CHAPTER III

RECLAMATION PLAN

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Appendicies

Appendix III-1 Reclamation Monitoring Study for the Emery Mine-Vegetation & Soils (Mount Nebo Scientific December 2003)

Revised 12/08

File in:
❑ Confidential
❑ Shelf
☒ Expandable
Refer to Record No 0077 Date 12/8/2008
In C/0150015, 2008, Incoming
For additional information

The permittee is committed to develop an investigative study into past reclamation practices conducted at the Emery and Hidden Valley mine sites.

The scope of the investigation shall include but not limited to:

1. Evaluate current vegetation and soil chemistry of all topsoil and subsoil stockpiles. Past reclamation sites of disturbed land are to be included within the scope of study. "A Reclamation Monitoring Study for the Emery Mine – Vegetation and Soils" was completed in 2003 and can be found at ChIII Appendix III-1

2. Based on findings from the study, plans shall be developed to enhance the vegetation of each site. The plan is to be reviewed with Division of Oil Gas and Mining (DOGM) prior to implementation of the plan. Period for implementing enhancement methods should be performed when warm season planting may be conducted.

3. The qualitative part of the study will be performed annually and the quantitative aspects be performed between the 4th and 6th year, following initial implementation of enhancement methods. The present reclamation methods shall be correlated with the historical weather information obtained from on-site weather station.

4. Based on the follow-up study, a total reclamation plan shall be developed for the Emery mine site. The plan is to incorporate and utilize the best reclamation practices found through the previous investigative studies. The final reclamation plan will be developed in conjunction with DOGM and submitted 12 months prior to initiating final reclamation.

~~The permittee shall develop and submit for consultation to DOGM, a detailed plan for the scope of study and methods to be used to conduct the investigation. The completed scope of study shall be submitted to DOGM by the end of March 2003.~~

All information obtained through all studies shall be submitted with the annual report.

Inserted 10/2002
Revised 12/03

Bonding Calculations

Direct Costs

Subtotal Demolition and Removal	$206,015.00	
Subtotal Backfilling and Grading	$1,495,322.00	
Subtotal Revegetation	$596,753.00	
Direct Costs	$2,298,090.00	
Indirect Costs		
Mob/Demob	$229,809.00	10.0%
Contingency	$114,905.00	5.0%
Engineering Redesign	$57,452.00	2.5%
Main Office Expense	$156,270.00	6.8%
Project Mainagement Fee	$57,452.00	2.5%
Subtotal Indirect Costs	$615,888.00	26.8%
Total Cost	$2,913,978.00	
Escalation factor		0.038
Number of years		5
Escalation	$597,363.00	
Reclamation Cost Escalated	$3,511,341.00	
Bond Amount (rounded to nearest $1,000)	$3,511,000.00	
2013 Dollars		
Bond Posted 2004 dollars	$2,648,000.00	
Difference Between Cost Estimate and Bond	-$863,000.00	
Percent Difference	-24.58%	

IV. B Reclamation Cost Estimates

Chapter IV Part IV.B pages 14, through 18 have been left blank due to the revised bond calculation.

The revised bond calculations are renumbered as follows

Demo Pages 1 through 4~~7~~8

Earthwork Pages 1 through 18

Reveg. Pages 1 through 3

Revised 4/08
Revised 12/08

Ownership and Control Report

Oct/30/2008

Company Name: **AMVEST Coal & Rail, L.L.C.**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 54-0696869 **Ownership/Control relationship to CONSOL Energy Inc.:** 3rd Tier Subsidiary

Entity I.D.: **AMVEST Coal & Rail, L.L.C.**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date / End Date
AMVEST Minerals Company, L.L.C.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724)485-4000	PA	15317		Manager	zero	08/21/2008
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	06/23/2008
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Manager	zero	08/28/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	08/28/2007
William J. Lyons	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Manager	zero	08/28/2007
Michael D. McLean	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	08/28/2007
Scott G. O'Mara	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	06/23/2008

Entity I.D.: **AMVEST Coal & Rail, L.L.C.**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date / End Date
Robert F. Pusateri	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	08/28/2007
John M. Reilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Treasurer	zero	08/28/2007
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	08/28/2007

Company Name: **AMVEST Corporation**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 54-0696869 **Ownership/Control relationship to CONSOL Energy Inc.:** 1st Tier Subsidiary

Entity I.D.: **AMVEST Corporation**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
CONSOL Energy Inc.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	07/31/2007
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	07/31/2007
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	07/31/2007
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	07/31/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	07/31/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	07/31/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	07/31/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	07/31/2007

Entity I.D.: **AMVEST Corporation**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
William J. Lyons	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Chief Financial Officer	zero	08/14/2007
William J. Lyons	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	07/31/2007
John M. Reilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	07/31/2007
Alexander J. Reyes	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	07/31/2007
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	07/31/2007
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	07/31/2007
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Controller	zero	07/31/2007
John F. Zachwieja	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	07/31/2007

Company Name: **AMVEST Minerals Company, L.L.C.**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 54-0696869 **Ownership/Control relationship to CONSOL Energy Inc.:** 2nd Tier Subsidiary

Entity I.D.: **AMVEST Minerals Company, L.L.C.**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
AMVEST Corporation	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Manager	zero	08/14/2007
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	08/14/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Manager	zero	08/14/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	08/14/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Manager	zero	08/14/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	08/14/2007
William J. Lyons	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Chief Financial Officer	zero	08/14/2007

Entity I.D.: **AMVEST Minerals Company, L.L.C.**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
William J. Lyons	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Manager	zero	08/14/2007
John M. Reilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	08/14/2007
Alexander J. Reyes	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	08/14/2007
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Controller	zero	08/14/2007
John F. Zachwieja	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	08/14/2007

Company Name: **AMVEST West Virginia Coal, L.L.C.**
Mailing Address: P.O. Box 133, WV State Route 16
City: Bickmore **State:** WV **ZIP:** 25019 **Telephone No.:** (304) 587-6300
FEIN: 54-1860378 **Ownership/Control relationship to CONSOL Energy Inc.:** 6th Tier Subsidiary

Entity I.D.: **AMVEST West Virginia Coal, L.L.C.**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date / End Date
Nicholas-Clay Land & Mineral, Inc.	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Shareholder	70%	
Terry Eagle Limited Partnership	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Shareholder	30%	
J. Keith Bartley	P.O. Box 133, WV State Route 16 Bickmore WV 25019 (304) 587-6300		Secretary	zero	08/28/2007
J. Keith Bartley	P.O. Box 133, WV State Route 16 Bickmore WV 25019 (304) 587-6300		Treasurer	zero	08/28/2007
J. Keith Bartley	P.O. Box 133, WV State Route 16 Bickmore WV 25019 (304) 587-6300		Vice President	zero	08/28/2007
Kenneth R. Gilliland	P.O. Box 133, WV State Route 16 Bickmore WV 25019 (304) 587-6300		Vice President	zero	08/28/2007
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	08/21/2008
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724)485-4000		Manager	zero	08/21/2008

Entity I.D.: **AMVEST West Virginia Coal, L.L.C.**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date / End Date
Scott G. O'Mara	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Assistant Secretary	zero	06/23/2008
Gary A. Patterson	P.O. Box 133, WV State Route 16 Bickmore WV 25019 (304) 587-6300		President	zero	08/28/2007
Reginald G. Roles	P.O. Box 133, WV State Route 16 Bickmore WV 25019 (304) 587-6300		Vice President	zero	08/28/2007

Company Name: **Central Ohio Coal Company**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 31-4356096 **Ownership/Control relationship to CONSOL Energy Inc.:** 2nd Tier Subsidiary

Entity I.D.: **Central Ohio Coal Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
Consolidation Coal Company	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	
Daniel S. Cangilla	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	01/01/2006
Rodney E. Ford	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	N/A	06/15/2003
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	07/02/2001
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	10/09/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Chairman	zero	10/09/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	11/01/2002
Dennis R. McCracken	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	06/01/2006

Entity I.D.: **Central Ohio Coal Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
Lloyd C. Price	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	N/A	06/15/2003
Alexander J. Reyes	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	10/09/2007
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	03/01/2005
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	N/A	03/01/2006

Company Name: **CONSOL Energy Inc.**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 51-0337383 **Ownership/Control relationship to CONSOL Energy Inc.:** Same

Entity I.D.: **CONSOL Energy Inc.**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date / End Date
Albert A. Aloia	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Senior Vice President	N/A	11/21/2005
James E. Altmeyer	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	N/A	11/07/2003
Louis Barletta Jr.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	09/07/2006
James A. Brock	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Senior Vice President	zero	12/03/2007
William E. Davis	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	N/A	01/20/2004
Cecil L. Delloma	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	09/01/2005
Stephanie L. Gill	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	N/A	01/01/2006
Raj K. Gupta	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	N/A	02/23/2004

Entity I.D.: **CONSOL Energy Inc.**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
Patricia A. Hammick	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	N/A	06/11/2001
David C. Hardesty, Jr.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	N/A	10/18/2005
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Chief Executive Officer	zero	01/01/1998
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	01/01/1998
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	01/01/1998
Thomas F. Hoffman	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Senior Vice President	N/A	02/02/2007
David D. Hudson	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	09/07/2006
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Chief Operating Officer	zero	02/02/2007
Thomas O. Johnson	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	04/07/2008
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Senior Vice President	zero	02/02/2007

Entity I.D.: **CONSOL Energy Inc.**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	02/01/2007
William J. Lyons	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Chief Financial Officer	N/A	12/01/2000
William J. Lyons	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Executive Vice President	N/A	05/04/2005
James J. McCaffrey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Senior Vice President	zero	04/07/2008
John T. Mills	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	N/A	03/10/2006
William P. Powell	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	N/A	01/20/2004
John M. Reilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	N/A	10/23/2002
John M. Reilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	N/A	05/03/2005
Jack K. Richardson	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	N/A	05/20/2008
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		General Counsel	zero	03/01/2005

Entity I.D.: **CONSOL Energy Inc.**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	03/01/2005
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Senior Vice President	zero	06/20/2007
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Controller	N/A	05/03/2005
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	N/A	05/03/2005
George F. Rosato	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	N/A	08/01/2006
Eric V. Schubel	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	12/03/2007
Charles T. Shaynak	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	12/03/2007
Donna A. Spec	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	07/09/2007
Paul A. Spurgeon	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	N/A	02/22/2006
John L. Whitmire	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	N/A	03/03/1999

Entity I.D.: **CONSOL Energy Inc.**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
Joseph T. Williams	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	N/A	01/20/2004
Steven E. Winberg	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	12/03/2007
John F. Zachwieja	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	09/07/2006

Company Name: **CONSOL Financial Inc.**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 51-0395375 **Ownership/Control relationship to CONSOL Energy Inc.:** 1st Tier Subsidiary

Entity I.D.: **CONSOL Financial Inc.**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
CONSOL Energy Inc.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	11/24/1999
James A. Brock	1800 Washington Road Pittsburgh (412) 831-4000	PA	15241		Director	zero	12/13/2007
Donald J. Bromley	1800 Washington Road Pittsburgh (412) 831-4000	PA	15241		Director	zero	11/01/2006
Donald J. Bromley	1800 Washington Road Pittsburgh (412) 831-4000	PA	15241		President	zero	11/01/2006
Donald J. Bromley	1800 Washington Road Pittsburgh (412) 831-4000	PA	15241		Treasurer	zero	12/13/2007
Christopher C. Jones	1800 Washington Road Pittsburgh (412) 831-4000	PA	15241		Secretary	zero	12/13/2007
Christopher C. Jones	1800 Washington Road Pittsburgh (412) 831-4000	PA	15241		Vice President	zero	12/13/2007
William J. Lyons	1800 Washington Road Pittsburgh (412) 831-4000	PA	15241		Director	zero	12/01/2003

Entity I.D.: **CONSOL Financial Inc.**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date End Date
Lorraine L. Ritter	1800 Washington Road Pittsburgh PA 15241 (412) 831-4000		Assistant Secretary	zero	12/13/2007
Lorraine L. Ritter	1800 Washington Road Pittsburgh PA 15241 (412) 831-4000		Vice President	zero	11/01/2006

Company Name: **CONSOL of Central Pennsylvania LLC**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 20-5105698 **Ownership/Control relationship to CONSOL Energy Inc.:** 1st Tier Subsidiary

Entity I.D.: **CONSOL of Central Pennsylvania LLC**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date / End Date
CONSOL Energy Inc.	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Member	100%	06/22/2006
Louis Barletta Jr.	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Vice President	zero	04/17/2007
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	08/21/2008
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Vice President	zero	04/17/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	08/21/2008
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	08/21/2008
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		President	zero	06/22/2006
William J. Lyons	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	08/21/2008

Entity I.D.: **CONSOL of Central Pennsylvania LLC**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
John M. Reilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	06/22/2006
Alexander J. Reyes	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	06/22/2006
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Manager	zero	08/21/2008
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	06/22/2006
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Controller	zero	06/22/2006

Company Name: **CONSOL of Kentucky Inc.**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 94-2524120 **Ownership/Control relationship to CONSOL Energy Inc.:** 1st Tier Subsidiary

Entity I.D.: **CONSOL of Kentucky Inc.**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
CONSOL Energy Inc.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	01/01/1993
Rodney E. Ford	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	N/A	06/15/2003
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	08/31/1998
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	10/09/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	08/21/2006
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	11/01/2002
John M. Reilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	09/01/1998
Jack K. Richardson	10545 Riverside Drive Oakwood (276) 498-8200	VA	24631		Vice President	N/A	12/01/2003

Entity I.D.: **CONSOL of Kentucky Inc.**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	03/01/2005
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	03/01/2006
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	N/A	03/01/2006
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Controller	N/A	01/01/2006
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	N/A	01/01/2006
John F. Zachwieja	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	11/01/2004

Company Name: CONSOL of Ohio LLC
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 20-8338255 **Ownership/Control relationship to CONSOL Energy Inc.:** 1st Tier Subsidiary

Entity I.D.: CONSOL of Ohio LLC

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date End Date
CONSOL Energy Inc.	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Member	100%	01/26/2007
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	08/21/2008
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Vice President	zero	04/17/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	06/23/2008
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Chief Executive Officer	zero	01/26/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	08/21/2008
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		President	zero	01/26/2007
William J. Lyons	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	08/21/2008

Entity I.D.: **CONSOL of Ohio LLC**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
John M. Reilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	01/26/2007
Alexander J. Reyes	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	01/26/2007
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Manager	zero	08/21/2008
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	01/26/2007
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Controller	zero	01/26/2007

Company Name: CONSOL of WV LLC
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 20-2471235 **Ownership/Control relationship to CONSOL Energy Inc.:** 1st Tier Subsidiary

Entity I.D.: CONSOL of WV LLC

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date End Date
CONSOL Energy Inc.	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Member	100%	03/10/2005
Louis Barletta Jr.	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Vice President	zero	04/17/2007
Cecil L. Delloma	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Vice President	zero	04/17/2007
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	06/23/2008
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Vice President	zero	04/17/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	07/16/2008
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	07/16/2008
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		President	zero	01/01/2006

Entity I.D.: **CONSOL of WV LLC**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date / End Date
Scott G. O'Mara	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	06/23/2008
John M. Reilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	N/A	01/01/2006
Alexander J. Reyes	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	04/17/2007
John F. Zachwieja	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	N/A	01/01/2006

Company Name: **Consol Pennsylvania Coal Company LLC**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 20-8732852 **Ownership/Control relationship to CONSOL Energy Inc.:** 1st Tier Subsidiary

Entity I.D.: **Consol Pennsylvania Coal Company LLC**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date / End Date
CONSOL Energy Inc.	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Member	100%	06/01/2007
Rodney E. Ford	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Assistant Secretary	zero	06/01/2007
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	06/01/2007
David D. Hudson	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Vice President	zero	06/01/2007
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	10/09/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Vice President	zero	06/01/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	06/01/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		President	zero	06/01/2007

Entity I.D.: **Consol Pennsylvania Coal Company LLC**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
William J. Lyons	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Controller	zero	06/01/2007
William J. Lyons	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	06/01/2007
John M. Reilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	06/01/2007
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Manager	zero	06/01/2007
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	06/01/2007
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	06/01/2007

Company Name: **Consolidation Coal Company**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 13-2566594 **Ownership/Control relationship to CONSOL Energy Inc.:** 1st Tier Subsidiary

Entity I.D.: **Consolidation Coal Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
CONSOL Energy Inc.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	01/01/1992
Louis Barletta Jr.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	01/01/2006
James A. Brock	1 Bridge Street Monongah (304) 534-4700	WV	26554		Vice President	zero	09/12/2005
Daniel S. Cangilla	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	01/01/2006
Rodney E. Ford	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	06/15/2003
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Chairman	zero	10/09/2007
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Chief Executive Officer	zero	10/09/2007
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	01/01/1998

Entity I.D.: **Consolidation Coal Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Chief Operating Officer	zero	10/09/2007
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	01/01/2006
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	10/09/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	08/21/2006
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	11/01/2002
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	10/09/2007
William J. Lyons	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	09/30/2000
Robert F. Pusateri	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	08/21/2008
Alexander J. Reyes	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	10/09/2007
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	03/01/2005

Entity I.D.: **Consolidation Coal Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	03/01/2006
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Controller	zero	10/09/2007
John F. Zachwieja	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	06/15/2003

Company Name: **Eighty-Four Mining Company**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 25-1696903 **Ownership/Control relationship to CONSOL Energy Inc.:** 2nd Tier Subsidiary

Entity I.D.: **Eighty-Four Mining Company**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date End Date
CONSOL Financial Inc.	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Sole Shareholder	100%	
Louis Barletta Jr.	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Vice President	N/A	01/01/2006
Daniel S. Cangilla	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Treasurer	N/A	01/01/2006
Rodney E. Ford	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Assistant Secretary	N/A	06/15/2003
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Director	N/A	09/22/1998
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Vice President	zero	11/01/2004
Robert P. King	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Vice President	zero	08/21/2006
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Director	zero	11/01/2002

Entity I.D.: Eighty-Four Mining Company

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	11/01/2002
Alexander J. Reyes	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	N/A	10/09/2007
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	03/01/2005
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	N/A	03/01/2006

Company Name: **Fola Coal Company, L.L.C.**
Mailing Address: P.O. Box 180, WV State Route 16
City: Bickmore **State:** WV **ZIP:** 25019 **Telephone No.:** (304) 587-6300
FEIN: 54-1860378 **Ownership/Control relationship to CONSOL Energy Inc.:** 7th Tier Subsidiary

Entity I.D.: **Fola Coal Company, L.L.C.**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date / End Date
AMVEST West Virginia Coal, L.L.C.	P.O. Box 133, WV State Route 16 Bickmore WV 25019 (304) 587-6300		Sole Shareholder	100%	
Louis Barletta Jr.	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Vice President	zero	08/28/2007
J. Keith Bartley	P.O. Box 180, WV State Route 16 Bickmore WV 25019 (304) 587-6300		Vice President	zero	08/28/2007
Kenneth R. Gilliland	P.O. Box 180, WV State Route 16 Bickmore WV 25019 (304) 587-6300		Vice President	zero	08/28/2007
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	08/28/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	08/28/2007
Scott G. O'Mara	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Assistant Secretary	zero	06/23/2008
Gary A. Patterson	P.O. Box 180, WV State Route 16 Bickmore WV 25019 (304) 587-6300		President	zero	08/28/2007

Entity I.D.: **Fola Coal Company, L.L.C.**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date / End Date
John M. Reilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Treasurer	zero	09/23/2008
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Secretary	zero	08/28/2007

Company Name: **Glamorgan Coal Company, L.L.C.**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 54-0696869 **Ownership/Control relationship to CONSOL Energy Inc.:** 3rd Tier Subsidiary

Entity I.D.: **Glamorgan Coal Company, L.L.C.**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
AMVEST Minerals Company, L.L.C.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Manager	zero	08/28/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Manager	zero	08/28/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	06/23/2008
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Manager	zero	08/28/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	08/28/2007
Scott G. O'Mara	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	06/23/2008
John M. Reilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	08/28/2007

Entity I.D.: **Glamorgan Coal Company, L.L.C.**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date End Date
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Secretary	zero	08/28/2007

Company Name: **Helvetia Coal Company**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 25-1180531 **Ownership/Control relationship to CONSOL Energy Inc.:** 3rd Tier Subsidiary

Entity I.D.: **Helvetia Coal Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date / End Date
Rochester & Pittsburgh Coal Company	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	04/07/1966
Daniel S. Cangilla	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	01/01/2006
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	09/22/1998
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	10/09/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	11/01/2002
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	11/01/2002
William J. Lyons	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	10/09/2007
Alexander J. Reyes	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	10/09/2007

Entity I.D.: **Helvetia Coal Company**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date / End Date
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Director	zero	11/01/2002
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Assistant Secretary	zero	03/01/2006
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Controller	zero	10/09/2007

Company Name: **Island Creek Coal Company**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 55-0479426 **Ownership/Control relationship to CONSOL Energy Inc.:** 2nd Tier Subsidiary

Entity I.D.: **Island Creek Coal Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
Consolidation Coal Company	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	
Louis Barletta Jr.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	05/01/2006
Daniel S. Cangilla	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	01/01/2006
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	08/31/1998
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	10/09/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	11/01/2002
William J. Lyons	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	11/01/2004
Alexander J. Reyes	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	10/09/2007

Entity I.D.: **Island Creek Coal Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	03/01/2005
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	03/01/2006
John F. Zachwieja	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	11/01/2004

Company Name: **Keystone Coal Mining Corporation**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 25-1323822 **Ownership/Control relationship to CONSOL Energy Inc.:** 3rd Tier Subsidiary

Entity I.D.: **Keystone Coal Mining Corporation**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date / End Date
Rochester & Pittsburgh Coal Company	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	08/08/1977
Louis Barletta Jr.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	05/01/2006
Daniel S. Cangilla	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	01/01/2006
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	09/22/1998
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	10/09/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	11/01/2002
William J. Lyons	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	01/01/2006
Alexander J. Reyes	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	10/07/2007

Entity I.D.: **Keystone Coal Mining Corporation**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date / End Date
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Director	zero	03/01/2005
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Assistant Secretary	zero	03/01/2006
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Controller	zero	10/09/2007

Company Name: **Laurel Run Mining Company**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 54-0892422 **Ownership/Control relationship to CONSOL Energy Inc.:** 3rd Tier Subsidiary

