area (acres)	Ponds & Diversions Subsoil Area (acres)	Roads & Trails Topsoil Area (acres)	Roads & Trails Subsoil Area (acres)	Soil depth (in.)	Volume (cu yds)	Stockpile Location	Haul Distance	Production (cu yds/hr)	Efficiency Factor	Scraper Hours	Loader Production	Loader Hours	Truck Prod/trk	Truck Hours	Number of Trucks
NAFK-8405																		
Section 12																		
Ponds			**0.7**				**12**	1,065	**TS Section 13**	**6500**				966.5	1	272.2	3.9	3.55
Diversions			**0.6**				**12**	887	**TS Section 13**	**6500**				966.5	1	272.2	3.3	3.55
Section 13																		
Ponds			**4.4**				**12**	7,099	**TS Section 13**	**3500**	359	0.84	24					
Diversions			**3.00**				**12**	4,840	**TS Section 13**	**3500**	359	0.84	16					
Subsoil Piles	**3.0**						**12**	4,840	**TS Section 13**	**3500**	359	0.84	16					
Section 14																		
Ponds	**5.0**						**12**	8,067	**TS Section 13**	**8600**				966.5	8	228.9	35.2	4.22
Diversions	**1.0**						**12**	1,613	**TS Section 13**	**6000**				966.5	2	284.8	5.7	3.39
Subsoil Piles	**3.0**						**12**	4,840	**TS Section 13**	**9500**				966.5	5	214.7	22.5	4.50
Haul Road					**23**		**12**	37,107	**TS Section 13**	**8000**				966.5	38	239.9	154.7	4.03
Section 15																		
Ponds			**2.30**				**12**	3,711	**TS Section 15**	**1000**	579	0.84	8					
Subsoil Piles	**1.2**						**12**	1,936	**TS Section 15**	**500**	755	0.63	4					
Section 16																		
Ponds			**8.70**				**12**	14,036	**TS Section 16**	**1000**	579	0.84	29					
Diversion			**1.60**				**12**	2,581	**TS Section 16**	**2000**	395	0.84	8					
Section 18																		
Ponds			**2.50**				**12**	4,033	**TS Section 18**	**2000**	395	0.84	12					
Diversion			**1.20**				**12**	1,936	**TS Section 18**	**2000**	395	0.84	6					
Subsoil Piles	**8.0**						**12**	12,907	**TS Section 18**	**500**	755	0.63	27					
Section 22																		
Subsoil Piles	**4.2**						**12**	6,776	**TS-267**	**800**	639	0.63	17					
Haul Road	**1.2**				**32.3**		**12**	54,047	**TS-249/269/409**	**2000**	395	0.84	163					
Haul Road						**32.3**	**12**	52,111	**SS-152**	**4500**	303	0.84	205					
Section 23																		
Ponds			**7.4**				**12**	11,939	**TS-257**	**1000**	579	0.84	25					
Ponds				**4.4**			**12**	7,099	**SS-244**	**650**	692	0.63	16					
Diversions			**1.0**				**12**	1,613	**TS-257**	**900**	608	0.63	4					
Diversions				**0.5**			**12**	807	**SS-150**	**4000**	328	0.84	3					
Subsoil Piles	**11.8**						**12**	19,037	**TS-257/277**	**750**	656	0.63	46					
Haul Road					**11.8**		**12**	19,037	**TS-201**	**700**	674	0.63	45					
Haul Road						**11.8**	**12**	19,037	**SS-150**	**4000**	328	0.84	69					
Section 24																		
Diversions			**1.1**				**12**	1,775	**TS-255**	**300**	858	0.63	3					
Subsoil Piles			**2.5**				**12**	4,033	**TS-255**	**1700**	437	0.84	11					
Ponds			**10.8**	**5.5**			**12**	26,297	**TS-257**	**302**	857	0.63	49					
							12	0	**TS-258**	**303**	856	0.63	0					
Section 26																		
Ponds			**3.5**				**12**	5,647	**TS-199**	**700**	674	0.63	13					
Ponds				**3.5**			**12**	5,647	**SS-132**	**600**	712	0.63	13					
Diversions			**1.3**				**12**	2,097	**TS-199**	**700**	674	0.63	5					
Subsoil Piles	**10.2**						**12**	16,456	**TS-199**	**500**	755	0.63	35					
							12	0										
							12	0										
Section 27																		
Diversions			**0.9**				**12**	1,452	**TS-231**	**400**	803	0.63	3					
Haul Road					**25.0**		**12**	40,333	**TS-231**	**1000**	579	0.84	83					
Haul Road						**20.0**	**12**	32,267	**SS-132**	**3000**	395	0.84	97					
Section 34																		
Ponds			**26.0**				**12**	41,947	**SE1/4 Section 34**	**1500**	470	0.84	106					
Diversions			**3.8**				**12**	6,131	**SE1/4 Section 34**	**1500**	470	0.84	16					
Subsoil Piles	**20.1**						**12**	32,428	**SE1/4 Section 34**	**600**	712	0.63	72					
Haul Road					**50.2**		**12**	80,989	**SE1/4 Section 34**	**1800**	422	0.84	228					
Haul Road						**28.0**	**12**	45,173	**SE1/4 Section 34**	**1800**	422	0.84	127					
Access Roads					**10.0**		**12**	16,133	**SE1/4 Section 34**	**1600**	453	0.84	42					
Section 35																		
Ponds			**1.3**				**12**	2,097	**TS-199**	**700**	674	0.63	5					
Diversions			**0.8**				**12**	1,291	**TS-199**	**500**	755	0.63	3					
Subsoil Piles	**7.4**						**12**	11,939	**TS-199**	**500**	755	0.63	25					
Haul Road					**2.2**		**12**	3,549	**TS-333**	**1000**	579	0.84	7					