Entity I.D.: **Laurel Run Mining Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
Island Creek Coal Company	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	
Louis Barletta Jr.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	05/01/2006
Daniel S. Cangilla	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	01/01/2006
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	08/31/1998
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	10/09/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Chairman	zero	10/09/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	11/01/2004
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	01/01/2006

Entity I.D.: **Laurel Run Mining Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
William J. Lyons	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	10/09/2007
Alexander J. Reyes	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	10/09/2007
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	03/01/2005
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	03/01/2006
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Controller	zero	10/09/2007
John F. Zachwieja	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	11/01/2004

Company Name: **Little Eagle Coal Company, L.L.C.**
Mailing Address: P.O. Box 134, WV State Route 16
City: Bickmore **State:** WV **ZIP:** 25019 **Telephone No.:** (304) 587-6300
FEIN: 22-3864739 **Ownership/Control relationship to CONSOL Energy Inc.:** 7th Tier Subsidiary

Entity I.D.: **Little Eagle Coal Company, L.L.C.**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date End Date
AMVEST West Virginia Coal, L.L.C.	P.O. Box 133, WV State Route 16 Bickmore WV 25019 (304) 587-6300		Sole Shareholder	100%	
J. Keith Bartley	P.O. Box 134, WV State Route 16 Bickmore WV 25019 (304) 587-6300		Treasurer	zero	08/28/2007
J. Keith Bartley	P.O. Box 134, WV State Route 16 Bickmore WV 25019 (304) 587-6300		Vice President	zero	08/28/2007
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	08/28/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	08/28/2007
Scott G. O'Mara	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Assistant Secretary	zero	06/23/2008
Gary A. Patterson	P.O. Box 134, WV State Route 16 Bickmore WV 25019 (304) 587-6300		President	zero	08/28/2007
Alexander J. Reyes	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Secretary	zero	08/28/2007

Company Name: **McElroy Coal Company**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 25-1553551 **Ownership/Control relationship to CONSOL Energy Inc.:** 2nd Tier Subsidiary

Entity I.D.: **McElroy Coal Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
Consolidation Coal Company	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	06/30/1987
Daniel S. Cangilla	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	01/01/2006
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	08/31/1998
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	10/09/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	11/01/2002
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	03/01/2005
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	03/01/2006
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Controller	zero	10/09/2007

Entity I.D.: **McElroy Coal Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
Charles T. Shaynak	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	06/23/2008
Robert M. Vukas	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	01/01/2006

Company Name: **Nicholas-Clay Land & Mineral, Inc.**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 55-0719265 **Ownership/Control relationship to CONSOL Energy Inc.:** 4th Tier Subsidiary

Entity I.D.: **Nicholas-Clay Land & Mineral, Inc.**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
AMVEST Coal & Rail, L.L.C.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	
J. Keith Bartley	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	08/28/2007
Christopher S. Butler	2720 Pennsylvania Avenue Charleston (304) 345-2859	WV	25302		Vice President	zero	08/28/2007
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	08/28/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	08/28/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	08/28/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	08/28/2007
James J. McCaffrey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	08/21/2008

Entity I.D.: **Nicholas-Clay Land & Mineral, Inc.**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date End Date
Scott G. O'Mara	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Assistant Secretary	zero	06/23/2008
Alexander J. Reyes	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Secretary	zero	08/28/2007

Company Name: **Reserve Coal Properties Company**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 25-1582519 **Ownership/Control relationship to CONSOL Energy Inc.:** 1st Tier Subsidiary

Entity I.D.: **Reserve Coal Properties Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
CONSOL Energy Inc.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	01/01/2001
Lu Ann Datesh	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	03/01/2006
Rodney E. Ford	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	06/15/2003
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	11/01/1999
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	08/21/2006
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	08/21/2006
James J. McCaffrey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	10/09/2007
Dennis R. McCracken	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	06/01/2006

Entity I.D.: **Reserve Coal Properties Company**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date / End Date
Lloyd C. Price	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Vice President	zero	06/15/2003
John M. Reilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Treasurer	zero	11/01/2004
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Assistant Secretary	zero	03/01/2006
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Controller	zero	01/01/2006

Company Name: **Southern Ohio Coal Company**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 55-0403282 **Ownership/Control relationship to CONSOL Energy Inc.:** 2nd Tier Subsidiary

Entity I.D.: **Southern Ohio Coal Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
Consolidation Coal Company	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	
Louis Barletta Jr.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	05/01/2006
Daniel S. Cangilla	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	01/01/2006
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	07/02/2001
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	10/09/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	08/21/2006
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Chairman	zero	10/09/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	11/01/2002

Entity I.D.: **Southern Ohio Coal Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
Dennis R. McCracken	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	06/01/2006
Lloyd C. Price	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	N/A	06/15/2003
Alexander J. Reyes	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	10/09/2007
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	03/01/2005
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	03/01/2006

Company Name: **TEAGLE Company, L.L.C.**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 54-0696869 **Ownership/Control relationship to CONSOL Energy Inc.:** 4th Tier Subsidiary

Entity I.D.: **TEAGLE Company, L.L.C.**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
AMVEST Coal & Rail, L.L.C.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	
J. Keith Bartley	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	08/28/2007
Christopher S. Butler	2720 Pennsylvania Avenue Charleston (304) 345-2859	WV	25302		Vice President	zero	08/28/2007
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Manager	zero	08/28/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Manager	zero	08/28/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Manager	zero	08/28/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	08/28/2007
Scott G. O'Mara	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	06/23/2008

Entity I.D.: TEAGLE Company, L.L.C.

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date / End Date
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Secretary	zero	08/28/2007

Company Name: **TECPART Corporation**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 13-3038238 **Ownership/Control relationship to CONSOL Energy Inc.:** 4th Tier Subsidiary

Entity I.D.: **TECPART Corporation**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
AMVEST Coal & Rail, L.L.C.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	
J. Keith Bartley	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	08/28/2007
Christopher S. Butler	2720 Pennsylvania Avenue Charleston (304) 345-2859	WV	25302		Vice President	zero	08/28/2007
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	08/28/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	08/28/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	08/28/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	08/28/2007
Scott G. O'Mara	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	06/23/2008

Entity I.D.: **TECPART Corporation**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date / End Date
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Secretary	zero	08/28/2007

Company Name: **Terry Eagle Coal Company, L.L.C.**
Mailing Address: P.O. Box 157, WV State Route 16
City: Bickmore **State:** WV **ZIP:** 25019 **Telephone No.:** (304) 587-6300
FEIN: 54-1860378 **Ownership/Control relationship to CONSOL Energy Inc.:** 7th Tier Subsidiary

Entity I.D.: **Terry Eagle Coal Company, L.L.C.**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date / End Date
AMVEST West Virginia Coal, L.L.C.	P.O. Box 133, WV State Route 16 Bickmore WV 25019 (304) 587-6300		Sole Shareholder	100%	
Christopher S. Butler	2720 Pennsylvania Avenue Charleston WV 25302 (304) 345-2859		Vice President	zero	08/28/2007
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	08/28/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	08/28/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Manager	zero	08/28/2007
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		President	zero	08/28/2007
Scott G. O'Mara	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Assistant Secretary	zero	06/23/2008
John M. Reilly	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Treasurer	zero	08/28/2007

Entity I.D.: **Terry Eagle Coal Company, L.L.C.**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date / End Date
Alexander J. Reyes	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Secretary	zero	09/23/2008
Reginald G. Roles	P.O. Box 157, WV State Route 16 Bickmore WV 25019 (304) 587-6300		Vice President	zero	08/28/2007

Company Name: **Terry Eagle Limited Partnership**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 31-0995566 **Ownership/Control relationship to CONSOL Energy Inc.:** 5th Tier Subsidiary

Entity I.D.: **Terry Eagle Limited Partnership**

Entity Name	Address & Telephone No.	SS # or FEIN #	Title	% Ownership	Start Date / End Date
TEAGLE Company, L.L.C.	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Shareholder	50%	
TECPART Corporation	1000 CONSOL Energy Drive Canonsburg PA 15317 (724) 485-4000		Shareholder	50%	

Company Name: **Windsor Coal Company**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 13-5488703 **Ownership/Control relationship to CONSOL Energy Inc.:** 2nd Tier Subsidiary

Entity I.D.: **Windsor Coal Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
Consolidation Coal Company	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	
Daniel S. Cangilla	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	01/01/2006
Rodney E. Ford	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	06/15/2003
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	07/02/2001
Bart J. Hyita	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	10/09/2007
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	08/21/2006
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	11/01/2002
Peter B. Lilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	11/01/2002

Entity I.D.: **Windsor Coal Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
William J. Lyons	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	11/01/2004
Dennis R. McCracken	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	06/01/2006
Lloyd C. Price	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	06/15/2003
Alexander J. Reyes	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	10/09/2007
P. Jerome Richey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	03/01/2005
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	03/01/2006

Company Name: **Wolfpen Knob Development Company**
Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg **State:** PA **ZIP:** 15317 **Telephone No.:** (724) 485-4000
FEIN: 25-1391218 **Ownership/Control relationship to CONSOL Energy Inc.:** 1st Tier Subsidiary

Entity I.D.: **Wolfpen Knob Development Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
CONSOL Energy Inc.	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Sole Shareholder	100%	01/01/1993
Lu Ann Datesh	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Secretary	zero	03/01/2006
Rodney E. Ford	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	N/A	06/15/2003
J. Brett Harvey	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	08/31/1998
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	08/21/2006
Robert P. King	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		President	zero	08/21/2006
William J. Lyons	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Director	zero	07/10/2002
Dennis R. McCracken	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	zero	06/01/2006

Entity I.D.: **Wolfpen Knob Development Company**

Entity Name	Address & Telephone No.			SS # or FEIN #	Title	% Ownership	Start Date End Date
Lloyd C. Price	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Vice President	N/A	06/15/2003
John M. Reilly	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Treasurer	zero	09/01/1998
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Assistant Secretary	zero	03/01/2006
Lorraine L. Ritter	1000 CONSOL Energy Drive Canonsburg (724) 485-4000	PA	15317		Controller	zero	01/01/2006

CONSOL Energy Inc. - Mining Permit Listing for All Subsidiaries

Mailing Address: 1000 CONSOL Energy Drive

City: Canonsburg **State:** PA **ZIP:** 15317

Telephone No.: (724) 485-4000

Permittee: Central Ohio Coal Company

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
OH						
D-1034	OH DMRM		Brannon Fork	09/09/1993		
D-2047	OH DMRM		Dinner Fork	05/12/2000		
D-322	OH DMRM		Haulroad	04/30/1984		
D-378	OH DMRM		Haulroad - N. Tipple Area	07/13/1984		
D-313	OH DMRM		Haulroad- Complex to 3 m	04/17/1984		
D-1084	OH DMRM		Horse Run	07/21/1994		
D-246	OH DMRM		Interconnector Haulroad	12/01/1983		
D-839	OH DMRM		Knowlton	05/15/1989		
D-56	OH DMRM		North Tipple Area	08/16/1982		
D-420	OH DMRM		OCTAD	10/11/1984		
D-678	OH DMRM		Olive Green South	06/15/1987		
D-215	OH DMRM		Preparation Plant	12/20/1983		
D-321	OH DMRM		Skyline Drive Haulroad	04/30/1984		
D-261	OH DMRM		State Route 340	01/13/1984		
D-559	OH DMRM		Titlon Run	03/13/1986		
D-820	OH DMRM		Windy Hill	12/14/1988		

Permittee: CONSOL of Kentucky Inc.

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
KY						
413-0510	KY DSMR			12/09/1980		final bond release, no record in KYDSMRE SMIS
413-5057	KY DSMR			06/09/1988		final bond release, no record in KYDSMRE SMIS
867-0369	KY DSM			07/12/1988		former Fairbanks Coal 867-0299
867-0370	KY DSM	Fairbanks Coal Co Inc		05/11/1990		former Fairbanks Coal 867-0324
867-0441	KY DSMRE			08/27/2002		Application submitted 8/27/2002.
867-0428	KY DSMRE	Reedy Coal Co.	Area #70 - Reedy #15 UG	02/26/2002	02/26/2007	1 Abandoned Hz #4 UG Mine Site and 1 Abandoned WB &
860-0312	KY DSM		Big Springs #16 UG, #17	06/15/1993	06/15/2008	2 Abandoned Hz #4 UG Mine Sites and 1 Inactive CT Mine
860-5181	KY DSM		Brushy 11	02/18/1994		closed mine
877-0166	KY DSMRE	Locust Grove Inc.	Bull Creek Strip	07/15/2005	07/15/2010	
877-0189	KY DSM		Bull Creek West			Appl. Rec'd 12/21/07;
860-5257	KY DSMRE		Caney E-1 UG	03/01/2006	03/01/2011	
867-0456	KY DSMRE		Deane Area - Upper Sea	04/05/2005		Application submitted 04/05/2005.
860-5117	KY DSM		E-1 South	02/06/1991	02/06/2006	Jones Fork Office & Bath House Site
867-0407	KY DSMRE		Fairbanks - Cane Fork CT	06/09/2000	06/09/2005	Abandoned E-3, AM, WB, & Hz #4 CT Mine Site; Includes
867-0451	KY DSMRE		Fairbanks CT	10/06/2004	04/01/2006	Application permanently withdrawn April 2006. Submitted 1
867-0409	KY DSMRE		H&D Coal - Area #1	07/17/2002	07/17/2007	Abandoned WB & Hz #4 CT Mine Site; Permit approved 7/1
867-0446	KY DSMRE	H&D Coal Co. Inc.	H&D Coal - Taylor Metal	06/04/2004	06/04/2009	Active Hz #4 CT Mine Site; Application submitted 4/17/2003
836-5461	KY DSMRE		Hick's Branch Hz #4 UG	08/20/2004	10/18/2005	Idle Hz #4 UG Mine Site; Succession permit from AEP 836-
860-0333	KY DSM		Hunter Branch - MT-15	11/10/1993	11/10/1998	Abandoned MT & CT Mine Site
867-5225	KY DSM		Jarisa E-3 on Rt. 317	08/23/1999	08/23/2009	Abandoned & Reclaimed E-3 UG Mine Site
836-6015	KY DSM		Jett Loadout	08/24/1987	08/24/2007	Idle Loadout Site
860-5263	KY DSMRE		Jones Fork - Beaver Gap			Appl Rec'd 8/1/07
860-0430	KY DSMRE		Jones Fork - Yellow Mtn.	06/06/2007	06/06/2012	
860-9007	KY DSM		Jones Fork Coarse Refus	05/17/1999	05/17/2009	Active Coarse Refuse Fill Site
860-8005	KY DSM		Jones Fork Prep Plant	11/13/1990	11/13/2005	Active Preparation Plant Site

Permittee: CONSOL of Kentucky Inc.

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
860-9000	KY DSM		Jones Fork Slurry Impoun	02/06/1991	02/06/2006	Active Slurry Impoundment Site
836-5238	KY DSM	Murriell-Don Coal Inc.	Lick Fork UG Mine - Murri	08/06/1990	08/06/2005	1 Abandoned & 1 Active E-3 UG Mine Sites
867-5192	KY DSM		Loves Br. Hz #4 UG, Ree	02/29/1996	03/01/2006	2 Abandoned Hz #4 UG Mine Sites
867-0383	KY DSM	Fairbanks Coal Co Inc	Lower Appletree Br. CT	04/21/1997	04/21/2002	Abandoned E-2, E-3, & AM CT Mine Site
836-5455	KY DSMRE		Marshall Mining # 7 E-1 U	01/07/2004	01/07/2009	Active E-1 UG Mine Site
867-5182	KY DSM		Mill Cr. E-3, Beaver Gap	02/04/1994	02/04/2004	4 Active E-3 UG Mine Sites
867-9007	KY DSM		Mill Creek Impoundment	07/21/1992	07/21/2012	Active Slurry Impoundment Site
867-8042	KY DSM		Mill Creek Loadout	03/02/1992	03/02/1997	Active Loadout Site
867-8041	KY DSM		Mill Creek Prep Plant	12/21/1990	12/12/2010	Active Preparation Plant Site
860-5147	KY DSM		Mott's Branch E-1 UG & B	11/23/1992	11/23/2002	2 Abandoned E-1 UG Mine Sites
860-5229	KY DSM		Mousie Hz #4 UG	03/19/1999	03/19/2004	(Jones Fork) Abandoned Hz #4 UG & CT Mine Sites
860-5303	KY DSMRE	Double A Mining Inc.	Mousie Hz 4; Mine #3 - T	02/05/2007	06/19/2009	Transferred from Motts Branch Coal Inc., P/N 860-5207
860-5212	KY DSM		Old Blazing Saddles	08/06/1984	08/06/1994	Abandoned E-3 & Hz #4 UG Mine Sites
867-5198	KY DSM	Clas Coal Co	Old Clas Hz #4 UG	10/11/1989	10/11/2004	Abandoned Hz #4 UG Mine Site
867-0400	KY DSM		Old Fairbanks - #867-036	04/05/2000		Abandoned Hz #4 CT Mine Site
867-5285	KY DSMRE	J&R Coal Inc.	Old J&R Coal #7 E-3	03/26/2004	03/26/2009	Idle UG Mine Site
860-5010	KY DSM	Marine Coal Co	Old J&R Coal Co., Mine #	01/04/1984	01/04/2004	Abandoned E-3 UG Mine Site
860-5202	KY DSM	Deane Mining LLC	Old Jarisa, Inc. E-3, Clas	12/11/1992	12/11/2007	2 Active UG E-3 Mine Sites and 1 Abandoned E-3 UG Mine
860-5255	KY DSMRE	Dennis Mining LLC	Old Leprechaun Coal, Inc.	01/29/2003	01/29/2008	Idle E-3 Mine Site; Permit issued 1/29/2003.
836-5327	KY DSM	North Star Mining Inc	Old Raccoon UG Mine - N	03/01/1995	03/01/2005	Abandoned Hz #4 UG Mine Site
860-5116	KY DSM		Old Right Fork E-3 - Emb	04/02/1991	04/02/2006	Active E-3 UG Mine Site
836-5452	KY DSMRE		Old Salyer's Branch Hz #	04/01/2004	04/01/2009	Abandoned Hz #4 UG Mine Site
860-7007	KY DSMRE	Deane Mining LLC	Puncheon Br. To Big Br.	10/25/2001	10/25/2011	Active Haul Road; Permit approved 10/25/2001; Application
867-5184	KY DSM		Rhoades Br. Hz #4 UG	08/03/1989	08/03/2004	Abandoned Hz #4 UG Mine Site
860-7008	KY DSMRE		Route 80 to Jones Fork Pl	01/05/2004	01/05/2009	Not Disturbed Haul Road
860-5218	KY DSM		Saltlick #10 - North Star #	09/11/1998	09/11/2003	Active Hz #4 UG Mine Site

Permittee: CONSOL of Kentucky Inc.

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
860-5221	KY DSM		Shanty Br. - E-3 Slope Po	05/05/1998	05/05/2003	2 Active E-3 UG Mine Sites
860-5260	KY DSMRE		Slone Br. - Nobel CT, Spu	06/19/2003	06/19/2008	2 Active Hz #4 UG Mine Sites & an Idle Hz #4 CT Mine Site
460-5092	KY DSM		Sycamore Fork - Hz #4 P	06/10/1983	06/10/1998	Inactive Hz #4 UG Punch Out Site
867-0404	KY DSM		Wiley - Big John & Shelby	01/13/2000	01/13/2010	Idle No. 7 Block MT & CT Mine Site and Abandoned AM, W
867-0394	KY DSM		Wiley - Indian Cr. CT	08/11/1998	08/11/2003	Abandoned Hz #4 CT Mine Site
867-0447	KY DSMRE		Wiley - Meadow Br. & Coll	12/28/2004	12/28/2009	Active Hz #4 CT Mine Site
867-0391	KY DSM		Wiley - Mill Cr. CT	10/02/1997	10/02/2002	Abandoned Hz #4 CT Mine Site
860-0390	KY DSMRE	Deane Mining LLC	Wiley - Puncheon Branch	08/30/2001	08/30/2011	Active WB & Hz #4 CT Mine Site
860-0349	KY DSM		Wiley - Tripplett Branch -	06/13/1996	06/13/2001	Abandoned MT Mine Site
867-0405	KY DSMRE		Wiley - Upper Appletree	08/28/2000	08/28/2005	Abandoned AM, WB, & Hz #4 CT Mine Site
860-5154	KY DSM		Wiley CT - Triplett Branch	05/25/1993	05/25/1998	Abandoned Hz #4 CT Mine Site
WV						
S-71-82	WV DEP			04/11/1996		trans from Fremont Coal Company
U-5007-05	WV DEP		Alma Deep Mine	03/21/2006		Application approved 3/21/2006; submitted 5/26/05.
S-5018-07	WV DEP		Buffalo Mtn. Surface Mine			King Coal Hwy.
O-24-82	WV DEP		Haulroad	05/21/1982	05/21/2007	trans from Fremont Coal Company
S-94-85	WV DEP		Little Rd Branch Contour	04/11/1996	10/27/2003	Phase 3 release 10/27/2003; trans from Fremont Coal Com
O-25-82	WV DEP		Loadout	05/21/1982	05/21/2007	trans from Fremont Coal Company
S-5038-93	WV DEP	Miller Brothers Coal Inc.	Miller Creek MT-11	04/14/1997		MSHA 1211-WV4-0240-01 (formerly Fremont Coal Co.)
S-5039-93	WV DEP	Miller Brothers Coal Inc.	Miller Creek MT-13	04/14/1997		Trans. from Appalachian Fuels LLC on 6/1/04; MSHA 121
S-5040-93	WV DEP	Miller Brothers Coal Inc.	Miller Creek MT-34	04/14/1997		MSHA 1211-WV4-0240-01 (formerly Fremont Coal Co.)
O-5036-93	WV DEP	Miller Brothers Coal Inc.	Miller Creek Prep Plant &	04/14/1997	04/14/2012	MSHA 1211-WV4-0240-01 (formerly Fremont Coal Co.)
U-5038-86	WV DEP	North Star Contractors	Mine No. CB-7	04/11/1996		trans from Fremont Coal Company
U-5001-08	WV DEP		MT-41 Deep Mine			
S-5009-05	WV DEP		MT-500	07/13/2006	07/13/2011	
S-5018-06	WV DEP		Peg Fork Surface Mine	02/07/2008	02/07/2013	

Permittee: CONSOL of Kentucky Inc.

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
S-5004-02	WV DEP		WV Surface Mine No. 2	02/08/2005		Application submitted 1/24/2002. Permit issued 2/8/2005.

Permittee: **Consol Pennsylvania Coal Co. LLC**

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
PA						
30810703	PA DEP		Bailey	02/27/1986		Bailey Refuse Permit
30841316	PA DEP		Bailey	01/09/1990		
30841317	PA DEP		Enlow Fork	03/08/1996		trans from Enlow Fork Mining Co 03/08/96
WV						
Y-1007-99	WV DEP		Bailey	03/20/1999		Out of state tracking permit, no bond has been posted.
U-2006-01	WV DEP		Bailey	03/11/2003		Application submitted 4/4/01. Approved 3-11-2003.

Permittee: Consolidation Coal Company

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
IL						
258	IL	DMM	Burning Star #2			
70	IL	DMM	Burning Star #2	08/13/1984		
67	IL	DMM	Burning Star #2	10/30/1984		
68	IL	DMM	Burning Star #2	09/10/1986		
71	IL	DMM	Burning Star #3	03/28/1985		
74	IL	DMM	Burning Star #4	08/01/1984		
73	IL	DMM	Burning Star #4	10/30/1984		
152	IL	DMM	Burning Star #4	05/08/1986		
120	IL	DMM	Burning Star #4	08/04/1987	07/19/2005	Phase III final bond released on 7/19/2005.
262	IL	DMM	Burning Star #4	11/13/1992		
112	IL	DMM	Burning Star #5	09/23/1983	11/24/2003	Final bond released 11/24/2003.
77	IL	DMM	Burning Star #5	05/25/1984	11/24/2003	Final bond released 11/24/2003.
75	IL	DMM	Burning Star #5	06/11/1984	09/26/2004	Final bond released 9/26/2004.
199	IL	DMM	Burning Star #5	06/09/1989	05/17/2004	Final bond released 5/17/2004.
281	IL	DMM	Rend Lake			
IL-004	IL	DMM	Rend Lake	08/01/1984		
162	IL	DMM	Rend Lake	11/27/1985		
43	IL	DMM	Rend Lake	01/14/1986		
202	IL	DMM	Rend Lake	12/02/1987		
217	IL	DMM	Rend Lake	08/01/1988		
264	IL	DMM	Rend Lake	06/10/1992		
274	IL	DMM	Rend Lake	01/03/1994		
44	IL	DMM	Wheeler Creek	08/11/1986		
NM						
8	NM	SMC	Burnham	12/16/1977		

Permittee: Consolidation Coal Company

Permit Number	State Regulatory Authority		Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
OH							
D-0357	OH	DOR					bond release pending
D-2238	OH	DMRM	Consolidation Coal Company	Dutton Gas Line	06/02/2005	06/01/2010	
D-0174	OH	DOR		Franklin			
D-0323	OH	DOR		Franklin			bond release pending
D-0102	OH	DOR		Georgetown 24			bond release pending
D-0334	OH	DOR		Georgetown 24			inactive
D-192	OH	DOR		Georgetown P.P.			
D-0054	OH	DOR		Mahoning Valley #33			bond release pending
D-0051	OH	DOR		Mahoning Valley #33			
D-0414	OH	DOR		Mahoning Valley #33			bond release pending
D-0452	OH	DOR		Mahoning Valley #33			bond release pending
D-2100	OH	DMRM		Mahoning Valley #33	04/20/2001		
D-2100-2	OH	DMRM		Mahoning Valley #33	06/10/2005		
D-2100-1	OH	DMRM		Mahoning Valley #33	12/12/2005		
D-0784	OH	DOR	Charlotte Coal Co.	Mahoning Valley #36			
D-0826	OH	DOR	Charlotte Coal Co.	Mahoning Valley #36			
Application #1	OH	DMRM		Red Wing Mine	09/24/2004	01/01/2005	Application withdrawn in 2005; submitted 9/24/2004.
PA							
02733702	PA	DER					pre-SMCRA permit; mine closed
65881701	PA	DER					pre-SMCRA permit; mine closed
30743702	PA	DEP		Blacksville #1	12/23/1983		
30841319	PA	DEP		Blacksville #1	02/27/1986		
D30-033A	PA	DEP		Blacksville #1	06/30/1987		
30841312	PA	DEP		Blacksville #2	02/27/1986		
30830701	PA	DEP		Dilworth	07/23/1984		

Permittee: Consolidation Coal Company

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
30841313	PA DEP		Dilworth	08/13/1986		
30841302	PA DEP		Humphrey #7	02/27/1986		
6377302 (IW)	PA DER		Montour #4			Pre-SMCRA permit; mine closed
30841601	PA DEP		Robena Prep Plant	09/04/1986		
30733707(R)	PA DEP		Robena Refuse Disposal	11/25/1986		Robena refuse disposal area
63981301	PA DEP		Shoemaker	05/27/1999		
63851702	PA DER		Westland #2			Pre-SMCRA permit; mine closed
63831301	PA DEP		Westland #2	08/13/1986		
TN						
2449	TN OSMRE		Matthews P.P.	02/11/1986		Inc. 2 Ph. I bond release - 6/29/2001; Inc. 1 Ph. I & II releas
UT						
ACT/015/007	UT DOGM					
ACT/015/015	UT DOGM		Emery			
VA						
1301107	VA DMLR			03/29/1983		
1201325	VA DMLR			03/27/1991		
1201754	VA DMLR		Amonate - Hipoe #8	08/09/2000		
1200360	VA DMLR		Amonate Dunford	12/08/1983		Dunford portal
1200352	VA DMLR		Amonate Greasy Creek	12/07/1983	07/11/2003	Greasy Creek shaft; Phase III bond released on 7/11/2003.
1300410	VA DMLR		Amonate P.P.	12/21/1983		Refuse area
1200727	VA DMLR		Ball Creek (B-1)	07/01/1985		Transferred from Permac Inc./Raven Coal Co.
1201193	VA DMLR		Ball Creek (B-3)	02/24/1989		Transferred from Permac Inc./Raven Coal Co.
1201311	VA DMLR		Ball Creek (B-4)	01/23/1991		Transferred from Permac Inc./Raven Coal Co.
1201412	VA DMLR		Ball Creek (B-5)	04/28/1992		Transferred from Permac Inc./Raven Coal Co.
1201145	VA DMLR		Ball Creek (O-3)	02/22/1996		Transferred from Permac Inc./Raven Coal Co.
1301149	VA DMLR		Bishop P.P.	12/28/1983		includes permit 1300464

Permittee: Consolidation Coal Company

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
1201502	VA DMLR		Black Eagle	07/20/1994		
1201653	VA DMLR	East Star Mining, Inc.	Black Eagle II (North Bran	08/13/1998		
1201367	VA DMLR	Pigeon Branch Coal	Brave Heart Inc./ Kens Co	07/23/1991		Operator - Pigeon Branch Coal
1400047	VA DMLR		Buchanan	03/08/1993		
1201057	VA DMLR		C-4	10/08/1986		Transferred from Permac Inc./Raven Coal Co.
1201154	VA DMLR		Clifton Creek (E-10)	10/06/1988		Transferred from Permac Inc./Raven Coal Co.
1200839	VA DMLR		Clifton Fork (E-9)	04/18/1986		Transferred from Permac Inc./Raven Coal Co.
1201761	VA DMLR	Harvest-Time Coal, Inc.	Corbadd Inc.	11/02/2000		
1200308	VA DMLR		Dismal Creek (E-2)	11/23/1983		Transferred from Permac Inc./Raven Coal Co.
1301461	VA DMLR		Fiddle Scalp			Pending application #0301991 issued 4/17/93; scalped rock
1201477	VA DMLR		Gum Branch (P-33)	09/03/1993		Trans.from Permac Inc./Raven Coal Co.; Mine is off Rt. 63
1200070	VA DMLR		Hale Branch (P-14)	06/01/1983		Transferred from Permac Inc./Raven Coal Co.
1200369	VA DMLR		Hale Branch (P-28)	12/09/1983		Transferred from Permac Inc./Raven Coal Co.
1200700	VA DMLR		Hale Branch (P-31)	04/17/1985		Transferred from Permac Inc./Raven Coal Co.
1201651	VA DMLR	Consolidation Coal Company	Hiope #7	07/22/1998	07/22/2008	04/03/2007 - Identified on Controllers AML Fees list
1201772	VA DMLR		Jawbone Mine #2	03/29/2001		Succession of 1201557 from New Life Energy (Rheinbraun)
1201974	VA DMLR		Laurel Fork Mine	06/14/2006	06/14/2011	04/03/2007 - Identified on Controllers AML Fees list
1201511	VA DMLR		Little Hurricane (E-11)	08/02/1989		Transferred from Permac. Mine is off Rt. 628.
1201129	VA DMLR		Miles Branch Mine	11/23/1983		includes permit 1200315
1201625	VA DMLR		Nine Mile Branch (P-32)	08/20/1990		Transferred from Permac Inc./Raven Coal Co.
1300338	VA DMLR		Prep Plant (P-18)	12/02/1983		Transferred from Permac Inc./Raven Coal Co.
1700864	VA DMLR		Prep Plant New Refuse Fi	06/23/1986		Trans. from Permac Inc./Raven Coal; MSHA Impoundment I
1500384	VA DMLR		Prep Plant Old Refuse Fill	12/15/1983		Trans. from Permac Inc./Raven Coal; MSHA Impoundment I
1200636	VA DMLR		Robinson Fork (E-4)	12/13/1984		Transferred from Permac Inc./Raven Coal Co.
1201407	VA DMLR		Slate Creek (O-2)	03/13/1992		Transferred from Permac Inc./Raven Coal Co.
1401825	VA DMLR	A&N Coal Co., Inc.	War Creek Mine #1	02/20/2003		Previous permit 1401581 issued 11/12/96 to Knox Creek C

Permittee: Consolidation Coal Company

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
WV						
U-209-83	WV DEP		Amonate	11/14/1983		
S-4004-03	WV DEP	Double M. Mining, L.C.	Amonate Auger #2	11/21/2003		Operator assignment to Bundy Auger Mining, Inc. pending.
S-4005-01	WV DEP	Double M. Mining, L.C.	Amonate Auger No. 1	09/06/2001		Phase I release 10/29/2004. Cease operator assignment pe
U-4002-98	WV DEP		Amonate No. 5 Seam	06/10/1998		
O-150-83	WV DEP	Double M. Mining, L.C.	Amonate plant	11/14/1983		
U-70-83	WV DEP		Arkwright	03/31/1983		
U-12-84	WV DEP	Tazewell McDowell Coal Inc.	Beechfork	01/17/1984		Cease operator assignment pending - 1/21/04
U-35-85	WV DEP		Bentley #2	06/29/1987		trans from Bentley Coal; phase II release - 6/5/1998
U-4016-96	WV DEP	Styx River Coal Co	Big Creek No. 2	02/27/1997		Phase I release - 10/18/2000
U-214-83	WV DEP	Corbin Coal Inc.	Bishop	11/21/1983		also MSHA 46-01868, 46-02369
U-45-84	WV DEP		Blacksville #1	05/30/1984		mine closed
U-46-84	WV DEP		Blacksville #2	05/03/1984		
O-1011-93	WV DEP		Blacksville #2 - Hughes H	05/17/1995		
I-539	WV DEP		Booth Tipple	11/17/1988		
UO-692	WV DEP		Crane Creek #9	06/11/1983		Phase I release - 12/16/1996
O-136-83	WV DEP		Crane Creek plant	10/26/1983		
U-100-83	WV DEP		Four States	05/18/1983		
U-4021-89	WV DEP		Gordy #3	01/17/1990		Phase I release - 5/4/00. Transferred from Katelyn Coal Co.
U-11-85	WV DEP	Vica Coal Company, Inc.	Greasy Creek #2	12/19/1995		
U-119-83	WV DEP		Humphrey #138	06/10/1983		
O-1022-92	WV DEP		Humphrey refuse	11/22/1993		
U-191-83	WV DEP		Ireland	12/26/1983		
U-15-84	WV DEP		Itmann #1	08/10/1995		name change from Itmann Coal Company 08/10/95
U-16-84	WV DEP		Itmann #2	08/10/1995		name change from Itmann Coal Company 08/10/95
U-17-84	WV DEP		Itmann #3	08/10/1995		name change from Itmann Coal Company 08/10/95

Permittee: Consolidation Coal Company

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
O-11-85	WV DEP		Itmann plant	08/10/1995		name change from Itmann Coal Company 08/10/95
U-78-83	WV DEP		Loveridge	09/18/1983		
O-1044-91	WV DEP		Loveridge	06/17/1992		
UO-431	WV DEP		Nailler	06/28/1979		
U-4018-88	WV DEP	Omega Square	Omega Square	02/07/1989		Phase I release - 1/31/2001
U-4015-86	WV DEP		Omega Square haulroad	10/10/1986		Phase I release - 1/30/2001
U-53-83	WV DEP		Osage	03/02/1983		
U-86-83	WV DEP		Pursglove	05/04/1983		
U-104-83	WV DEP		Robinson Run #95	06/10/1983		incl. old D-67-82, O-108-83
U-1025-92	WV DEP		Robinson Run #95	03/03/1993		
U-1045-91	WV DEP		Shoemaker	12/23/1991		
U-1025-91	WV DEP		Shoemaker	12/31/1991		
O-1001-00	WV DEP		Shoemaker	01/11/2000		Cunningham Hollow Refuse application approved 4/19/200
U-2003-06	WV DEP		Shoemaker - Boggs Run	09/06/2006	09/06/2011	Application submitted 02/14/2006.
SMA# S-2007	WV DEP		Shoemaker Boggs Run St	03/22/2006		Application submitted 03/22/2006.
U-4003-04	WV DEP		Squire Jim #2	10/17/2005		Application approved 10/17/2005.
U-4004-04	WV DEP		Squire Jim #3	10/17/2005		Application approved 10/17/2005.
U-4004-91	WV DEP	Hiope Mining Inc	Squire Jim No. 1 Mine	12/11/1991		Operator assignment to Joshua Fuel, Inc. pending - 1/21/04
U-11-84	WV DEP		Turkey Gap	01/17/1984		
UO-584	WV DEP		Turkey Gap shaft	01/17/1984	03/02/2005	Phase III final bond released 3/2/205. Phase I bond rel. 11/

Permittee: Eighty Four Mining Company

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
PA						
63831302	PA	DEP	Eighty Four Mine	03/30/1987		
63743702	PA	DEP	Eighty Four Refuse	12/27/1985		

Permittee: Fola Coal Company, L.L.C.

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
WV						
O-2001-93	WV DEP					
SMA-2004-99	WV DEP					
O-3022-92	WV DEP		Big Branch Coal Refuse D	12/15/1994	12/15/2009	
S-2007-98	WV DEP		Bullpen Fork Surface Min	02/16/1999	02/16/2009	
S-2006-05	WV DEP		Cannel Coal Point Remov	11/03/2006	11/03/2011	
U-2007-97	WV DEP		Fola Eagle Deep Mine #1	01/14/1999	01/14/2009	
O-2008-93	WV DEP		Haulroad #2	03/01/1994	03/01/2009	
S-2012-98	WV DEP		Ike Fork #1 Surface Mine	07/30/2001	07/30/2011	
S-2005-99	WV DEP		Ike Fork #2 Surface Mine	02/28/2002	02/28/2007	
S-6019-89	WV DEP		Monoc #2 Surface Mine	12/11/1989	12/11/2004	
S-6014-89	WV DEP		Monoc #3 Surface Mine	09/11/1989	09/11/2004	
U-2012-99	WV DEP		Monoc #4 - Big Dragon D	08/05/2002	08/05/2007	
S-2003-96	WV DEP		Monoc #4 Surface Mine	10/11/1996	10/11/2011	
O-2001-94	WV DEP		Peachorchard Loadout &	07/18/1994	07/18/2009	
O-2011-93	WV DEP		Peachorchard Preparation	03/31/1994	03/31/2009	
S-2013-98	WV DEP		Peachorchard Surface Mi	05/24/2004	05/24/2009	
O-3008-93	WV DEP		Primary Haulroad #1	09/28/1993	09/28/2008	
O-2008-97	WV DEP		Primary Haulroad #3	01/14/1999	01/14/2009	
S-3013-93	WV DEP		Surface Mine #1	11/17/1993	11/17/2003	
S-2012-93	WV DEP		Surface Mine #2	07/20/1994	07/20/2009	
S-2014-96	WV DEP		Surface Mine #2A	04/23/1997	04/23/2007	
S-2009-95	WV DEP		Surface Mine #3	05/13/1996	05/13/2011	
S-2005-02	WV DEP		Surface Mine #4A	06/03/2003	06/03/2008	
S-2011-99	WV DEP		Surface Mine #6	06/02/2000	06/02/2005	
U-2006-94	WV DEP		Winoc #1 Deep Mine	02/26/1996	02/26/2001	

Permittee: Fola Coal Company, L.L.C.

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
S-2004-94	WV DEP		Winoc #1 Surface Mine	02/14/1995	02/14/2005	
S-2006-97	WV DEP		Winoc #2 Surface Mine	08/20/1997	08/20/2007	
O-3033-91	WV DEP		Winoc Preparation Plant	11/12/1992	11/12/2007	
O-3009-92	WV DEP		Winoc Raw Coal Facility	08/09/1994	08/09/2009	

Permittee: **Glamorgan Coal Company, L.L.C. d/b/a Indian Gap Co**

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
VA						
1201231	VA DMRL		Mine #1	08/09/1989	08/09/1999	

Permittee: Glamorgan Coal Company, L.L.C. d/b/a Lower Clintwo

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
VA						
1101247	VA DMRL		Mine #7	01/26/1990	01/26/2010	

Permittee: **Glamorgan Coal Company, L.L.C. d/b/a Porter Coal Co**

Permit Number	State Regulatory Authority		Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
VA							
1200233	VA	DMRL	Dorchester Coal Company,Inc.	Sunny Side #1 & #2	11/04/1983	11/04/2003	
1200233	VA	DMRL	Navajo Coal Company	Sunny Side #1 & #2	11/04/1983	11/04/2003	
1200233	VA	DMRL	Navajo Coal Company	Sunny Side #1 & #2	11/04/1983	11/04/2003	

Permittee: **Glamorgan Coal Company, L.L.C. d/b/a Rocky Coal Co**

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
VA						
1401321	VA	DMRL	Rocky Refuse Disposal Ar	03/01/1991	03/01/2006	
1401321	VA	DMRL	Rocky Refuse Disposal Ar	03/01/1991	03/01/2006	

Permittee: **Glamorgan Coal Company, L.L.C. d/b/a Taggart Coal C**

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
VA						
1201628	VA	DMRL	Marker Mine #1	01/26/1998	01/26/2003	

Permittee: **Glamorgan Coal Company, L.L.C. d/b/a Wise Dock Co**

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
VA						
1400324	VA	DMRL		11/30/1998	11/30/2003	

Permittee: Helvetia Coal Company

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
PA						
32743710	PA DEP		Helvetia #1	04/12/1985		Refuse disposal area
32743711	PA DEP		Helvetia #2	10/03/1985		Refuse disposal area
32851302	PA DEP		Lucerne #6 Extension	02/02/1987		Mining inactive, water treatment continues.
32841303	PA DEP		Lucerne #6 Mine	09/15/1986		Mining inactive, water treatment continues.
32841320	PA DEP		Lucerne #8 Mine	04/15/1986		Mining inactive, water treatment continues.
32841317	PA DEP		Lucerne #9 Mine	08/08/1985		Mining inactive, water treatment continues. (2nd MSHA #: 3
32921302	PA DEP		Marshall Run Deep	08/13/1993		Mining inactive

Permittee: Island Creek Coal Company

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
KY						
713-5002	KY DSMRE		Hamilton #1			
713-5001	KY DSMRE		Hamilton #2			
713-5000	KY DSMRE		Ohio 11			
VA						
1400493	VA DMLR		Beatrice Mine			Transferred from Beatrice Pocahontas on 2/29/2000
1400496	VA DMLR		Mine #3			
1300341	VA DMLR		Saw Mill Storage Area			
1400492	VA DMLR		VP 1			
1401232	VA DMLR		VP 2			
1400498	VA DMLR		VP 4			
1401489	VA DMLR		VP 8 (Deskins)			Permit 1400497 transferred from VP5 Mining Co. & reissue
1401531	VA DMLR		VP 8 (Garden)			Also MSHA # 44-04517
WV						
O-2012-96	WV DEP				08/15/2005	Transferred to Mettiki Coal (WV) LLC on 8/15/2005.
U-5076-86	WV DEP		Abb's #3	10/29/1993		Inactive, trans. from Abb's Resources Inc. 10/29/93; phase I
I-700	WV DEP		Beaver Creek/Alpine AMD			
P-590	WV DEP		Elk Creek #10 plant	01/04/1993		
H-456	WV DEP		Elk Creek haulroad	01/04/1993		
I-678	WV DEP		North AMD			
EM-69	WV DEP		North Branch Airshaft	02/24/1988		
O-129-83	WV DEP		North Branch Fuel Supply	10/26/1988		
EM-100	WV DEP		North Portal,11A airshaft			
P-672	WV DEP		North Prep Plant			
U-5050-91	WV DEP		Old 10K Mine	03/01/1994		
U-5029-92	WV DEP	Pine Creek Mining IV, Inc	Pine Creek IV, Mine #1	09/24/1993		Phase I bond release - 12/1/1998

Permittee: Island Creek Coal Company

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
U-5051-87	WV DEP	Pine Creek Mining IV Inc.	Pine Creek IV, Mine #2	12/13/1994		Transferred from Thunder Mountain Energy, phase I releas
U-5056-87	WV DEP	Pine Creek IV	Pine Creek IV, Mine #3	10/29/1993		
U-5061-86	WV DEP		S&M #7	01/01/1996		Phase I bond release 3/16/99. Transferred from S & M Coal
U-5026-97	WV DEP		School House Alma	12/15/1997		Not Started
U-5042-91	WV DEP	Stonecoal Branch Mining Inc	Stonecoal Branch, Mine #	07/07/1993		
U-5025-96	WV DEP	Stonecoal Branch Min. Inc	Stonecoal Branch, Mine #	02/10/1997		
U-5014-97	WV DEP		Turkeypen #2 Gas	11/19/1997		Not Started
UO-30	WV DEP		West Portal subsidence			
P-674	WV DEP		West Prep Plant	02/24/1988		
O-130-83	WV DEP		West Refuse Area #1	10/26/1988		
U-5074-87	WV DEP	Brandy Mining Inc Mine #2	Wynchester #21-C	10/29/1993		Inactive, from Wynchester Mining; also MSHA 46-07776(11

Permittee: Jeffco Coal Company

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
PA						
33723006	PA DEP		Wilson #7 Mine	07/01/1985		transferred from Maud Mining Co. 1/17/2002.