>>>>>>TOTALS (ACRES):	395.6	449.4	794.1	TOTAL	3,191,835	CY	7,323	274	994
	TS Stockpiles	TS Ponds/Div.	TS Roads				**Scraper hrs**	**Loader hrs**	**Truck hrs**
TOPSOIL PILES (for seeding calcs)	**465.9**								
GRAND TOTAL	2,105 Acres	7,323 Hours							

Revision 18, NAFK-9503
December, 2009

EARTHMOVING HOURS SUMMARY

ACTIVITY	Scraper 657E	Dozer D11	Loader 992G	Trucks 777D	Dozer D9R
SPGM respread (mining dist.)	5,311	0	13,439	70,936	13,439
SPGM respread (assoc. dist.)	7,323	0	274	994	274
Normal spoil regrading	0	0	0	0	0
Final pit grading (spoil side)	22,613	17,140	0	0	0
Final pit grading (highwall)	2,617	6,101	0	0	0
Pit ramp and road/belt grading	6,056	3,542	559	1,374	559
Pond and diversion grading	2,306	1,717	0	0	0
Regrading of Public Roads	581	0	0	0	0
TOTAL HOURS:	46,807 657E	28,500 D11	14,271 992G	73,304 777D	14,271 D9R

EARTHMOVING COST SUMMARY

	Scraper-657E	Dozer-D11N	Loader-992K	Trucks-777D	Dozer-D9R	Grader-16H	Water-Wagon
Total equipment hours:	46,807	28,500	14,271	73,304	14,271	22,073	10,009
x Total est. hourly cost:	**$298.65**	**$287.87**	**$269.22**	**$214.48**	**$174.03**	**$128.86**	**$128.86**
= Total equipment cost:	$13,978,847	$8,204,249	$3,842,140	$15,722,318	$2,483,648	$2,844,263	$1,289,793
TOTAL EARTHMOVING COST:	$48,365,258						

*Obtain values from EQUIP.WKS (Hourly Equipment Cost Estimating Form)

Breakdown of costs	Scraper-657E	Dozer-D11N	Loader-992G	Trucks-777D	Dozer-D9R	Grader-16G	Water-Wagon	Total
Mining Disturbance	$9,120,922	$6,690,360	$3,617,970	$15,214,386	$2,338,739	$2,387,621	$1,089,690	$40,459,688
Associated Disturbance	$4,857,925	$1,513,889	$224,170	$507,932	$144,908	$456,642	$200,103	$7,905,570
Total	$13,978,847	$8,204,249	$3,842,140	$15,722,318	$2,483,648	$2,844,263	$1,289,793	$48,365,258

SEED COST SUMMARY

Pre-Cropland Seed Mix

Species	lbs./acre	x $/lb.	= $/acre
Russian Wildrye	**4.0**	**$5.25**	**$21.00**
Intermediate Wheatgrass - Oahe	**7.0**	**$1.40**	**$9.80**
Pubescent Wheatgrass - Mandan 759	**7.0**	**$1.60**	**$11.20**
Alfalfa - Ladak	**3.0**	**$2.40**	**$7.20**
	Total Per-Acre Cost =		$49.20