Permittee: Kent Coal Mining Company

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
PA						
03850105R	PA	DEP	Brickchurch #3 Mine	06/19/1984		
2869BSM13	PA	DEP	Iselin #6	02/13/1975		Completed/ Stage II/ Water Quality
32803037	PA	DEP	Kent #53	06/27/1984		Completed/ Stage II
03890113	PA	DEP	Margaret #50	01/25/1991		Completed/ Stage II

Permittee: Keystone Coal Mining Corp.

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
PA						
32941301	PA	DEP	Crooked Creek	01/09/1995		
32931301	PA	DEP	Dutch Run	04/09/1996		
03841307	PA	DEP	Emilie #4 Mine	07/28/1986		Mining inactive, water treatment continues.
03773706	PA	DEP	Emilie #4 Refuse	05/28/1985		Refuse disposal area
03841305	PA	DEP	Emilie Mine	08/11/1986		
03793072C	PA	DEP	Iselin #10	02/15/1985		Transferred from Kent on 9/3/2002. Completed, water treat
3279103	PA	DEP	Iselin #11			Transferred from Kent 8/8/2002. Completed/ Stage II/ Wate
03831305	PA	DEP	Jane Mine	01/03/1986		Mining inactive, water treatment continues.
32860106	PA	DEP	Kent #55	07/13/1987		Transferred from Kent 8/8/2002. Completed/ Water Quality
32803010	PA	DEP	Kent #56	08/06/1984		Transferred from Kent 8/16/2002. Completed, water treatme
32890109	PA	DEP	Kent #57	10/15/1990		Transferred from Kent 8/16/2002. Completed, water treatme
03813704	PA	DEP	Keystone #1	06/28/1985		Refuse disposal area
03970701	PA	DEP	Keystone #2			Refuse disposal area
03940701	PA	DEP	Keystone #2 CRD	01/04/1996		
03951601	PA	DEP	Keystone Cleaning Plant	02/29/1996		
32803712	PA	DEP	Lewisville Recovery Plant	01/16/1986		Transferred from Kent 8/26/2002. Completed, water treatme
32940105	PA	DEP	Lucerne #2	05/09/1995		Transferred from Kent 8/16/2002. Completed/ Water Qualit
0380302	PA	DEP	Margaret #7	02/25/1987		Mining inactive, water treatment continues.
03841304	PA	DEP	Margaret 11	08/27/1985		
03851304	PA	DEP	Margaret 11	04/07/1993		
03891301	PA	DEP	Margaret 11 - No 2 Portal	02/21/1991		Mining inactive
500121	PA	DEP	Margaret Refuse			Refuse disposal area
3576SM24	PA	DEP	Margaret Refuse Recover			Mining inactive, water treatment continues.
32920102	PA	DEP	Marshall Run Mine #1	04/14/1993		Transferred from Kent 8/16/2002. Completed/ Stage II
32970103	PA	DEP	Marshall Run Mine #2	08/15/1997		Transferred from Kent 8/8/2002. Completed/ Stage II

Permittee: Keystone Coal Mining Corp.

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
3274301	PA DEP		O'Donnell #4 - Manor 8	09/05/1974		Mining inactive, water treatment continues.
32841321	PA DEP		O'Donnell Mine #3	11/15/1995		Mining inactive
32921301	PA DEP		Plumcreek #1 Mine	11/07/1993		Mining inactive. Phase II & partial phase III release on 4/10/
32841313	PA DEP		Urling #2 Mine	02/20/1986	02/19/2004	Transferred 2/19/04 to Rosebud Mining. Mining inactive, wa
32841323	PA DEP		Urling #3-E	02/20/1986		Permitted reserve
32841312	PA DEP		Urling Nos. 1 & 3 Mines	06/10/1986	02/19/2004	Transferred 2/19/04 to Rosebud Mining. Mining inactive, wa
03753705	PA DEP		Urling Nos. 1 & 3 Refuse	09/26/1985	02/19/2004	Transferred 2/19/04 to Rosebud Mining. Refuse disposal ar
32813031	PA DEP		Waterman #1	06/19/1984		Transferred from Kent 8/8/2002. Completed, water treatmen

Permittee: Laurel Run Mining Company

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
PA						
63841304	PA DEP		Vesta	12/22/1998		transfer from Massey; reclamation only
WV						
O-1039-90	WV DEP		Alpine Refuse #2			
S-4020-96	WV DEP		Coal Mountain No. 1	05/07/1997	08/30/2004	Transferred to Dynamic Energy Inc. on 8/30/2004.
S-4021-96	WV DEP		Coal Mountain Valley Fill	05/07/1997	08/30/2004	Transferred to Dynamic Energy Inc. on 8/30/2004.
H-477	WV DEP		Coal Mtn #9 road	03/02/1990	11/16/2004	Final bond released on 11/16/2004.
P-586	WV DEP	Childress Service Corp	Coal Mtn. plant	03/02/1990	08/30/2004	Transferred to Dynamic Energy Inc. on 8/30/2004.
UO-432	WV DEP		Double E	04/17/1995	08/30/2004	Reclaimed; trans from Double E Mining 4/17/95; transferred
EM-74	WV DEP		Marcus #4	04/17/1995	08/30/2004	Trans from Marcus Coal 4/17/95; transferred to Dynamic E
U-139-83	WV DEP		Potomac			also MSHA 46-04190 (12/20/78), 1211WV30102 (12/75)
O-31-82	WV DEP		ROM loadout - Twin Bran	01/19/1994		Transfer from Twin Branch Coal Co
U-5013-93	WV DEP		Spring Branch	02/04/1997		

Permittee: **Little Eagle Coal Company, L.L.C.**

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
WV						
UO-288	WV DEP		Lick Branch #2 Mine	05/29/1978	11/10/2008	
U-2014-95	WV DEP		Peachorchard #1 Deep Mi	07/08/1996	07/08/2011	
U-2004-05	WV DEP		Rocklick Coalburg Deep	04/12/2006	04/12/2011	

Permittee: McElroy Coal Company

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
WV						
U-1026-92	WV DEP		Blakes Ridge - McElroy	05/04/1993		
U-33-83	WV DEP		McElroy	02/10/1983		
O-1023-92	WV DEP		McElroy refuse area	02/10/1996		

Permittee: **Powellton Coal Company, L.L.C.**

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
WV						
U-72-84	WV DEP			09/04/1984		
S-3004-00	WV DEP		Bridge Fork Surface Mine	06/19/2001	06/19/2006	
S-3003-01	WV DEP		Bridge Fork West Surface	01/21/2004	01/21/2009	
S-3002-07	WV DEP		Gauley Knob Surface Min	07/30/2007	07/30/2012	
O-3007-00	WV DEP		Rich Creek Haulroad	06/19/2001	06/19/2011	
O-3005-00	WV DEP		Sugarcamp Loadout	07/18/2001	07/18/2011	

Permittee: Quarto Mining Company

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
OH						
D-433	OH DMRM		Powhatan #4	11/29/1984		
D-422	OH DMRM		Powhatan #7	10/19/1984		

Permittee: **Southern Ohio Coal Company**

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
OH						
D-354	OH DMRM		Meigs #1	06/12/1984		
D-355	OH DMRM		Meigs #2	06/12/1984		
D-463	OH DMRM		Raccoon #3	04/09/1985		

Permittee: Terry Eagle Coal Company, L.L.C.

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
WV						
S-3033-92	WV DEP					
S-3022-88	WV DEP					
U-3002-90	WV DEP					
U-160-83	WV DEP					
U-3032-92	WV DEP					
P-68-82	WV DEP					
H-561	WV DEP		Bald Eagle Haulroad	01/07/1993	01/07/2003	
U-6016-88	WV DEP		Bell Creek Deep Mine #1	10/19/1988	10/19/2008	
D-106-82	WV DEP		Cari Eagle Mine #2	09/07/1982	09/07/1997	
D-106-82	WV DEP		Cari Eagle Mine #2	09/07/1982	09/07/1997	
U-3057-89	WV DEP		Cari Eagle Mine #3	03/29/1991	03/29/2001	
U-6001-90	WV DEP		Harrison Mine #1	05/01/1990	05/01/2005	
S-3029-87	WV DEP		Meadow Creek Strip #1	07/17/1987	07/17/1997	
S-3069-87	WV DEP		Meadow Creek Strip #2	04/13/1988	04/13/1998	
U-3-84	WV DEP		Otter Creek Mine #1	01/12/1984	01/12/2004	
O-3037-86	WV DEP		Peters Creek Refuse Area	08/01/1986	08/01/2011	
S-6010-89	WV DEP		Ramp Run Mine #1	10/03/1989	10/03/1999	
S-6010-89	WV DEP		Ramp Run Mine #1	10/03/1989	10/03/1999	
S-3017-94	WV DEP		Ramp Run Mine #2	12/29/1994	12/29/1999	
S-3017-94	WV DEP		Ramp Run Mine #2	12/29/1994	12/29/1999	
UO-652	WV DEP		Robert Eagle #2	11/06/1980	02/24/2003	
P-569	WV DEP		Terry Eagle Preparation P	11/19/1980	05/31/2008	
D-41-81	WV DEP		Warren Eagle Mine #3	11/16/1981	08/02/2008	

Permittee: **Windsor Coal Company**

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
WV						
O-485	WV DEP			01/17/1985		
E-128-00	WV DEP			01/26/1988		
P-744	WV DEP			01/26/1988		

Permittee: **Wolfpen Knob Development Company**

Permit Number	State Regulatory Authority	Operator *(If different from permittee)*	Mine Name	Permit Issue Date	End Date	Comments
WV						
O-1052-91	WV DEP			01/28/1998		
U-2015-92	WV DEP			01/28/1998		

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: 060-E475 MSHA NO: MSHA DATE:
VIOLATION NO: 43-1891 DATE VIOL. ISSUED: 10/14/2008 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Code OT: Permitee began exploration core drilling before the exploration was permitted.

CURRENT STATUS: PENDING STATUS DATE:
REQUIRED ACTIONS: Cease all core drilling until the time that the exploration permit has been issued.

ABATEMENT ACTIONS:

PERMIT NO: 836-5238 MSHA NO: 15-18296 MSHA DATE: 10/31/00
VIOLATION NO: 43-0826 DATE VIOL. ISSUED: 9/25/2008 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: 1) Code UO: Failed to comply with all terms & conditions of permit.
2) Code BG: Failed to properly handle or dispose of toxic chemicals.
3) Code AP: Allowed fugitive dust to occur in an uncontrolled manner.
CURRENT STATUS: PENDING STATUS DATE:
REQUIRED ACTIONS: 1) Remove operator and/or comply with permit and/or subit operator change. 2) Remove and properly dispose of chemicals. 3) Follow the approved and permitted plans to prevent air born dust.
ABATEMENT ACTIONS: Violation 1: Extension granted to 10/24/2008

PERMIT NO: 836-5238 MSHA NO: 15-18296 MSHA DATE: 10/31/00
VIOLATION NO: 43-2273 DATE VIOL. ISSUED: 6/23/2008 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Code AP: Company and/or Operator has allowed fugitive dust to occur in an uncontrolled manner from the coal belt line and the coal stock pile area.
CURRENT STATUS: TERMINATED STATUS DATE: 7/8/2008
REQUIRED ACTIONS: Company needs maintain the water sprinklers at all times to control dust.
Non-correctable because the dust has already occured
ABATEMENT ACTIONS: Required work completed; violation terminated 07/08/2008.

PERMIT NO: 836-5452 MSHA NO: MSHA DATE:
VIOLATION NO: 43-2272 DATE VIOL. ISSUED: 6/10/2008 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: (1) Code SM: Company failed to post and/or maintain the perimeter markers within the permitted area. (2) Code BG: A slip or unstable area has occurred on the down slope area below the coal stock pile.
CURRENT STATUS: TERMINATED STATUS DATE: 8/20/2008
REQUIRED ACTIONS: (1) Post perimeter markers along the entire permitted area.
(2) Complete all necessary backfilling & grading to eliminate & stabilize the unstable area below the coal stock pile & seed and mulch area.
ABATEMENT ACTIONS: Required work completed; Violation terminated 8/20/2008

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: 836-5455 MSHA NO: 15-18709 MSHA DATE: 01/29/2004
VIOLATION NO: 43-1569 DATE VIOL. ISSUED: 4/20/2006 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Permittee disturbed within 300 ft of an occupied dwelling without obtaining a written waiver.

CURRENT STATUS: TERMINATED STATUS DATE: 5/19/2006
REQUIRED ACTIONS: Obtain written waiver. Revise permit to include waiver and correctly locate dwelling on MRP map. Reclaim disturbed area.

ABATEMENT ACTIONS: Required work completed, violation terminated 5/19/06

PERMIT NO: 836-6015 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1871 DATE VIOL. ISSUED: 11/26/2007 ISSUED BY: KY DMER
VIOLATION DESCRIPTION: Permittee delinquent in submitting mid-term modifications.

CURRENT STATUS: TERMINATED STATUS DATE: 12/3/2007
REQUIRED ACTIONS: Submit mid-term modifications within 30 days.

ABATEMENT ACTIONS: Required work completed, violation terminated 12/03/2007.

PERMIT NO: 836-6015 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1571 DATE VIOL. ISSUED: 6/5/2006 ISSUED BY: KY DMER
VIOLATION DESCRIPTION: Permittee delinquent in submitting mid-term modifications.

CURRENT STATUS: TERMINATED STATUS DATE: 7/12/2006
REQUIRED ACTIONS: Submit mid-term modifications within 30 days.

ABATEMENT ACTIONS: Required work completed; violation terminated 7/12/2006

PERMIT NO: 860-0312 MSHA NO: 15-13025 MSHA DATE: 07/31/1986
VIOLATION NO: 43-1834 DATE VIOL. ISSUED: 4/6/2006 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: (1) Code SM. Boundary markers & permit signs are not adequate.
(2) Code OD. Off-site slide occurred. (3) BG. Water is improperly draining into Hollowfill 3. (4) DV. Hollowfill 3 rock drain improperly constructed.
CURRENT STATUS: TERMINATED STATUS DATE:
REQUIRED ACTIONS: (1) Post proper signs and markers. (2) Remove off permit material, regrade, revevetate and permit slide area. (3) Regrade and backfill Hollowfill 3. (4) Reconstruct rock drain according to approved plans.
ABATEMENT ACTIONS: Violation (3) terminated 7/5/06; violation (1) terminated 1/9/2007.
Violation (2) terminated 07/25/2008.
Required work completed; violation (4) terminated 2/7/2007.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: 860-0333 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1846 DATE VIOL. ISSUED: 4/26/2007 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: A section of backfilled contour is unstable and moving downslope.

CURRENT STATUS: TERMINATED STATUS DATE: 8/7/2007
REQUIRED ACTIONS: Stabilize, regrade and revegetate unstable area.

ABATEMENT ACTIONS: Required work completed; violation terminated 8/07/2007.

PERMIT NO: 860-0333 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1833 DATE VIOL. ISSUED: 3/29/2006 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Code OD. Slide on increment #7 has gone off-permit between two previous slides.

CURRENT STATUS: TERMINATED STATUS DATE: 5/14/2008
REQUIRED ACTIONS: Remove off-permit material, stabliize, seed and mulch slide area and revise permit to include off-permit area.

ABATEMENT ACTIONS: Required work completed, violation terminated 05/14/2008.

PERMIT NO: 860-0390 MSHA NO: N/A MSHA DATE: 00/00/00
VIOLATION NO: 53-2552 DATE VIOL. ISSUED: 4/30/2008 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Non-coal waste was disposed of improperly.

CURRENT STATUS: TERMINATED STATUS DATE: 7/28/2008
REQUIRED ACTIONS: All waste must be removed and properly disposed of. Disturbed areas must be seeded and mulched.

ABATEMENT ACTIONS: Required work completed; Violation terminated 07/28/2008

PERMIT NO: 860-0390 MSHA NO: N/A MSHA DATE: 00/00/00
VIOLATION NO: 53-0634 DATE VIOL. ISSUED: 2/26/2007 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: (1) Slide occurred below permitted contour mining area.
(2) Failed to maintain sediment structure Dugout 11 to approved designs.
CURRENT STATUS: TERMINATED STATUS DATE:
REQUIRED ACTIONS: (1) Stabilize, seed, & mulch disturbed area; submit revision.
(2) Repair leaks in sediment structure; apply seed and mulch to disturbed areas.
ABATEMENT ACTIONS: (1) Required work completed; violation terminated 2/13/2008.
(2) Required work completed; violation terminated 5/29/2007.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: 860-0390 MSHA NO: N/A MSHA DATE: 00/00/00
VIOLATION NO: 53-1620 DATE VIOL. ISSUED: 3/28/2006 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Off permit disturbance on Increment #13

CURRENT STATUS: TERMINATED STATUS DATE: 12/6/2006
REQUIRED ACTIONS: Stabilize, seed & mulch slide area. Revise permit to include area.

ABATEMENT ACTIONS: Required work completed, violation terminated 12/6/2006.

PERMIT NO: 860-5148 MSHA NO: 15-17021 MSHA DATE: 11/13/90
VIOLATION NO: 43-1836 DATE VIOL. ISSUED: 5/9/2006 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: (1) High sediment content in discharge from Rt. 80 blowout site.
(2) High sediment content in discharge from Rt. 80 blowout site.

CURRENT STATUS: TERMINATED STATUS DATE: 5/22/2006
REQUIRED ACTIONS: (1)& (2) Take measures to prevent high sediment discharge from leaving the permit area.

ABATEMENT ACTIONS: Required work completed, violation terminated 5/22/06.

PERMIT NO: 860-5154 MSHA NO: unknown MSHA DATE: unknown
VIOLATION NO: 43-1821 DATE VIOL. ISSUED: 1/29/2008 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: (1) Code BG. Backfill material unstable, exposed highwall. (2) Code AC. Failed to maintain Road G. (3) Code SC Failed to maintain sediment structure P-11. (4) Code DS. Failed to maintain Hollow Fills 1, 2 & 3.
CURRENT STATUS: TERMINATED STATUS DATE: 10/7/2008
REQUIRED ACTIONS: (1) Stabilize backfill material & elimate exposed high-wall. (2) Maintain Road G. (3) Maintain sediment structure P-11. (4) Stabilize eroded side drains in Hollow Fills #1, #2 & #3.
ABATEMENT ACTIONS: Violations 1&2 terminated: 10/07/2008
Viuolation 3 terminated.
Violation 4 terminated: 07/03/2008

PERMIT NO: 860-5154 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1838 DATE VIOL. ISSUED: 6/7/2006 ISSUED BY: KY DMER
VIOLATION DESCRIPTION: (1) Slide created an off-permit disturbance east of hollowfill #6.
(2) Allowed slumpage to occur exposing reclaimed highwall. Various unstable slopes show signs of slumpage.
CURRENT STATUS: TERMINATED STATUS DATE:
REQUIRED ACTIONS: (1) Return slide material to permit area. Stabliize, seed and mulch area. Permit off-permit disturbance. Regrade and revegetate areas of exposed highwall and unstable slopes.
ABATEMENT ACTIONS: Required work completed; Violation (1) terminated 11/13/2006.
Required work completed; Violation (2) terminated 7/06/2007.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: 860-5202 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-2043 DATE VIOL. ISSUED: 12/20/2007 ISSUED BY: KY DMER
VIOLATION DESCRIPTION: Code SB. Subsidence cracks have occurred above mined area

CURRENT STATUS: PENDING STATUS DATE:
REQUIRED ACTIONS: Areas affected should be sealed, graded, seeded & mulched.

ABATEMENT ACTIONS: Extension granted: 10/10/2008

PERMIT NO: 860-5202 MSHA NO: MSHA DATE:
VIOLATION NO: 43-2036 DATE VIOL. ISSUED: 6/19/2007 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: 2005 annual underground mine maps have been repeatedly submitted with incorrect information

CURRENT STATUS: TERMINATED STATUS DATE: 7/25/2007
REQUIRED ACTIONS: Submit correct map

ABATEMENT ACTIONS: Required work completed; violation terminated 7/25/2007.

PERMIT NO: 860-5202 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-0695 DATE VIOL. ISSUED: 4/20/2007 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: (1) High pH & Iron water left permitted area.
(2) High pH & Iron water left permitted area.
(3) High pH & Iron water left permitted area.
CURRENT STATUS: TERMINATED STATUS DATE: 4/20/2007
REQUIRED ACTIONS: (1) Ensure water being discharged is within allowable levels.
(2) Ensure water being discharged is within allowable levels.
(3) Ensure water being discharged is within allowable levels.
ABATEMENT ACTIONS: Required work completed; violation terminated 4/20/2007.

PERMIT NO: 860-5202 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1668 DATE VIOL. ISSUED: 4/20/2007 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: (1) Code EL. High pH & Iron water left permitted area.
(2) Code WQ. High pH & Iron water left permitted area.
(3) Code HR. High pH & Iron water left permitted area.
CURRENT STATUS: TERMINATED STATUS DATE: 7/16/2008
REQUIRED ACTIONS: (1) Ensure water being discharged is within allowable levels.
(2) Ensure water being discharged is within allowable levels.
(3) Ensure water being discharged is within allowable levels.
ABATEMENT ACTIONS: Required work completed; Violation terminated 07/16/2008

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: 860-5202 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1665 DATE VIOL. ISSUED: 3/16/2007 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: (1) Permittee has allowed water above allowable levels for both pH and Iron to leave permitted area.
(2) Water above pH and Iron levels left permitted area.
CURRENT STATUS: TERMINATED STATUS DATE: 4/2/2007
REQUIRED ACTIONS: (1) Bring water back to allowable levels.
(2) Bring water back to allowable levels.

ABATEMENT ACTIONS: Required work completed; violation terminated 4/02/2007

PERMIT NO: 860-5202 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1657 DATE VIOL. ISSUED: 6/7/2006 ISSUED BY: KY DMER
VIOLATION DESCRIPTION: Operator constructed sumps down gradient of discharge P-1 that are not within the permit boundary.

CURRENT STATUS: TERMINATED STATUS DATE: 2/15/2005
REQUIRED ACTIONS: Secure and obtain a revision or amendment to include area disturbed by sumps and post additional bond as needed.

ABATEMENT ACTIONS: Required work completed; violation terminated 2/15/2007

PERMIT NO: 860-5202 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1656 DATE VIOL. ISSUED: 5/22/2006 ISSUED BY: KY DMER
VIOLATION DESCRIPTION: (1) Code SBOperator exceeded 50% extraction ratio at head of Holbrook Branch and 6" KY-WV gas line. (2) Code OT. Failed to include an unmined coal barrier within the approved mining plan.
CURRENT STATUS: TERMINATED STATUS DATE: 3/10/2008
REQUIRED ACTIONS: (1) Revise or amend permit to allow actual extraction ratios in affected areas. (2) Revise or amend permit to include unmined coal barrier.
ABATEMENT ACTIONS: Required work completed; violations terminated 3/10/2008

PERMIT NO: 860-5202 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1655 DATE VIOL. ISSUED: 4/27/2006 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: (1), (2) & (3) Punch-out #1 (P1) is discharging water above allowable levels for total iron.

CURRENT STATUS: TERMINATED STATUS DATE: 2/15/2007
REQUIRED ACTIONS: Ensure water discharged meets total iron limits. Implement plan outlined in attachment 18.1A of Minor Revision #6.
Non-correctable for water already discharged.
ABATEMENT ACTIONS: Required work completed; Violations (1) (2) (3) terminated 2/15/2007.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: 860-5221 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1815 DATE VIOL. ISSUED: 4/11/2008 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: (1) Code SC: Failed to certify sediment structure #6.
(2) Code WM: Failed to submit quarterly water monitoring reports.
(3) Code SW: Failed to submit quarterly water monitoring reports.
CURRENT STATUS: TERMINATED STATUS DATE: 5/13/2008
REQUIRED ACTIONS: (1) Submit certification of construction for sediment structure #6.
(2) Non-Correctable
(3) Non-Correctable
ABATEMENT ACTIONS: Required work completed, violation terminated 05/13/2008.

PERMIT NO: 860-5221 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1811 DATE VIOL. ISSUED: 2/26/2008 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: (1) Code EL. Discharge of substandard water from Pond #4.
(2) Code WQ. Discharge of substandard water from Pond #4.

CURRENT STATUS: TERMINATED STATUS DATE: 2/29/2008
REQUIRED ACTIONS: (1 & 2) Must immediately stop discharge of substandard water and bring all additional discharges into compliance.

ABATEMENT ACTIONS: Required work completed; violation terminated 2/29/2008

PERMIT NO: 860-5221 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1842 DATE VIOL. ISSUED: 9/11/2006 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Permittee has failed to maintain entrance sign for Turtle Branch portals.

CURRENT STATUS: TERMINATED STATUS DATE: 9/12/2006
REQUIRED ACTIONS: Clear obstructions from Turtle Branch entrance sign and conduct routine maintenance to ensure visibility of entrance sign.

ABATEMENT ACTIONS: Required work completed; violation terminated 9/12/2006

PERMIT NO: 860-5221 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1443 DATE VIOL. ISSUED: 2/4/2006 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: (1) & (2) Allowed discharge from Pond 3 which exceeds effluent limitations for settleable solids.

CURRENT STATUS: TERMINATED STATUS DATE: 2/4/2006
REQUIRED ACTIONS: (1) & (2) Take measures necessary to bring Pond 3 discharge into compliance. Partially non-correctible since water was discharged.

ABATEMENT ACTIONS: (1) & (2) Required work completed, violations abated 2/4/2006.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: 860-5260 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1835 DATE VIOL. ISSUED: 5/4/2006 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Permittee caused an off-permit distrubance on increment #4 north of hollowfill #1 above the permitted area.

CURRENT STATUS: TERMINATED STATUS DATE: 5/24/2007
REQUIRED ACTIONS: Stabilize, regrade and seed slide area. Revise permit to include this area.

ABATEMENT ACTIONS: Required work complete, violation terminated 5/24/2007.

PERMIT NO: 860-5260 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1440 DATE VIOL. ISSUED: 10/31/2005 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Permittee caused off-permit distrubances of approx. 4 acres.

CURRENT STATUS: TERMINATED STATUS DATE: 5/24/2007
REQUIRED ACTIONS: Return disturbed area to approx. original contour. Stabilize, seed and mulch area. Submit appropriate permit changes for disturbed area.
ABATEMENT ACTIONS: Required work complete, violation terminated 5/24/2007

PERMIT NO: 860-5278 MSHA NO: MSHA DATE:
VIOLATION NO: 43-1847 DATE VIOL. ISSUED: 7/5/2007 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Code OM. Mining within 100 feet of a stream

CURRENT STATUS: TERMINATED STATUS DATE: 9/25/2008
REQUIRED ACTIONS: Submit, secure & obtain a revision

ABATEMENT ACTIONS: Required work complete; Violation terminated 09/25/2008

PERMIT NO: 860-8005 MSHA NO: 15-17021 MSHA DATE:
VIOLATION NO: 43-2047 DATE VIOL. ISSUED: 3/17/2008 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: 1) Code EL. Permitee allowed substandard discharge from Pond 005.
2) Code WQ. Permitee allowed substandard discharge from Pond 005
3) Code SC. Permitee allowed Pond 005 to exceed sediment capacity.
CURRENT STATUS: TERMINATED STATUS DATE: 3/25/2008
REQUIRED ACTIONS: 1) Cease discharge of substandard water.
2) Cease discharge of substandard water.
3) Remove sediment from Pond 005; return pond to original capacity.
ABATEMENT ACTIONS: Required work completed; violations 1&2 terminated 3/18/2008
Required work completed; violation 3 terminated 3/25/2008

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: 860-8005 MSHA NO: 15-17021 MSHA DATE: 11/30/90
VIOLATION NO: 43-1844 DATE VIOL. ISSUED: 4/11/2007 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: (1) Substandard water from ponds 2 & 5 has been discharged into stream at Fourmile Branch of Jones Fork
(2) See Above
CURRENT STATUS: TERMINATED STATUS DATE: 4/17/2007
REQUIRED ACTIONS: (1) Prevent discharge of substandard water into stream
(2) Prevent discharge of substandard water into stream

ABATEMENT ACTIONS: Required work completed; violations (1)&(2) completed

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PERMIT NO: 860-8005 MSHA NO: 15-17021 MSHA DATE: 11/30/90
VIOLATION NO: 43-1441 DATE VIOL. ISSUED: 11/29/2005 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: (1) & (2) Permittee has allowed substandard water to leave the permit.

CURRENT STATUS: TERMINATED STATUS DATE: 11/29/2005
REQUIRED ACTIONS: Take measures necessary to bring water back into compliance.
Non correctable for substandard water that has already entered the receiving stream.
ABATEMENT ACTIONS:

PERMIT NO: 860-9000 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1840 DATE VIOL. ISSUED: 7/27/2006 ISSUED BY: KY DMER
VIOLATION DESCRIPTION: Code OM. Permit is receiving material from 860-9007 for use with french drain installation on increment #1.

CURRENT STATUS: PENDING STATUS DATE:
REQUIRED ACTIONS: Secure and obtain a revision allowing the trasnport of material from 860-9007 to this permit

ABATEMENT ACTIONS: Extension granted to 12/26/2006

PERMIT NO: 860-9007 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1841 DATE VIOL. ISSUED: 7/27/2006 ISSUED BY: KY DMER
VIOLATION DESCRIPTION: (1) Material is being hauled off this permit to 860-9000 for use in french drain construction in increment #1.
(2) Permittee has blasted rock behind coarse refuse fill for removal.
CURRENT STATUS: TERMINATED STATUS DATE: 9/26/2006
REQUIRED ACTIONS: (1) Secure and obtain a revision to allow material transport.
(2) Follow approved blasting plan.

ABATEMENT ACTIONS: Modified (2) to follow approved plan 8/18/2006
Required work completed; violation (2) terminated 9/26/2006
(1) Modified and vacated 11/22/2006

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: 867-0404 MSHA NO: N/A MSHA DATE: 00/00/00
VIOLATION NO: 53-0646 DATE VIOL. ISSUED: 3/15/2007 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Permittee failed to have on the mine site the required "Blast Plan."

CURRENT STATUS: TERMINATED STATUS DATE: 3/20/2007
REQUIRED ACTIONS: Have "Blast Plan" on site before blasting resumes.

ABATEMENT ACTIONS: Required work completed; violation terminated 3/20/2007.

PERMIT NO: 867-0404 MSHA NO: N/A MSHA DATE: 00/00/00
VIOLATION NO: 53-2060 DATE VIOL. ISSUED: 12/18/2006 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: (1) Permittee has exposed highwall on the Hazard #4 coal seam;
(2) Permittee has constructed an unapproved sump/pond, which is impounding water on spoil material.
CURRENT STATUS: TERMINATED STATUS DATE:
REQUIRED ACTIONS: (1) Eliminate all exposed highwall; conduct backfill and grading
(2) Drain and conduct grading operations to eliminate sump/pond.

ABATEMENT ACTIONS: Required work complete, violations terminated 8/21/2006.

PERMIT NO: 867-0446 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 53-2550 DATE VIOL. ISSUED: 4/2/2008 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Code: CR. Exposed Highwall

CURRENT STATUS: Non-Correctable STATUS DATE: 6/16/2008
REQUIRED ACTIONS: Begin reclamation work to eliminate all highwalls.

ABATEMENT ACTIONS: Violation changed to Non-Correctable

PERMIT NO: 867-0446 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 53-2057 DATE VIOL. ISSUED: 12/14/2006 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Code CR. Permittee has exposed highwall.

CURRENT STATUS: TERMINATED STATUS DATE: 4/2/2008
REQUIRED ACTIONS: Begin reclamation work to eliminate all highwalls; seed and mulch disturbed areas.

ABATEMENT ACTIONS: Required work complete, violation terminated 4/02/2008

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: 867-0447 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 53-2109 DATE VIOL. ISSUED: 7/25/2006 ISSUED BY: KY DMER
VIOLATION DESCRIPTION: (1) Code OD. Permittee caused off-permit distrubance on sed pond P-2 extending to boundaries on increment 12, approx. 0.35 acres.
(2) Code SC. Permittee has failed to follow approved sed control plan
CURRENT STATUS: TERMINATED STATUS DATE: 6/6/2008
REQUIRED ACTIONS: (1) Permitte must seed and mulch disturbed areas and pursue Major Revision 2 to include disturbed areas.
(2) Permittee must submit sediment pond certificates and Revision 2
ABATEMENT ACTIONS: Required work completed; Violation (1) terminated 06/06/2008.
Required work completed; Violation (2) terminated 12/14/2007.

PERMIT NO: 867-5182 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 53-2555 DATE VIOL. ISSUED: 6/25/2008 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Code OD: Personnel working on behalf of Deane Mining LLC, have transported material to an area not permitted.

CURRENT STATUS: PENDING STATUS DATE:
REQUIRED ACTIONS: Immediately provide temporary sediment control for the disturbed area and begin measures to reclaim the disturbance.

ABATEMENT ACTIONS: Extension granted 11/24/2008

PERMIT NO: 867-5182 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 53-2554 DATE VIOL. ISSUED: 6/10/2008 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: 1) Code WQ: Permittee has allowed a substandard discharge.
2) Code EL: Permittee has allowed a substandard discharge.

CURRENT STATUS: PENDING STATUS DATE: 6/10/2008
REQUIRED ACTIONS: 1 & 2) Must immediately begin measures to stop the substandard discharge and install temp. treatment at the site. Must also submit a Revision that will allow an approved "designed pond."
ABATEMENT ACTIONS: Extension granted to 11/07/2008.

PERMIT NO: 867-5182 MSHA NO: MSHA DATE:
VIOLATION NO: 53-0647 DATE VIOL. ISSUED: 8/17/2007 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Failed to properly dispose and/or store non-coal waste

CURRENT STATUS: TERMINATED STATUS DATE: 11/15/2007
REQUIRED ACTIONS: Must recover and properly dispose of all non-coal waste

ABATEMENT ACTIONS: Required work completed, violation terminated 11/15/2006.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: 867-5182 MSHA NO: 15-18505 MSHA DATE:
VIOLATION NO: 53-2547 DATE VIOL. ISSUED: 10/30/2006 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Unapproved Operator - Murriell-Don Coal (failure to comply with permit term and conditions).

CURRENT STATUS: TERMINATED STATUS DATE: 3/8/2007
REQUIRED ACTIONS: Remove Operator and/or comply with permit terms and conditions and/or obtain "Operator Change Revision"

ABATEMENT ACTIONS: Required work completed; violation terminated 3/8/2007.

PERMIT NO: 867-5184 MSHA NO: MSHA DATE:
VIOLATION NO: 53-2317 DATE VIOL. ISSUED: 3/28/2008 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Code: OM. Failed to follow plans for the sealing of "punch-outs." Plans requires pipes to be installed within punch-out openings

CURRENT STATUS: Pending STATUS DATE: 3/28/2008
REQUIRED ACTIONS: Must install pipes as required by permit or obtain revision that deletes this requirement.

ABATEMENT ACTIONS: Extension granted to 10/24/2008

PERMIT NO: 867-5192 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 53-2242 DATE VIOL. ISSUED: 5/22/2006 ISSUED BY: KY DMER
VIOLATION DESCRIPTION: Permittee failed to submit quarterly and critical stage certifications for construction of Hollow-fill 1.

CURRENT STATUS: TERMINATED STATUS DATE: 9/18/2006
REQUIRED ACTIONS: Non-remedial for quarterly and critical stage certifications. Permittee must submit final certification of Hollow-fill 1.

ABATEMENT ACTIONS: Required work completed; violation terminated 9/18/2006

PERMIT NO: 867-5225 MSHA NO: N/A MSHA DATE: 00/00/00
VIOLATION NO: 53-1026 DATE VIOL. ISSUED: 4/6/2006 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Failed to comply with subsidence control plan by > 50% extraction under 8" gas line.

CURRENT STATUS: TERMINATED STATUS DATE:
REQUIRED ACTIONS: Revise permit to approve subsidence change or submit a mtigation plan for affected area.

ABATEMENT ACTIONS: Required work completed; violation terminated 7/10/2007.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: 867-9007 MSHA NO: MSHA DATE: N/A
VIOLATION NO: 53-0664 DATE VIOL. ISSUED: 11/30/2007 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Failed to maintain adequate drainage for the Coal Waste Dam

CURRENT STATUS: TERMINATED STATUS DATE: 12/14/2007
REQUIRED ACTIONS: Eastablish adequate drainage and repair damage

ABATEMENT ACTIONS: Required work completed, violation terminated 12/14/2007.

PERMIT NO: 877-0166 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-0791 DATE VIOL. ISSUED: 8/1/2008 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Code OD: Material has been trackedd from Haul Road #3 onto state road 3336.

CURRENT STATUS: TERMINATED STATUS DATE: 8/4/2008
REQUIRED ACTIONS: Retrieve all material which has been tracked onto 3336 and return it to the permitted area.

ABATEMENT ACTIONS: Required work completed: violation terminated 08/04/2008.

PERMIT NO: 877-0166 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-2079 DATE VIOL. ISSUED: 6/24/2008 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: 1) Code CR: Failed to eliminate high-wall in timely manner.
2) Code OD: Created surface disturbances outside permitted area.
3) Code OO: Operator extended past underground permit boundary
CURRENT STATUS: Pending STATUS DATE: 6/24/2008
REQUIRED ACTIONS: 1) Eliminate all remaining high-wall.
2) Obtain a revision which will bring this area within permit boundary.
3) Obtain a revision which will bring this area within permit boundary.
ABATEMENT ACTIONS: Extension granted til 11/21/2008

PERMIT NO: 877-0166 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1934 DATE VIOL. ISSUED: 3/27/2008 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: Code: UE. Failed to maintain blasting records.

CURRENT STATUS: Non-Correctable STATUS DATE: 3/27/2008
REQUIRED ACTIONS: Contract blasting company no longer operating on site.

ABATEMENT ACTIONS:

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: 877-0166 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1662 DATE VIOL. ISSUED: 9/26/2006 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: (1) Permittee extended exposed high-wall beyond the permitted 6000 feet to 10,350 feet.
(2) Permitte has failed to submit final certifications of construction.
CURRENT STATUS: TERMINATED STATUS DATE:
REQUIRED ACTIONS: (1) Backfill, grade, fertilize, seed and mulch exposed high-wall to achieve the approved 6000 feet.
(2) Submit final certifications of construction for SS#2 and SS#12
ABATEMENT ACTIONS: (1) Required work completed; violation (1) terminated 08/22/2007
(2) Required work completed; violation (2) terminated 04/24/2007

PERMIT NO: 877-0166 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: 43-1661 DATE VIOL. ISSUED: 9/12/2006 ISSUED BY: KY DSMRE
VIOLATION DESCRIPTION: (1) Operator allowed debris associated with a blast to leave permitted area.
(2) Operator allowed rocks and debris to pass from permitted area.
CURRENT STATUS: TERMINATED STATUS DATE: 12/11/2006
REQUIRED ACTIONS: (1) Cease all blasting and obtain approval of a blast remediation plan.
(2) Remove all debris from property and return material to permitted area.
ABATEMENT ACTIONS: Required work completed; violation (1) terminated 9/26/2006.
Required work completed; violation (2) terminated 12/11/2006

PERMIT NO: O-24-82 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: O-24-82 (15) DATE VIOL. ISSUED: 12/7/2005 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to properly maintain haulroad sumps.

CURRENT STATUS: TERMINATED STATUS DATE: 2/1/2006
REQUIRED ACTIONS: Clean out or replace sumps as needed.

ABATEMENT ACTIONS: Required work completed. Violation terminated 2/1/2006.

PERMIT NO: S-5038-93 MSHA NO: 46-09138 MSHA DATE: n/a
VIOLATION NO: S-5038-93 (15) DATE VIOL. ISSUED: 4/24/2007 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: (1) Failed to properly construct sediment control sytem.

CURRENT STATUS: TERMINATED STATUS DATE: 5/15/2007
REQUIRED ACTIONS: Construct and certify sediment control system.

ABATEMENT ACTIONS:

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: S-5038-93 MSHA NO: 46-09138 MSHA DATE: n/a
VIOLATION NO: S-5038-93 (14) DATE VIOL. ISSUED: 2/13/2007 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to maintain haulroads in result mud and debris was tracked across paved area of haulroad and onto Rt. 52.

CURRENT STATUS: TERMINATED STATUS DATE: 2/28/2007
REQUIRED ACTIONS: Upgrade drainage and provide durable surface for length of haulroad; grade road so water drains into ditches.

ABATEMENT ACTIONS: Required work completed; violation terminated 2/28/2007.

PERMIT NO: S-5038-93 MSHA NO: 46-09138 MSHA DATE: n/a
VIOLATION NO: S-5038-93 (13) DATE VIOL. ISSUED: 9/6/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Muddy discharge flowed from Pond 1103/Outlet 003 and access road to Pond 1103 onto road branch.

CURRENT STATUS: TERMINATED STATUS DATE: 10/25/2006
REQUIRED ACTIONS: Re-establish and add capacity to any upstream rock checks and sumps. Install turbidity curtains in Pond 1103 and treat water if necessary.
ABATEMENT ACTIONS: Required work completed; violation terminated 10/25/2006

PERMIT NO: S-5038-93 MSHA NO: n/a MSHA DATE: n/a
VIOLATION NO: S-5038-93 (12) DATE VIOL. ISSUED: 8/17/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to maintain an infrequently used access road, allowing standing water and causing ruts; road does not meet performance standards.
CURRENT STATUS: TERMINATED STATUS DATE: 10/17/2006
REQUIRED ACTIONS: Regrade surface, re-establish ditch line with sumps and pipes, reconstruct berm along road edge.

ABATEMENT ACTIONS: Required work completed; violation terminated 10/17/2006

PERMIT NO: S-5038-93 MSHA NO: n/a MSHA DATE: n/a
VIOLATION NO: S-5038-93 (11) DATE VIOL. ISSUED: 8/8/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee had spoill, debris, trees, and rock on the downslope, some of it falling offsite/out of permitted area.

CURRENT STATUS: TERMINATED STATUS DATE: 9/28/2006
REQUIRED ACTIONS: Provide a progress map of the permit area; remove all debris from area and regrade, seed, and mulch affected area.

ABATEMENT ACTIONS: Required work completed; violation terminated 9/28/2006

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: S-5038-93 MSHA NO: n/a MSHA DATE: n/a
VIOLATION NO: S-5038-93 (10) DATE VIOL. ISSUED: 6/16/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to protect offsite areas by depositing waste outside permit area.

CURRENT STATUS: TERMINATED STATUS DATE: 6/30/2006
REQUIRED ACTIONS: Minimize dust by watering trucks and roads; Meet with DEP to decide on long term protection with blacktop and chemical minimizing coating on gravel roads.
ABATEMENT ACTIONS: Required work completed; violation terminated 6/30/2006

PERMIT NO: S-5038-93 MSHA NO: n/a MSHA DATE: n/a
VIOLATION NO: S-5038-93 (9) DATE VIOL. ISSUED: 6/15/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to clear trees, brush, and other organics above ground level, causing spill into the tree line.

CURRENT STATUS: TERMINATED STATUS DATE: 6/30/2006
REQUIRED ACTIONS: Clear and grub trees and organic material, ensuring the disposal of material is not in the confines of the fill.

ABATEMENT ACTIONS: Required work completed; violation terminated 6/30/2006

PERMIT NO: S-5038-93 MSHA NO: n/a MSHA DATE: n/a
VIOLATION NO: S-5038-93 (8) DATE VIOL. ISSUED: 6/8/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to maintain haulroad.

CURRENT STATUS: TERMINATED STATUS DATE: 6/8/2006
REQUIRED ACTIONS: Clean affected portions of road, dry and resurface any gravel areas.