Fish and Wildlife Seed Mix

Species	lbs./acre	x $/lb.	= $/acre
Western Wheatgrass - Rosanna	**4.0**	**$3.25**	**$13.00**
Thickspike Wheatgrass - Critana	**6.0**	**$6.95**	**$41.70**
Slender Wheatgrass - Primar	**2.0**	**$1.60**	**$3.20**
Green Needlegrass - Lodorm	**6.0**	**$3.75**	**$22.50**
	Total Per-Acre Cost =		$80.40

Rangeland Seed Mix

Species	lbs./acre	x $/lb.	= $/acre
WARM SEASON GRASSES----------			
Blue Grama	**1.0**	**$10.50**	**$10.50**
Sideoats Grama	**4.0**	**$9.50**	**$38.00**
Switchgrass	**2.0**	**$2.75**	**$5.50**
Big Bluestem	**3.0**	**$6.25**	**$18.75**
COOL SEASON GRASSES----------			
Western Wheatgrass	**2.0**	**$3.25**	**$6.50**
Green Needlegrass - Lodorm	**3.0**	**$3.75**	**$11.25**
	Total Per-Acre Cost =		$90.50

TREE COST SUMMARY

Windbreak Location	Length **ft.**	Trees, shrubs $/ft.	Fabric $/ft.	= $
Sections 26 (9503)	**19,290**	**$0.20**	**$0.50**	**$13,503**
Sections 29 (8705)	**17,100**	**$0.20**	**$0.50**	**$11,970**
	Total Cost =			$25,473

REVEGETATION COST SUMMARY

<10% slope acreage:	5,017	acres
>10% slope acreage:	**0**	acres
Pasture/pre-crop acreage:	**4582**	acres
Fish and Wildlife Acreage:	**260**	acres
Rangeland acreage:	**175**	acres
Total acreage (worst-case):	5017	acres
Pasture/pre-crop seed cost:	$49.20	per acre
Fish and Wildlife seed cost:	$80.40	per acre
Rangeland seed cost:	$90.50	per acre
Fertilizer cost:	**$0.30**	per lb.
Acres requiring rock picking:	5017	acres
Farm Work Rates:		
Deep chiseling:	**$8.01**	per acre
Regular drilling (w/o fert.):	**$9.53**	per acre
Dry fertilizer application:	**$4.54**	per acre

Cost Summary:	
Seed bed preparation:	$80,369.30
+ Rock picking:	$250,840.50
+ Seeding: pasture/pre-crop:	$269,089.70
+ Fish and Wildlife:	$23,381.80
+ Rangeland:	$18,339.13
+ Fertilizer:	$113,078.90
+ Mulch: <10% slopes:	$501,681.00
+ Mulch: >10% slopes:	$0.00
+Windbreaks	$25,473.00
TOTAL REVEGETATION COST	$1,282,253

FINAL COST SUMMARY

Bond Amount Subtotal:		
Total Earthmoving Cost:		$48,365,258
+ Demolition of Section 25 Heat Enclosure		$26,000
+ Total Revegetation Costs		$1,282,253
+ Culvert and Gravel for Public Road Reconstruction		$126,000
+ 1% Add-on For Pumping & Misc. Costs		$497,995
+ Cable Belt Structural Teardown		$176,000
+ Highway 200 Bridge Removal		$350,000
SUBTOTAL:		$50,823,507
Engineering and Design Costs:		
Base Map & Control		
	Permitted acreage =	32,044
	x $10.00/acre =	$320,435
Design Map & Quantities		
	Graded acreage =	5,017
	x $25.00/acre =	$125,420
As-Built Map for Permit Area:	Permitted acreage =	32,044
	x $5.00/acre =	$160,218
Final Quantities		
	Graded acreage =	5,017
	x $10.00/acre =	$50,168
Total Engineering and Design Cost =		$656,241
Supervision and Administration Costs:		
10% of first $200,000 of BOND SUBTOTAL (line 132):		$20,000
+ 1% of amount of BOND SUBTOTAL over $200,000:		$506,235
Total Supervision and Administration Cost =		$526,235
+ Total Engineering and Design Cost:		$656,241
Total Engineering, Supervision, & Administration Cost:		$1,182,476
TOTAL AMOUNT (SUBTOTAL + ADMINISTRATIVE COST) =		**$52,005,983**