ABATEMENT ACTIONS: Required work completed; violation terminated 6/8/2006

PERMIT NO: S-5038-93 MSHA NO: n/a MSHA DATE: n/a
VIOLATION NO: S-5038-93 (7) DATE VIOL. ISSUED: 4/10/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to construct and certify drainage control structures prior to disturbances in areas MM, DD and II.

CURRENT STATUS: PENDING STATUS DATE:
REQUIRED ACTIONS: Properly construct and certify sediment control structures in areas MM, DD and II.

ABATEMENT ACTIONS: Compliance deadline extended to 4/26/2006.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: S-5038-93 MSHA NO: n/a MSHA DATE: n/a
VIOLATION NO: S-5038-93 (6) DATE VIOL. ISSUED: 4/10/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to properly construct Fill #1102 to prevent water from discharging over the face of the fill.

CURRENT STATUS: TERMINATED STATUS DATE: 4/20/2006
REQUIRED ACTIONS: Construct and maintain Fill #1102 to prevent drainage of water over face of fill. Also provide proper rock filled side drains.

ABATEMENT ACTIONS: Required work completed; violation terminated on 4/20.2006.

PERMIT NO: S-5038-93 MSHA NO: n/a MSHA DATE: n/a
VIOLATION NO: S-5038-93 (5) DATE VIOL. ISSUED: 3/14/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to protect off-site areas by building a chain link fence and gate on the NW side of old US 52

CURRENT STATUS: WITHDRAWN STATUS DATE: 4/6/2006
REQUIRED ACTIONS: Remove the fence and gate or permit it with an IBR

ABATEMENT ACTIONS: Action taken to abate; NOV 5 is withdrawn.

PERMIT NO: S-5038-93 MSHA NO: n/a MSHA DATE: n/a
VIOLATION NO: S-5038-93 (4) DATE VIOL. ISSUED: 2/2/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to maintain complete and accurate blasting logs for shot numbers 1-8.

CURRENT STATUS: TERMINATED STATUS DATE: 2/9/2006
REQUIRED ACTIONS: Permittee is to attach corrected, accurate and complete blasting logs to deficient copy of each blasting log.

ABATEMENT ACTIONS: Required work completed, violation terminated 2/9/2006.

PERMIT NO: S-5038-93 MSHA NO: n/a MSHA DATE: n/a
VIOLATION NO: S-5038-93 (3) DATE VIOL. ISSUED: 10/28/2005 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Off-permit disturbance

CURRENT STATUS: TERMINATED STATUS DATE: 11/16/2005
REQUIRED ACTIONS: Maintain slide are by revegatation or best management practices.

ABATEMENT ACTIONS: Required work completed, violation terminated.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: S-5039-93 MSHA NO: 46-09035 MSHA DATE: N/A
VIOLATION NO: S-5039-93 (22) DATE VIOL. ISSUED: 2/13/2007 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to maintain haulroads in which the haulroad was extremely muddy and water was not draining properly.

CURRENT STATUS: TERMINATED STATUS DATE: 2/28/2007
REQUIRED ACTIONS: Upgrade drainage and provide durable surface for entire length of haulroad.

ABATEMENT ACTIONS: Required work completed; vilation terminated 2/28/2007.

PERMIT NO: S-5039-93 MSHA NO: na MSHA DATE: na
VIOLATION NO: S-5039-93 (20) DATE VIOL. ISSUED: 12/5/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to control runoff and divert surface from the face of DRF 1301.

CURRENT STATUS: TERMINATED STATUS DATE: 1/2/2007
REQUIRED ACTIONS: Divert surface off of the face of fill and work erosion gullies.

ABATEMENT ACTIONS: Required actions completed. Violation terminated.

PERMIT NO: S-5039-93 MSHA NO: na MSHA DATE: na
VIOLATION NO: S-5039-93 (21) DATE VIOL. ISSUED: 12/5/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to completely reclaim DRF 1301 before entering phase 4.

CURRENT STATUS: TERMINATED STATUS DATE: 3/14/2007
REQUIRED ACTIONS: Reclaim DRF 1301 and all other areas; submit final certification.

ABATEMENT ACTIONS: Required work completed; violation terminated 3/14/2007.

PERMIT NO: S-5039-93 MSHA NO: na MSHA DATE: na
VIOLATION NO: S-5039-93 (19) DATE VIOL. ISSUED: 8/23/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Construction of fill 1301 is not in accordance with the preplan of revision 4 which modified the fill design.

CURRENT STATUS: TERMINATED STATUS DATE: 12/5/2006
REQUIRED ACTIONS: Construct fill 1301 according to Revision 4 or submit approval for a revision/IBR to the permit, providing re-designs for the fill.

ABATEMENT ACTIONS: Required work completed; violation terminated 12/5/2006

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: S-5039-93 MSHA NO: na MSHA DATE: na
VIOLATION NO: S-5039-93 (18) DATE VIOL. ISSUED: 4/10/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to maintain Haulroad A-13-1 by allowing a slide to block the drainage ditch and direct muddy runoff into Miller Creek.

CURRENT STATUS: TERMINATED STATUS DATE: 4/20/2006
REQUIRED ACTIONS: Stop muddy water discharge, cleanout ditch and ditch sumps. Take actions necessary to prevent future occurrences.

ABATEMENT ACTIONS: Required work completed, violation terminated 4/20/2006.

PERMIT NO: S-5039-93 MSHA NO: na MSHA DATE: na
VIOLATION NO: S-5039-93 (17) DATE VIOL. ISSUED: 12/1/2005 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Allowed off-site disturbance to occur.

CURRENT STATUS: TERMINATED STATUS DATE: 1/17/2006
REQUIRED ACTIONS: Reclaim off-site disturbance area. Show disturbance area or IBR or Revision map.

ABATEMENT ACTIONS: Required work completed, violation terminated 1/17/2006.

PERMIT NO: S-5039-93 MSHA NO: na MSHA DATE: na
VIOLATION NO: S-5039-93 (16) DATE VIOL. ISSUED: 10/28/2005 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to provide progress maps within 30 days as required by order.

CURRENT STATUS: TERMINATED STATUS DATE: 11/15/2005
REQUIRED ACTIONS: Provide progress maps to inspector by 11/11/2005.

ABATEMENT ACTIONS: Required work completed, violation terminated.

PERMIT NO: S-5039-93 MSHA NO: na MSHA DATE: na
VIOLATION NO: S-5039-93 (15) DATE VIOL. ISSUED: 10/28/2005 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to properly construct and certify sediment ditches.

CURRENT STATUS: TERMINATED STATUS DATE: 1/3/2006
REQUIRED ACTIONS: Construct and certify sediment ditches in 1,000 ft. sections as required.

ABATEMENT ACTIONS: Required work completed, violation terminated.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: S-5040-93 MSHA NO: 46-09035 MSHA DATE: na
VIOLATION NO: S-5040-93 (10) DATE VIOL. ISSUED: 4/25/2007 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: (1) Failed to protect offsite areas from surface mining operations; material is outside permit area.

CURRENT STATUS: TERMINATED STATUS DATE: 6/1/2007
REQUIRED ACTIONS: Remove material from offsite area.

ABATEMENT ACTIONS:

PERMIT NO: S-5040-93 MSHA NO: 46-09035 MSHA DATE: na
VIOLATION NO: S-5040-93 (9) DATE VIOL. ISSUED: 2/13/2007 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to maintain haulroads in which the haulroad was extremely muddy and water was not draining peroperly.

CURRENT STATUS: TERMINATED STATUS DATE: 2/28/2007
REQUIRED ACTIONS: Upgrade drainage and provide durable surface for entire length of haulroad.

ABATEMENT ACTIONS: Required work completed; violation terminated 2/28/2007.

PERMIT NO: S-5040-93 MSHA NO: na MSHA DATE: na
VIOLATION NO: S-5040-93 (8) DATE VIOL. ISSUED: 10/17/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee had spoil, debris, trees, and rock on the downslope.

CURRENT STATUS: TERMINATED STATUS DATE: 12/5/2006
REQUIRED ACTIONS: Remove all debris, trees, and rock; regrade; seed. Update map.

ABATEMENT ACTIONS: Required work completed; violation terminated 12/5/2006

PERMIT NO: S-5040-93 MSHA NO: na MSHA DATE: na
VIOLATION NO: S-5040-93 (7) DATE VIOL. ISSUED: 7/25/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to maintain haulroad, specifically drainage control.

CURRENT STATUS: TERMINATED STATUS DATE: 9/14/2006
REQUIRED ACTIONS: Clean haulroad sumps and ensure the ditchline is free of obstructions; Rework drainage by constructing a berm; regrade and revegetate eroded slide area.
ABATEMENT ACTIONS: Required work completed; violation terminated 9/14/2006

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: S-5040-93 MSHA NO: na MSHA DATE: na
VIOLATION NO: S-5040-93 (6) DATE VIOL. ISSUED: 7/25/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to certify prior to activities in a drainage area, temp sediment ditches SD-II, SD-GG, SD-FF.

CURRENT STATUS: TERMINATED STATUS DATE: 8/31/2006
REQUIRED ACTIONS: Cease any further disburbance until obtain temporary certification for those drainage areas.

ABATEMENT ACTIONS: Required work completed; violation terminated 8/31/2006

PERMIT NO: S-5040-93 MSHA NO: na MSHA DATE: na
VIOLATION NO: S-5040-93 (5) DATE VIOL. ISSUED: 6/7/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to maintain peak particle velocity limits for shot #137, causing a reading of 1.37 PPV (limit was 1.25 PPV)

CURRENT STATUS: TERMINATED STATUS DATE: 6/9/2006
REQUIRED ACTIONS: Ensure that all PPV limits are adhered to or obtain a blasting waiver.

ABATEMENT ACTIONS: Required work completed; violation terminated 6/9/2006

PERMIT NO: S-5040-93 MSHA NO: na MSHA DATE: na
VIOLATION NO: S-5040-93 (4) DATE VIOL. ISSUED: 5/3/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee blasting caused off-site disturbance in that spoil and debris kicked out to an area downslope of the Coalburg outcrop.

CURRENT STATUS: TERMINATED STATUS DATE: 6/22/2006
REQUIRED ACTIONS: Reclaim the disturbed area and provide a progress map showing off-site disturbance.

ABATEMENT ACTIONS: Required work completed, violation terminated 6/22/2006.

PERMIT NO: S-5040-93 MSHA NO: na MSHA DATE: na
VIOLATION NO: S-5040-93 (3) DATE VIOL. ISSUED: 3/14/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee blasting exceeded airblast limits for shots #77B,#92, #104 and #125 and exceeded peak particle velocity limit for shot #125.

CURRENT STATUS: TERMINATED STATUS DATE: 3/14/2006
REQUIRED ACTIONS: Violation is non-remedial. Operator must ensure that future blasting is conducted within permit limits.

ABATEMENT ACTIONS: Violation is non-remedial.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO: S-5040-93 MSHA NO: na MSHA DATE: na
VIOLATION NO: S-5040-93 (2) DATE VIOL. ISSUED: 2/3/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee caused off-site disturbances.

CURRENT STATUS: TERMINATED STATUS DATE: 5/10/2006
REQUIRED ACTIONS: Reclaim slide area and clean affected portions of Parker Creek. Reclaim logging areas. Submit a progress map showing off-site disturbance areas.
ABATEMENT ACTIONS: Required work completed, violation terminated 5/10/2006.

PERMIT NO: S-5040-93 MSHA NO: na MSHA DATE: na
VIOLATION NO: S-5040-93 (1) DATE VIOL. ISSUED: 10/28/2005 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to properly construct and certify sediment control structures as required.

CURRENT STATUS: TERMINATED STATUS DATE: 1/17/2006
REQUIRED ACTIONS: Properly construct and certify sediment control structures as required by permit.

ABATEMENT ACTIONS: Required work completed, violation terminated 1/17/2006.

PERMIT NO: U-5038-86 MSHA NO: 46-06760 MSHA DATE: 1/16/1987
VIOLATION NO: U-5038-86 (15) DATE VIOL. ISSUED: 1/16/2008 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to prevent tacking off permit in that coal fines are being carried onto 119 by trucks.

CURRENT STATUS: PENDING STATUS DATE:
REQUIRED ACTIONS: Stop coal haulage from haulroad. Clean haulroad.

ABATEMENT ACTIONS:

PERMIT NO: U-5038-86 MSHA NO: 46-06760 MSHA DATE:
VIOLATION NO: U-5038-86 (14) DATE VIOL. ISSUED: 9/6/2007 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to follow the approved mining limits of the permit.

CURRENT STATUS: PENDING STATUS DATE:
REQUIRED ACTIONS: Cease activity outside approved mining limits.

ABATEMENT ACTIONS:

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: CONSOL of Kentucky Inc.

PERMIT NO:	U-5038-86	MSHA NO:	46-06760	MSHA DATE:	1/16/1987
VIOLATION NO:	U-5038-86 (13)	DATE VIOL. ISSUED:	8/15/2006	ISSUED BY:	WV DEP

VIOLATION DESCRIPTION: Permittee failed to construct and maintain access road to vent borehole according to IBR 4 requirements.

CURRENT STATUS: TERMINATED STATUS DATE: 9/28/2006

REQUIRED ACTIONS: Construct and maintain the access road and drill site using all necessary methods for sediment control.

ABATEMENT ACTIONS: Required work completed. Violation terminated 9/28/2006.

PERMIT NO:	U-5038-86	MSHA NO:	46-06760	MSHA DATE:	1/16/1987
VIOLATION NO:	U-5038-86 (12)	DATE VIOL. ISSUED:	2/1/2006	ISSUED BY:	WV DEP

VIOLATION DESCRIPTION: Permittee indiscriminately dumped or discarded petroleum products by failing to plug the secondary containment drain of the diesel fuel tank.

CURRENT STATUS: TERMINATED STATUS DATE: 3/9/2006

REQUIRED ACTIONS: Plug secondary containment drain. Remove and properly dispose of any contaminated soils.

ABATEMENT ACTIONS: Required work completed. Violation terminated 3/9/2006.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: Consolidation Coal Company

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PERMIT NO: 1400047 MSHA NO: 44-04856 MSHA DATE: n/a
VIOLATION NO: WHW0004813 DATE VIOL. ISSUED: 11/13/2006 ISSUED BY: VA DMLR
VIOLATION DESCRIPTION: Destroyed berm at vent shaft 12-development area, restricting the surface drainage from passing through an approved siltation structure.

CURRENT STATUS: TERMINATED STATUS DATE: 11/13/2006
REQUIRED ACTIONS: N/A - operator fixed berm during inspection

ABATEMENT ACTIONS: Required work completed; violation terminated 11/13/2006

PERMIT NO: 30841312 MSHA NO: 46-01968 MSHA DATE: n/a
VIOLATION NO: DATE VIOL. ISSUED: 10/16/2006 ISSUED BY: PA DEP
VIOLATION DESCRIPTION: Failure to notify the department of the subsidence damage claim.

CURRENT STATUS: TERMINATED STATUS DATE: 10/21/2006
REQUIRED ACTIONS: Complete a Mine Operator's Fax Report.

ABATEMENT ACTIONS:

PERMIT NO: 30841312 MSHA NO: 46-01968 MSHA DATE: n/a
VIOLATION NO: 209947 DATE VIOL. ISSUED: 7/13/2006 ISSUED BY: PA DEP
VIOLATION DESCRIPTION: Failed to perform water supply survey.

CURRENT STATUS: TERMINATED STATUS DATE: 10/19/2006
REQUIRED ACTIONS: Perform water supply survey.

ABATEMENT ACTIONS: Required work complted, violation terminated.

PERMIT NO: 30841312 MSHA NO: 46-01968 MSHA DATE: n/a
VIOLATION NO: 201653 DATE VIOL. ISSUED: 10/27/2005 ISSUED BY: PA DEP
VIOLATION DESCRIPTION: Failed to notify department of water loss.

CURRENT STATUS: TERMINATED STATUS DATE: 11/2/2005
REQUIRED ACTIONS: Submit required notice within five days.

ABATEMENT ACTIONS: Required report submitted on 11/2/2005.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: Consolidation Coal Company

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PERMIT NO: 30841313 MSHA NO: 36-04281 MSHA DATE: 08/13/86
VIOLATION NO: DATE VIOL. ISSUED: 11/13/2006 ISSUED BY: PA DEP
VIOLATION DESCRIPTION: Failed to provide copies of water analysis.

CURRENT STATUS: TERMINATED STATUS DATE: 11/17/2006
REQUIRED ACTIONS: Provide copies of water analysis.

ABATEMENT ACTIONS: Required work completed; violation terminated.

PERMIT NO: ACT/015/015 MSHA NO: 42-00079 MSHA DATE: 05/13/75
VIOLATION NO: N 06-39-2-1 DATE VIOL. ISSUED: 2/15/2006 ISSUED BY: UT DOGM
VIOLATION DESCRIPTION: Permittee constructed coal sampling building and two small conveyors without Division approval.

CURRENT STATUS: TERMINATED STATUS DATE: 3/10/2006
REQUIRED ACTIONS: Permittee must submit a permit amendment to receive approval for sample building and conveyors.
Revise text and maps accordingly.
ABATEMENT ACTIONS: Required work completed; violation terminated 3/10/2006

PERMIT NO: C0150015 MSHA NO: MSHA DATE:
VIOLATION NO: 10018 DATE VIOL. ISSUED: 1/22/2008 ISSUED BY: Utah DOGM
VIOLATION DESCRIPTION: Failure to obtain a permit prior to mining and reclamation activities.

CURRENT STATUS: TERMINATED STATUS DATE: 4/24/2008
REQUIRED ACTIONS: Must obtain an approved permit amendment that allows the storage yard expansion and fence relocation at the 4th east portals or return the facilities to the approved status.
ABATEMENT ACTIONS:

PERMIT NO: C0150015 MSHA NO: MSHA DATE:
VIOLATION NO: 10005 DATE VIOL. ISSUED: 6/14/2007 ISSUED BY: Utah DOGM
VIOLATION DESCRIPTION:

CURRENT STATUS: TERMINATED STATUS DATE: 4/16/2008
REQUIRED ACTIONS:

ABATEMENT ACTIONS:

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: Consolidation Coal Company

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PERMIT NO: D-2100 MSHA NO: 33-03214 MSHA DATE: 1/1/74
VIOLATION NO: 19299 DATE VIOL. ISSUED: 6/22/2006 ISSUED BY: OH DMRM
VIOLATION DESCRIPTION: Permittee failed to submit annual map and report for the 5th mining year.

CURRENT STATUS: PENDING STATUS DATE:
REQUIRED ACTIONS:

ABATEMENT ACTIONS:

PERMIT NO: D-2100 MSHA NO: 33-03214 MSHA DATE: 1/1/74
VIOLATION NO: 19855 DATE VIOL. ISSUED: 5/30/2006 ISSUED BY: OH DMRM
VIOLATION DESCRIPTION: Drainage not going to a sediment pond

CURRENT STATUS: TERMINATED STATUS DATE: 8/21/2006
REQUIRED ACTIONS:

ABATEMENT ACTIONS: Required work completed; violation terminated 8/21/2006.

PERMIT NO: O-1022-92 MSHA NO: MSHA DATE:
VIOLATION NO: 001 DATE VIOL. ISSUED: 6/7/2007 ISSUED BY: WVDEP
VIOLATION DESCRIPTION: Failed to clean out sediment control structures.

CURRENT STATUS: TERMINATED STATUS DATE: 8/24/2007
REQUIRED ACTIONS: Clean out Courtney Run AMD ponds to design capacity.

ABATEMENT ACTIONS:

PERMIT NO: P-2021-07 MSHA NO: MSHA DATE:
VIOLATION NO: P-2021-07 (1) DATE VIOL. ISSUED: 1/31/2008 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to install haybales & sediment fences to control soil erosion

CURRENT STATUS: PENDING STATUS DATE:
REQUIRED ACTIONS: Corrently install haybales & silt fences. Stbilize any disturbed areas.

ABATEMENT ACTIONS:

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: Consolidation Coal Company

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PERMIT NO: P-2034-07 MSHA NO: MSHA DATE:
VIOLATION NO: P-2034-07 (1) DATE VIOL. ISSUED: 1/22/2008 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to notify Environmental Inspector 5 days prior to operation

CURRENT STATUS: TERMINATED STATUS DATE: 2/1/2008
REQUIRED ACTIONS: Notify inspector prior to moving drilling equipment.

ABATEMENT ACTIONS: Violation Terminated: 2/01/2008

PERMIT NO: S-4004-03 MSHA NO: 46-09001 MSHA DATE: NA
VIOLATION NO: S-4004-03 (5) DATE VIOL. ISSUED: 7/13/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Blasting fees have not been paid for first quarter 2006.

CURRENT STATUS: TERMINATED STATUS DATE: 7/27/2006
REQUIRED ACTIONS: Submit blasting fees.

ABATEMENT ACTIONS: Required actions completed. Violation terminated.

PERMIT NO: S-4004-03 MSHA NO: 46-09001 MSHA DATE: NA
VIOLATION NO: S-4004-03 (4) DATE VIOL. ISSUED: 5/2/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Operator failed to maintain/construct drainage area & pond properly.

CURRENT STATUS: TERMINATED STATUS DATE: 5/17/2006
REQUIRED ACTIONS: Construct drainage ditch so all drainage area in area K will flow into pond K.

ABATEMENT ACTIONS: Required actions completed. Violation terminated.

PERMIT NO: S-5009-05 MSHA NO: MSHA DATE:
VIOLATION NO: S-5009-05 (3) DATE VIOL. ISSUED: 4/18/2007 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: (1)Failed to properly construct sediment control system in accordance with pre-plan, S.D.1 have not been constructed and certified after pit removal
CURRENT STATUS: TERMINATED STATUS DATE: 4/24/2007
REQUIRED ACTIONS: (1) Construct and certify SD1

ABATEMENT ACTIONS: Required work completed; violation terminated 4/24/2007.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: Consolidation Coal Company

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PERMIT NO: S-5009-05 MSHA NO: MSHA DATE:
VIOLATION NO: S-5009-05 (2) DATE VIOL. ISSUED: 12/20/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Sediment Ditch 1 was filled up with rock and material from working area, for about 200 feet.

CURRENT STATUS: TERMINATED STATUS DATE: 1/5/2007
REQUIRED ACTIONS: Remove all material from ditch and re-establish sediment control. Mining is to cease until all remedial measures have been met.

ABATEMENT ACTIONS: Required actions completed, violation terminated 1/5/2007.

PERMIT NO: S-5009-05 MSHA NO: MSHA DATE:
VIOLATION NO: S-5009-05 (1) DATE VIOL. ISSUED: 12/1/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee placed trees, spoil, and debris on the downslope.

CURRENT STATUS: TERMINATED STATUS DATE: 12/20/2006
REQUIRED ACTIONS: Remove all tress, spoil, and debris; seed area; update progress map.

ABATEMENT ACTIONS: Required work completed, violation terminated.

PERMIT NO: U-1025-91 MSHA NO: 46-01436 MSHA DATE: n/a
VIOLATION NO: U-1025-91 (43) DATE VIOL. ISSUED: 11/13/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Discharge at the 2-South Airshaft site, Pond #1 discolored Boggs Run.

CURRENT STATUS: TERMINATED STATUS DATE: 11/27/2006
REQUIRED ACTIONS: Cease all water discharges at Outlet #021 that fail to comply with effluent limitations; implement measures at Pond #1 that will properly handle the cuttings material.
ABATEMENT ACTIONS: Required work completed, violation terminated.

PERMIT NO: U-1025-92 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: U-1025-92 (16) DATE VIOL. ISSUED: 4/14/2007 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to apply mulch to areas disturbed by surface mining, stabilize & protect surface areas, effectively control erosion, and attendant air and water pollution.
CURRENT STATUS: TERMINATED STATUS DATE: 4/24/2007
REQUIRED ACTIONS: Mulch all disturbed areas.

ABATEMENT ACTIONS:

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: Consolidation Coal Company

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PERMIT NO: U-1025-92 MSHA NO: 46-013318 MSHA DATE: N/A
VIOLATION NO: U-1025-92 (19) DATE VIOL. ISSUED: 4/14/2007 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to maintain effuent limits set forth in the NPDES permit.

CURRENT STATUS: TERMINATED STATUS DATE: 4/15/2007
REQUIRED ACTIONS: Treat water to meet applicable effluent limits.

ABATEMENT ACTIONS:

PERMIT NO: U-1025-92 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: U-1025-92 (17) DATE VIOL. ISSUED: 4/14/2007 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to pass all runoff from disturbed area through the sedimentation control system.

CURRENT STATUS: PENDING STATUS DATE:
REQUIRED ACTIONS: Collect & capture all runoff from the disturbance in the area.

ABATEMENT ACTIONS:

PERMIT NO: U-1025-92 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: U-1025-92 (18) DATE VIOL. ISSUED: 4/14/2007 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to protect off-site areas from damage during surface-mining & not deposit spoil material or locate any part of operations or waste accumulation outside permit area.
CURRENT STATUS: TERMINATED STATUS DATE:
REQUIRED ACTIONS: Remove accumulated sediment & debris from Rt. 8 & culvert, and remove sediment & debris from the Gaskins property, or compensate the owners, and replace hay & other property damaged or compensate the owners.
ABATEMENT ACTIONS: Required work completed; violation terminated 5/14/2007

PERMIT NO: U-1025-92 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: U-1025-92 (15) DATE VIOL. ISSUED: 11/14/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to maintain sediment control

CURRENT STATUS: TERMINATED STATUS DATE: 11/21/2006
REQUIRED ACTIONS: Restore temporary sediment control, clean sumps at all access road culverts.

ABATEMENT ACTIONS: Required actions completed. Violation terminated.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: Consolidation Coal Company

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PERMIT NO: U-1025-92 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: U-1025-92 (14) DATE VIOL. ISSUED: 11/14/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Off-permit disturbances.

CURRENT STATUS: TERMINATED STATUS DATE: 4/11/2007
REQUIRED ACTIONS: Include off-permit disturbance into permitted area by obtaining approval of an IBR or permit that provides bond for these areas or cease use of these areas and reclaim them to their pre-mining use.
ABATEMENT ACTIONS: Required work completed; violation terminated 4/11/2007.

PERMIT NO: U-1025-92 MSHA NO: N/A MSHA DATE: N/A
VIOLATION NO: U-1025-92 (13) DATE VIOL. ISSUED: 6/22/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: (1) Failed to properly install sediment control system
(2) Failed to maintain silt fence

CURRENT STATUS: TERMINATED STATUS DATE: 6/29/2006
REQUIRED ACTIONS: (1) Install and certify an approved sediment control system for disturbed areas
(2) Cease surface mining activity that could increase in run-off solids

ABATEMENT ACTIONS: Required work completed; violation terminated 6/29/2006

PERMIT NO: U-1025-92 MSHA NO: 46-01318 MSHA DATE: n/a
VIOLATION NO: U-1025-92 (12) DATE VIOL. ISSUED: 3/6/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to follow approved blasting plan.

CURRENT STATUS: TERMINATED STATUS DATE: 3/6/2006
REQUIRED ACTIONS: Blast logs will be provided as required. Approved blasting plan will be follwoed.

ABATEMENT ACTIONS: Required work completed, violation terminated.

PERMIT NO: U-104-83 MSHA NO: 46-013318 MSHA DATE:
VIOLATION NO: U-104-83 (70) DATE VIOL. ISSUED: 8/24/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: (1) Disturbed 1250 feet of access road to 12-A-1-CCR borehole
(2) Access road is not on bonded area

CURRENT STATUS: TERMINATED STATUS DATE: 9/20/2007
REQUIRED ACTIONS: (1) & (2) Include off-permit disturbance into the permitted area by obtaining IBR or surface permit with bond or stop using access roads.

ABATEMENT ACTIONS: Extension granted to 7/20/2007.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: Consolidation Coal Company

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PERMIT NO: U-104-83 MSHA NO: 46-01318 MSHA DATE: n/a
VIOLATION NO: U-104-83 (69) DATE VIOL. ISSUED: 10/25/2005 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee conducted full extraction in area not allowed.

CURRENT STATUS: TERMINATED STATUS DATE: 12/23/2005
REQUIRED ACTIONS: Refrain from full extraction in remaining areas as designated by permit documents.

ABATEMENT ACTIONS: Required work completed, violation terminated.

PERMIT NO: U-119-83 MSHA NO: 46-01453 MSHA DATE: 00/00/00
VIOLATION NO: U-119-83 (28) DATE VIOL. ISSUED: 12/7/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Seep at Bethel Pump has caused stream pollution.

CURRENT STATUS: TERMINATED STATUS DATE: 2/28/2007
REQUIRED ACTIONS: Get electricity and install pumps at Bethel Pump site, collect seep water and dispose of collected water properly.

ABATEMENT ACTIONS: Required work completed; violation terminated 2/28/2007.

PERMIT NO: U-70-83 MSHA NO: 01452 MSHA DATE:
VIOLATION NO: U-70-83 (41) DATE VIOL. ISSUED: 7/13/2007 ISSUED BY: WVDEP
VIOLATION DESCRIPTION: Failed to minimize the disturbance to the hydrologic balance of Little Indian Creek due to a leak in the pipeline.

CURRENT STATUS: TERMINATED STATUS DATE:
REQUIRED ACTIONS: Shut down pump and repair leak.

ABATEMENT ACTIONS: Required work completed: violation terminated 7/17/2007

PERMIT NO: U-70-83 MSHA NO: 01452 MSHA DATE:
VIOLATION NO: U-70-83 (40) DATE VIOL. ISSUED: 6/5/2007 ISSUED BY: WVDEP
VIOLATION DESCRIPTION: Failed to certify that the drainage system was constructed and installed in accordance with the approved plan.

CURRENT STATUS: TERMINATED STATUS DATE:
REQUIRED ACTIONS: Submit drainage certification.

ABATEMENT ACTIONS: Required work completed: violation terminated 7/18/2007

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: Consolidation Coal Company

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PERMIT NO: U-70-83 MSHA NO: 01452 MSHA DATE:
VIOLATION NO: U-70-83 (39) DATE VIOL. ISSUED: 6/5/2007 ISSUED BY: WVDEP
VIOLATION DESCRIPTION: Failed to follow permit conditions

CURRENT STATUS: PENDING STATUS DATE:
REQUIRED ACTIONS: Implement and complete the modifcations approved in Revision 25

ABATEMENT ACTIONS:

PERMIT NO: U-70-83 MSHA NO: 46-01452 MSHA DATE: n/a
VIOLATION NO: U-70-83 (38) DATE VIOL. ISSUED: 4/3/2007 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: (1)Failed to maintain approved drainage system.

CURRENT STATUS: PENDING STATUS DATE:
REQUIRED ACTIONS: (1) Repair, dress, seed and mulch drainage ditches and gullies.
Regrade and dress haul road.

ABATEMENT ACTIONS:

PERMIT NO: U-78-83 MSHA NO: 46-01433 MSHA DATE: n/a
VIOLATION NO: U-78-83 (37) DATE VIOL. ISSUED: 10/25/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee discharged muddy water causing discoloration in Pyles Fork
by pumping from sediment pond during construction.

CURRENT STATUS: TERMINATED STATUS DATE: 10/30/2006
REQUIRED ACTIONS: Eliminate discharge or treat water to meet effluent limitations.
Discharge through a permitted NPDES discharge point.

ABATEMENT ACTIONS: Required work completed; violation terminated 10/30/2006

PERMIT NO: U-78-83 MSHA NO: 46-01433 MSHA DATE: n/a
VIOLATION NO: U-78-83 (36) DATE VIOL. ISSUED: 12/5/2005 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to submit and obtain the right to subside on Tract 07-21-8
before mining within a 30 degree angle of the property.

CURRENT STATUS: TERMINATED STATUS DATE: 12/15/2005
REQUIRED ACTIONS: Obtain and submit the required right to subside. Update appropriate
permit maps to show subsidence right.

ABATEMENT ACTIONS: Required work completed, violation terminated.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: Island Creek Coal Company

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PERMIT NO: 1401232 MSHA NO: 44-01009 MSHA DATE: 2/18/68
VIOLATION NO: RXC0000646 DATE VIOL. ISSUED: 5/8/2006 ISSUED BY: VA DMLR
VIOLATION DESCRIPTION: Allowed the discharge at Outfall 001 to exceed maximum limit for total suspended solids for a sample collected on 4-27-06.

CURRENT STATUS: TERMINATED STATUS DATE: 5/8/2006
REQUIRED ACTIONS: non-remedial

ABATEMENT ACTIONS: Non-remedial; violation terminated on date of issuance.

PERMIT NO: 1401489 MSHA NO: 44-03795 MSHA DATE: 9/20/1974
VIOLATION NO: TIM0004939 DATE VIOL. ISSUED: 2/9/2006 ISSUED BY: VA DMLR
VIOLATION DESCRIPTION: Operator allowed coal to spill on outslopes of railroad tracks along Prater Creek.

CURRENT STATUS: TERMINATED STATUS DATE: 2/23/2006
REQUIRED ACTIONS: Remove all spilled coal possible and properly dispose of coal. Take measures necessary to prevent re-occurrence.

ABATEMENT ACTIONS: Required work completed. Violation terminated.

PERMIT NO: 1401489 MSHA NO: 44-03795 MSHA DATE: 9/20/1974
VIOLATION NO: TIM0004915 DATE VIOL. ISSUED: 1/23/2006 ISSUED BY: VA DMLR
VIOLATION DESCRIPTION: Discharge from pond 5 had a TSS discharge violation.

CURRENT STATUS: TERMINATED STATUS DATE: 1/30/2006
REQUIRED ACTIONS: Take necessary measures to bring discharge into compliance.

ABATEMENT ACTIONS: Required work completed, Violation terminated 1/30/2006.

PERMIT NO: 1401531 MSHA NO: 44-03795 MSHA DATE: 9/20/1974
VIOLATION NO: WHW0004588 DATE VIOL. ISSUED: 5/30/2006 ISSUED BY: VA DMLR
VIOLATION DESCRIPTION: Operator inadvertently destroyed a 3 foot section of berm below ponds #1 and #2.

CURRENT STATUS: TERMINATED STATUS DATE: 6/8/2006
REQUIRED ACTIONS: Repair berm in accordance with approved plans.

ABATEMENT ACTIONS: Required work completed, violation terminated.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: Island Creek Coal Company

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PERMIT NO: P-590 MSHA NO: 46-0244 MSHA DATE: 03/16/73
VIOLATION NO: P-590 (22) DATE VIOL. ISSUED: 11/28/2005 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to submit SWROA as required.

CURRENT STATUS: TERMINATED STATUS DATE: 12/12/2005
REQUIRED ACTIONS: Prepare and submit a SWROA to comply with all applicable requirements.

ABATEMENT ACTIONS: Required work completed ; violation terminatedn 12/12/2005.

PERMIT NO: U-5025-96 MSHA NO: 46-08665 MSHA DATE:
VIOLATION NO: U-5025-96 (3) DATE VIOL. ISSUED: 1/5/2007 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee ceased mining operations for more than 30 days in that the refuse area has not been reclaimed

CURRENT STATUS: STATUS DATE:
REQUIRED ACTIONS: Immediately submit an IBR for a topsoil borrow area to reclaim the refuse area.

ABATEMENT ACTIONS:

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: Keystone Coal Mining Corporation

PERMIT NO:	03951601	MSHA NO:	36-00821	MSHA DATE:	n/a
VIOLATION NO:	061042	DATE VIOL. ISSUED:	9/27/2006	ISSUED BY:	PA DEP

VIOLATION DESCRIPTION: Discharge of water from an area disturbed by mining activities exceeds effluent limitations.

CURRENT STATUS: TERMINATED STATUS DATE: 10/23/2006

REQUIRED ACTIONS: Submit plans and a construction time table for re-structuring the anoxic drain so as to achieve compliance.

ABATEMENT ACTIONS: Required work complete, violation terminated 10/23/2006.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: Laurel Run Mining Company

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PERMIT NO: U-5013-93 MSHA NO: n/a MSHA DATE: n/a
VIOLATION NO: U-5013-93 (6) DATE VIOL. ISSUED: 4/4/2008 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Runoff from permit haulroad was contributing to suspended solids in Spring Branch.

CURRENT STATUS: Pending STATUS DATE: 4/4/2008
REQUIRED ACTIONS: Add temporary sediment controls at Stream Crossing #1.
Add sumps to haulroad.

ABATEMENT ACTIONS:

PERMIT NO: U-5013-93 MSHA NO: n/a MSHA DATE: n/a
VIOLATION NO: U-5013-93 (5) DATE VIOL. ISSUED: 10/17/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee had spoil, debris, trees, and rock on the downslope.

CURRENT STATUS: TERMINATED STATUS DATE: 12/5/2006
REQUIRED ACTIONS: Remove debris, regrade, and seed disturbed area; update map.

ABATEMENT ACTIONS: Required work completed. Violation terminated 12/5/2006.

PERMIT NO: U-5013-93 MSHA NO: n/a MSHA DATE: n/a
VIOLATION NO: U-5013-93 (4) DATE VIOL. ISSUED: 8/17/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to display warning signs at blasting site.

CURRENT STATUS: TERMINATED STATUS DATE: 8/22/2006
REQUIRED ACTIONS: Permittee is to post warning signs.

ABATEMENT ACTIONS: Required work completed; violation terminated 8/22/2006

PERMIT NO: U-5013-93 MSHA NO: n/a MSHA DATE: n/a
VIOLATION NO: U-5013-93 (3) DATE VIOL. ISSUED: 7/26/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Permittee failed to protect offsite areas from damage due to mining.

CURRENT STATUS: TERMINATED STATUS DATE: 8/31/2006
REQUIRED ACTIONS: Survey all disturbed areas on permit and provide inspector with a progress map and seek approval for IBR to cover effected area.

ABATEMENT ACTIONS: Required work completed; violation terminated 8/31/2006

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: Laurel Run Mining Company

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PERMIT NO: U-5013-93 MSHA NO: n/a MSHA DATE: n/a
VIOLATION NO: U-5013-93 (2) DATE VIOL. ISSUED: 7/12/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: (1) Permittee failed to construct sediment control structures
(2) Permittee failed to certify Pond #2

CURRENT STATUS: TERMINATED STATUS DATE: 9/26/2006
REQUIRED ACTIONS: (1) Construct and maintain a temporary or permanent sediment control structure.
(2) Stop working until Pond #2 can be completed and certified.
ABATEMENT ACTIONS: Required work completed; violation terminated 9/26/2006

PERMIT NO: U-5013-93 MSHA NO: n/a MSHA DATE: n/a
VIOLATION NO: U-5013-93 (1) DATE VIOL. ISSUED: 6/21/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: During excavation water was flowing into the channel across the fresh material, picking up sediment and causing a muddy discharge.

CURRENT STATUS: TERMINATED STATUS DATE: 6/22/2006
REQUIRED ACTIONS: Dig out a sump and reposition straw bales for greater effectiveness.

ABATEMENT ACTIONS: Required work completed; violation terminated 6/22/2006

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: McElroy Coal Company

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PERMIT NO: U-1026-92 MSHA NO: 46-01437 MSHA DATE: 00/00/00
VIOLATION NO: U-1026-92 (4) DATE VIOL. ISSUED: 4/16/2008 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to install and certify the proper extension of Collection Ditch #1 Sediment 3C in accordance with the approved preplan.

CURRENT STATUS: TERMINATED STATUS DATE:
REQUIRED ACTIONS: Install drainage control for disturbed area and reclaim disturbance in accordance with the approved preplan.

ABATEMENT ACTIONS: Required work completed, violation terminated.

PERMIT NO: U-33-83 MSHA NO: 46-01437 MSHA DATE: n/a
VIOLATION NO: U-33-83 (64) DATE VIOL. ISSUED: 5/22/2008 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to protect off-site areas from damage resulting from mining operations.

CURRENT STATUS: TERMINATED STATUS DATE:
REQUIRED ACTIONS: Regrade and revegetate all disturbed area outside of bonded area or obtain a permit for this area.

ABATEMENT ACTIONS: Required work completed; violation terminated.

PERMIT NO: U-33-83 MSHA NO: 46-01437 MSHA DATE: n/a
VIOLATION NO: U-33-83 (63) DATE VIOL. ISSUED: 3/5/2008 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Discharge from the sump located below the 63 Breaker failed to meet effluent limitations in that the field pH was 5.5 & the iron concentration exceeded 10.0+ ppm.
CURRENT STATUS: TERMINATED STATUS DATE: 3/18/2008
REQUIRED ACTIONS: Treat the discharge to meet effluent limits for pH & iron or eliminate discharge.

ABATEMENT ACTIONS: Required work completed; violation terminated 3/18/2008

PERMIT NO: U-33-83 MSHA NO: 46-01437 MSHA DATE: n/a
VIOLATION NO: U-33-83 (61) DATE VIOL. ISSUED: 2/23/2007 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to perform a pre-mining subsidence survey, obtain a waiver, or submit an affidavit for the James Thomas structure.

CURRENT STATUS: TERMINATED STATUS DATE: 2/23/2007
REQUIRED ACTIONS: Submit and obtain approval of a pre-subsidence survey, waiver, or affidavit for the James Thomas structure.

ABATEMENT ACTIONS: Required work completed; violation terminated 2/23/2007

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: McElroy Coal Company

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PERMIT NO: U-33-83 MSHA NO: 46-01437 MSHA DATE: n/a
VIOLATION NO: U-33-83 (60) DATE VIOL. ISSUED: 2/22/2007 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failure to maintain approved drainage control system; failed to install silt fence on the north outslope of the reclamation work on the cuttings pond.
CURRENT STATUS: TERMINATED STATUS DATE: 10/4/2007
REQUIRED ACTIONS: Dewater structure and maintain until outslope is repaired and stable; Recertify structure; Install silt fence in accordance with permit plan.

ABATEMENT ACTIONS:

PERMIT NO: U-33-83 MSHA NO: 46-01437 MSHA DATE: n/a
VIOLATION NO: U-33-83 (59) DATE VIOL. ISSUED: 10/18/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to maintain effluent limitations at Outlet 020 - Coal Stockpile Pond.

CURRENT STATUS: TERMINATED STATUS DATE: 10/19/2006
REQUIRED ACTIONS: Provide adequate treatment and/or control measures to return Coal Stockpile Pond to required water quality standards.

ABATEMENT ACTIONS: Required work completed; violation terminated 10/19/2006

PERMIT NO: U-33-83 MSHA NO: 46-01437 MSHA DATE: n/a
VIOLATION NO: U-33-83 (58) DATE VIOL. ISSUED: 8/16/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Solids plume deposited into a tributary.

CURRENT STATUS: TERMINATED STATUS DATE: 8/25/2006
REQUIRED ACTIONS: Provde treatment and/or control measures so that the deposition of solids is eliminated and/or effluent from outleet 005 will not stain the tributary. Suggest clean pond with outlet 005.
ABATEMENT ACTIONS: Required work complete, violation terminated 8/25/2006.

PERMIT NO: U-33-83 MSHA NO: 46-01437 MSHA DATE: n/a
VIOLATION NO: U-33-83 (57) DATE VIOL. ISSUED: 8/16/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Cease old prep plant ops and remove water to stop discharge along western side of building that is overflowing into the ditchline.

CURRENT STATUS: TERMINATED STATUS DATE: 8/18/2006
REQUIRED ACTIONS: Pump water into ponds or other structures; eliminate discharge. Repair and replace beam.

ABATEMENT ACTIONS: Required work complete, violation terminated 8/18/2006.

CONSOL Energy and Related Companies - Violation History

October 1, 2005 - October 30, 2008

Entity to whom violation(s) were issued: McElroy Coal Company

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PERMIT NO: U-33-83 MSHA NO: 46-01437 MSHA DATE: n/a
VIOLATION NO: U-33-83 (56) DATE VIOL. ISSUED: 7/26/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to maintain effluent limits - high Iron concentration.

CURRENT STATUS: TERMINATED STATUS DATE: 7/27/2006
REQUIRED ACTIONS: Eliminate discharge or treat discharge to meet effluent limits. Clean upper sump.

ABATEMENT ACTIONS: Required work complete, violation terminated 7/27/2006.

PERMIT NO: U-33-83 MSHA NO: 46-01437 MSHA DATE: n/a
VIOLATION NO: U-33-83 (55) DATE VIOL. ISSUED: 7/26/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to maintain the sump at bottom of northern access road to the McElroy prep plant; sump was discharging discolored water.

CURRENT STATUS: TERMINATED STATUS DATE: 7/27/2006
REQUIRED ACTIONS: Clean and maintain sump; check after significant storm events.

ABATEMENT ACTIONS: Required work complete, violation terminated 7/27/2006.

PERMIT NO: U-33-83 MSHA NO: 46-01437 MSHA DATE: n/a
VIOLATION NO: U-33-83 (54) DATE VIOL. ISSUED: 4/5/2006 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Failed to maintain effluent limitations in that a solids plume was deposited in a tributary and then into the Ohio River.

CURRENT STATUS: TERMINATED STATUS DATE: 4/6/2006
REQUIRED ACTIONS: Provide adequate treatment and/or control measures so that the deposition of solids is eliminated and/or effluent from outlet 005.

ABATEMENT ACTIONS: Required work complete, violation terminated 4/6/2006.

PERMIT NO: U-33-83 MSHA NO: 46-01437 MSHA DATE: n/a
VIOLATION NO: U-33-83 (53) DATE VIOL. ISSUED: 10/13/2005 ISSUED BY: WV DEP
VIOLATION DESCRIPTION: Allowed seep near outlet 020 that caused iron staining in receiving stream.

CURRENT STATUS: TERMINATED STATUS DATE: 10/20/2005
REQUIRED ACTIONS: Stop the non-complying seep discharge and install controls adequate to prevent this from occurring again.

ABATEMENT ACTIONS: Required work complete, violation terminated 10/20/2005.

RECLAMATION MONITORING STUDY FOR THE EMERY MINE

VEGETATION & SOILS

December 2003

Document includes:

RECLAMATION MONITORING STUDY FOR THE EMERY MINE: VEGETATION

&

RECLAMATION MONITORING STUDY FOR THE EMERY MINE: SOILS

for

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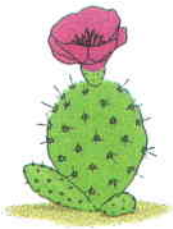
RECLAMATION MONITORING STUDY FOR THE EMERY MINE

VEGETATION



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December 2003

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INTRODUCTION

History

The Emery Mine located in south central Utah has a history of coal mining and reclamation operations. Although the mine had been idle for several years, it has recently re-opened with the development of a new portal. Mining operations have begun at the new "4th East Portal" area.

Because the Emery Mine has had a history of coal mining operations, reclamation and revegetation efforts have also been conducted. Upon initial observations it is apparent that some of the revegetation was unsuccessful for unknown, or at least unidentified, reasons. It is this premise that the State of Utah, Division of Oil, Gas & Mining (DOGM) and Consolidation Coal Company (CCC) determined that it would be prudent to conduct a reclamation monitoring study on those areas that have been reclaimed or re-seeded. It was believed that a study should be conducted to assess the current condition of those areas and determine whether or not success has been or could be achieved once final revegetation of the mine site is conducted.

Scope

The purpose of this study was to monitor and report on several areas that have been reclaimed or re-seeded within the permit boundary of the Emery Mine. Gathering current quantitative data on these sites should provide a basis to determine success or failure of past revegetation efforts. Therefore, determination of success or failure of the re-seeded plant species is one objective of the study. Another objective was to try to discern the reasons for these determinations. In an attempt to help provide clues to ascertain possible reasons for revegetation conditions, a soil sampling program was designed by DOGM and CCC. Mr. James Nyenhuis sampled each area at two depths and has prepared a report with his findings included in this document. In addition, records and files located at CCC were reviewed for historical information about each site which also may help determine explanations for current conditions at the site and provide detail to enhance future revegetation success efforts.

The Study Sites

A total of 19 vegetation study areas were sampled for the study. The soil for all the vegetation study areas were also sampled including 3 additional sites, bringing the total to 22 sites studied. Table 1 lists all study sites and includes the site number, site name, GPS coordinates and the names of the 7.5 minute USGS quadrangle maps where each were located. The number of each site was also identified in the field using labeled 18" wooden stakes, 48" lathe, and plastic flagging.

Table 1: Study Site Names and Locations

Site No.	Site Name	Zone	UTM Easting Coordinate	UTM Northing Coordinate	USGS 7.5 Minute Quad. Map
1	SUBSOIL PILES FROM PONDS 4 & 5	12S	0477617	4301502	Walker Flat
2	COAL PILE TOPSOIL PILE	12S	0477455	4301122	Walker Flat
3	TOPSOIL PILE FROM POND 6	12S	0475735	4302965	Emery Flat
4	SUBSOIL PILE (E) FROM POND 6	12S	0475735	4302965	Emery Flat
5	SUBSOIL PILE (W) FROM POND 6	12S	0475735	4302965	Emery Flat
6	POND 6 BANKS	12S	0475735	4302965	Emery Flat
7	POND 5 AREA	12S	0477377	4301439	Walker Flat
8	BOREHOLE RECLAIMED ROAD	12S	0477219	4301680	Walker Flat
9	SUBSTATION TOPSOIL PILE	12S	0477837	4301441	Walker Flat
10	TOPSOIL PILE FROM POND 1	12S	0476595	4301661	Walker Flat
11	POND 1 BANKS	12S	0476658	4301177	Walker Flat
12	GREASEWOOD REFERENCE AREA (GW3)	12S	0477207	4301424	Walker Flat
13	REFERENCE AREA GREASEWOOD	12S	0477660	4302069	Walker Flat
14	POND 1 SUBSOIL PILE	12S	0476595	4301661	Walker Flat
15	RIPARIAN MEADOW REFERENCE AREA - 1	12S	0477646	4302263	Walker Flat
16	RIPARIAN MEADOW REFERENCE AREA - 3	12S	0477471	4302167	Walker Flat
17	ANNUAL FORB REFERENCE AREA - 1	12S	0477558	4302484	Walker Flat
18	MIXED DESERT SHRUB REFERENCE AREA	12S	0477966	4302119	Walker Flat
19	TEST PLOT AREA	12S	0477294	4301015	Walker Flat
20	CANYON BOTTOM ROAD	12S	0477949	4301108	Walker Flat
21	POND 4 AREA	12S	0477377	4301439	Walker Flat
22	4TH EAST PORTAL TOPSOIL PILE	12S	0479668	4302679	Walker Flat

METHODS

Methodologies used herein were performed in accordance with the guidelines supplied by the State of Utah, Division of Oil, Gas and Mining (DOGM). Quantitative and qualitative data were taken on the vegetation from a list of areas provided by Consolidation Coal Company.

Sampling Design and Transect/Quadrat Placement

Transect lines for vegetation sampling were placed randomly within the boundaries of the sample areas. The transect placement technique was employed with the goal to adequately sample a representative subset of the entire site. The number of samples taken were not dependent on sample adequacy formulas, but rather the size of each given sample area -- or the larger the area, the greater the sample size.

Once the transects were established, quadrat locations for sampling were chosen using random numbers from the transect lines with the objective to record data without preconceived bias.

Cover and Composition

Cover estimates were made using ocular methods with meter square quadrats. Species composition, cover by species, and relative frequencies were also assessed from the quadrats. Plant nomenclature follows "A Utah Flora" (Welsh et al., 1993).

Woody Species Density

Density of woody plant species for the study areas were estimated using the point-quarter method. In this method, random points were placed on the sample sites and measured into four quarters. The distances to the nearest woody plant species were then recorded in each quarter. The average point-to-individual distance was equal to the square root of the mean area per individual. The number of individuals per acre was the end result of the calculations.

Total Density

Several previous studies have been conducted over the years by companies or individuals other than *Mt. Nebo Scientific, Inc*. From these studies it was noted that many of the data sets reported density for all species (not just woody species) using ½ meter square quadrats. With this in mind, additional data for density were also recorded for this study using the same quadrat size, and thus reported in a similar manner as the previous studies.

Photographs

Color photographs of the sample areas were taken at the time of sampling and have been submitted with this report.

RESULTS

Cover, Frequency, Composition & Density

Because of the extensive data sets and the number of sites sampled for the study, it was believed that the best method to present the results was to show summarized tables for the data for each site. Therefore the RESULTS section of this report is comprised primarily of the tables below that show living cover by species, total cover, frequency, lifeform composition, woody species density and total density for each site.

Table 2. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 1 - Subsoil Piles From Ponds 4 & 5	Mean	SDev	Freq
A. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
Atriplex canescens	0.53	1.09	20.00
Atriplex confertifolia	5.73	10.37	33.33
Ephedra viridis	0.80	2.07	13.33
Sarcobatus vermiculatus	4.13	10.15	26.67
FORBS			
Eriogonum sp.	0.07	0.25	6.67
Lappula occidentalis	2.53	4.57	66.67
GRASSES			
Stipa hymenoides	0.53	1.09	20.00
B. TOTAL COVER			
Total Living Cover	14.33	13.78	
Litter	5.27	2.11	
Bareground	63.60	24.73	
Rock	16.80	19.96	
C. DESIRABLE SPECIES COVER	11.80	14.70	
D. % COMPOSITION			
Shrubs	57.48	43.44	
Forbs	36.43	41.59	
Grasses	6.10	12.90	

Table 3. Woody Species Density, Emery Mine Reclamation Study. (Pt. Qtr. Method).

Site 1 - Subsoil Piles From Ponds 4 & 5	*No/Ac*
Atriplex canescens	405.45
Atriplex confertifolia	585.66
Ephedra viridis	22.53
Sarcobatus vermiculatus	337.88
Total	**1351.51**

Table 4. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 1 - Subsoil Piles From Ponds 4 & 5	Mean	SDev
TREES & SHRUBS		
Sarcobatus vermiculatus	0.60	1.02
Atriplex confertifolia	0.73	1.39
FORBS		
Lappula occidentalis	3.67	5.80
GRASSES		
Stipa hymenoides	0.53	1.09
Total Density	5.53	5.74

Table 5. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 2 - Coal Pile Topsoil Pile	Mean	SDev	Freq
A. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
Atriplex confertifolia	6.07	6.88	80.00
Atriplex gardneri	0.60	1.54	13.33
Chrysothamnus nauseosus	0.13	0.50	6.67
Gutierrezia sarothrae	0.87	1.78	20.00
Sclerocactus whipplei	0.07	0.25	6.67
FORBS			
Eriogonum inflatum	1.60	2.73	40.00
Halogeton glomeratus	0.53	0.88	33.33
Lappula occidentalis	6.47	6.47	80.00
GRASSES			
Stipa hymenoides	0.80	1.64	20.00
B. TOTAL COVER			
Total Living Cover	17.13	6.14	
Litter	5.33	2.57	
Bareground	52.33	11.81	
Rock	25.20	10.82	
C. DESIRABLE SPECIES COVER	10.13	6.91	
D. % COMPOSITION			
Shrubs	42.73	29.09	
Forbs	52.38	26.97	
Grasses	4.89	10.17	

Table 6. Woody Species Density, Emery Mine Reclamation Study. (Pt. Qtr. Method).

Site 2 - Coal Pile Topsoil Pile	No/Ac
Atriplex gardneri	365.17
Atriplex confertifolia	3286.55
Ceratoides lanata	73.03
Gutierrezia sarothrae	438.21
Opuntia polyacantha	73.03
Sarcobatus vermiculatus	146.07
Total	**4382.07**

Table 7. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 2- Coal Pile Topsoil Pile	Mean	SDev
TREES & SHRUBS		
Atriplex confertifolia	1.07	1.00
Atriplex gardneri	0.13	0.34
Chrysothamnus nauseosus	0.20	0.75
Gutierrezia sarothrae	1.20	3.73
Sarcobatus vermiculatus	0.13	0.50
Sclerocactus whipplei	0.07	0.25
FORBS		
Erigeron sp.	0.07	0.25
Eriogonum inflatum	0.73	1.81
Halogeton glomeratus	0.60	0.95
Lappula occidentalis	8.27	8.25
GRASSES		
Stipa hymenoides	0.13	0.50
Total Density	12.60	8.18

Table 8. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 3 - Topsoil Pile From Pond 6	Mean	SDev	Freq
A. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
Atriplex canescens	0.07	0.25	6.67
Suaeda torreyana	0.20	0.54	13.33
FORBS			
Halogeton glomeratus	0.60	1.54	20.00
Lappula occidentalis	3.07	1.95	93.33
GRASSES			
B. TOTAL COVER			
Total Living Cover	3.93	2.02	
Litter	1.47	0.72	
Bareground	71.40	9.50	
Rock	23.20	8.34	
C. DESIRABLE SPECIES COVER	0.27	0.57	
D. % COMPOSITION			
Shrubs	4.19	8.78	
Forbs	95.81	8.78	
Grasses	0.00	0.00	

Table 9. Woody Species Density, Emery Mine Reclamation Study. (Pt. Qtr. Method).

Site 3- Topsoil Pile From Pond 6	*No/Ac*
Total	**0.00**

Table 10. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 3 - Topsoil Pile From Pond 6	Mean	SDev
TREES & SHRUBS		
Suaeda torreyana	0.07	0.25
FORBS		
Halogeton glomeratus	0.27	0.77
Lappula occidentalis	9.80	6.40
GRASSES		
Total Density	10.13	6.68

Table 11. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 4 - Subsoil Pile (E) From Pond 6	Mean	SDev	Freq
A. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
Ceratoides lanata	2.57	5.18	28.57
Sarcobatus vermiculatus	0.14	0.35	14.29
FORBS			
Halogeton glomeratus	0.29	0.45	28.57
Lappula occidentalis	2.71	1.91	85.71
GRASSES			
Elymus junceus	8.14	17.26	28.57
Stipa hymenoides	0.29	0.70	14.29
B. TOTAL COVER			
Total Living Cover	14.14	21.16	
Litter	1.43	0.49	
Bareground	63.29	20.05	
Rock	21.14	16.17	
C. DESIRABLE SPECIES COVER	11.14	22.44	
D. % COMPOSITION			
Shrubs	7.11	11.28	
Forbs	73.33	42.31	
Grasses	19.56	31.26	

Table 12. Woody Species Density, Emery Mine Reclamation Study, (Pt. Qtr. Method).

Site 4 - Subsoil Pile (E) From Pond 6	*No/Ac*
Atriplex canescens	63.59
Ceratoides lanata	120.11
Gutierrezia sarothrae	0.00
Suaeda torreyana	7.07
Sarcobatus vermiculatus	7.07
Total	**197.83**

Table 13. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 4 - Subsoil Pile (E) From Pond 6	Mean	SDev
TREES & SHRUBS		
Ceratoides lanata	0.43	1.05
Sarcobatus vermiculatus	0.14	0.35
FORBS		
Halogeton glomeratus	0.43	0.73
Lappula occidentalis	10.86	7.99
GRASSES		
Elymus junceus	3.57	6.93
Stipa hymenoides	0.29	0.70
Total Density	15.71	6.52

Table 14. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 5 - Subsoil Pile (W) From Pond 6	Mean	SDev	Freq
A. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
Ceratoides lanata	0.15	0.53	7.69
Salsola pestifer	0.31	0.72	15.38
Sarcobatus vermiculatus	0.77	2.66	7.69
Suaeda torreyana	0.08	0.27	7.69
FORBS			
Halogeton glomeratus	2.77	3.81	53.85
Kochia scoparia	1.38	2.62	15.38
Lappula occidentalis	2.46	1.78	76.92
GRASSES			
Stipa hymenoides	0.08	0.27	7.69
B. TOTAL COVER			
Total Living Cover	8.00	3.72	
Litter	2.92	2.30	
Bareground	45.23	10.74	
Rock	43.85	10.23	
C. DESIRABLE SPECIES COVER	1.38	2.84	
D. % COMPOSITION			
Shrubs	13.04	27.06	
Forbs	86.45	27.38	
Grasses	0.51	1.78	

Table 15. Woody Species Density. Emery Mine Reclamation Study. (Pt. Qtr. Method).

Site 5 - Subsoil Pile (W) From Pond 6	*No/Ac*
Atriplex gardneri	1.09
Atriplex canescens	13.05
Ceratoides lanata	21.75
Suaeda torreyana	1.09
Sarcobatus vermiculatus	19.58
Total	**56.55**

Table 16. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 5 - Subsoil Pile (W) From Pond 6	Mean	SDev
TREES & SHRUBS		
Sarcobatus vermiculatus	0.08	0.27
Salsola pestifer	0.15	0.36
FORBS		
Halogeton glomeratus	1.08	1.73
Kochia scoparia	0.69	1.43
Lappula occidentalis	8.38	8.35
GRASSES		
Stipa hymenoides	0.23	0.80
Total Density	10.62	7.72

Table 17. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 6 - Pond 6 Banks	Mean	SDev	Freq
A. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
Chrysothamnus nauseosus	3.00	13.08	5.00
Sarcobatus vermiculatus	12.65	20.60	45.00
Suaeda torreyana	1.90	5.71	10.00
FORBS			
Halogeton glomeratus	1.15	3.41	15.00
Iva axillaris	0.25	1.09	5.00
Lappula occidentalis	0.10	0.44	5.00
GRASSES			
Carex lanuginosa	4.00	11.47	20.00
Elymus hispidus	15.70	17.66	50.00
Elymus junceus	1.25	4.44	10.00
B. TOTAL COVER			
Total Living Cover	40.00	22.30	
Litter	10.70	7.68	
Bareground	41.05	18.48	
Rock	8.25	8.32	
C. DESIRABLE SPECIES COVER	38.50	23.78	
D. % COMPOSITION			
Shrubs	46.22	45.09	
Forbs	7.98	22.08	
Grasses	45.80	46.54	

Table 18. Woody Species Density, Emery Mine Reclamation Study. (Pt. Qtr. Method).

Site 6 - Pond 6 Banks	No/Ac
Artemisia tridentata	13.76
Chrysothamnus nauseosus	288.93
Tamarix chinensis	27.52
Sarcobatus vermiculatus	674.18
Suaeda torreyana	96.31
Total	1100.70

Table 19. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 6 - Pond 6 Banks	Mean	SDev
TREES & SHRUBS		
Chrysothamnus nauseosus	0.05	0.22
Sarcobatus vermiculatus	1.45	3.14
Suaeda torreyana	0.05	0.22
FORBS		
Iva axillaris	0.20	0.87
Halogeton glomeratus	1.75	6.53
Lappula occidentalis	0.15	0.65
GRASSES		
Carex lanuginosa	2.65	8.74
Elymus junceus	1.15	4.37
Elymus hispidus	1.45	2.11
Total Density	8.90	9.95

Table 20. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 7- Pond 5 Area	Mean	SDev	Freq
A. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
Atriplex canescens	3.20	9.09	13.33
Atriplex confertifolia	0.33	1.25	6.67
Chrysothamnus nauseosus	2.00	4.00	20.00
Gutierrezia sarothrae	2.20	2.69	53.33
Sarcobatus vermiculatus	8.73	12.65	60.00
FORBS			
Halogeton glomeratus	0.40	1.25	13.33
Iva axillaris	1.20	3.39	13.33
GRASSES			
Stipa hymenoides	1.53	2.19	33.33
B. TOTAL COVER			
Total Living Cover	19.60	12.61	
Litter	7.00	5.88	
Bareground	62.93	12.85	
Rock	10.47	6.87	
C. DESIRABLE SPECIES COVER	18.00	13.49	
D. % COMPOSITION			
Shrubs	71.25	36.83	
Forbs	13.89	31.54	
Grasses	14.87	27.83	

Table 21. Woody Species Density, Emery Mine Reclamation Study, (Pt. Qtr. Method).

Site 7 - Pond 5 Area	No/Ac
Artemisia tridentata	131.66
Atriplex canescens	197.49
Atriplex corrugata	65.83
Atriplex gardneri	65.83
Ceratoides lanata	65.83
Chrysothamnus nauseosus	789.96
Gutierrezia sarothrae	724.13
Sarcobatus vermiculatus	1909.07
Total	3949.80

Table 22. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 7- Pond 5 Area	Mean	SDev
TREES & SHRUBS		
Atriplex confertifolia	0.13	0.50
Atriplex canescens	0.13	0.34
Chrysothamnus nauseosus	0.07	0.25
Gutierrezia sarothrae	3.60	3.98
Sarcobatus vermiculatus	1.60	2.73
FORBS		
Iva axillaris	1.47	3.81
Halogeton glomeratus	0.07	0.25
GRASSES		
Stipa hymenoides	0.27	0.57
Total Density	7.33	5.96

Table 23. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 8 - Borehole Reclaimed Road	Mean	SDev	Freq
A. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
Atriplex corrugata	1.60	3.32	20.00
Sarcobatus vermiculatus	0.50	1.50	10.00
Suaeda torreyana	0.50	1.50	10.00
FORBS			
Eriogonum inflatum	0.10	0.30	10.00
Lappula occidentalis	2.60	1.91	80.00
GRASSES			
B. TOTAL COVER			
Total Living Cover	5.30	2.37	
Litter	1.70	1.19	
Bareground	84.70	3.72	
Rock	8.30	4.03	
C. DESIRABLE SPECIES COVER	2.60	3.44	
D. % COMPOSITION			
Shrubs	35.83	44.42	
Forbs	64.17	44.42	
Grasses	0.00	0.00	

Table 24. Woody Species Density, Emery Mine Reclamation Study. (Pt. Qtr. Method).

Site 8 - Borehole Reclaimed Rd	No/Ac
Atriplex corrugata	227.03
Sarcobatus vermiculatus	275.68
Suaeda torreyana	145.95
Total	**648.66**

Table 25. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 8 - Borehole Reclaimed Rd.	Mean	SDev
TREES & SHRUBS		
Atriplex corrugata	0.30	0.64
Suaeda torreyana	0.10	0.30
FORBS		
Lappula occidentalis	4.00	3.52
GRASSES		
Total Density	4.40	3.10

Table 26. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 9 - Substation Topsoil Pile	Mean	SDev	Freq
A. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
Atriplex confertifolia	4.90	4.74	60.00
Atriplex gardneri	0.10	0.30	10.00
FORBS			
Eriogonum inflatum	1.00	1.55	40.00
Halogeton glomeratus	0.80	1.08	40.00
Lappula occidentalis	1.50	2.62	40.00
GRASSES			
Stipa hymenoides	0.40	1.20	10.00
B. TOTAL COVER			
Total Living Cover	8.70	4.98	
Litter	6.80	3.97	
Bareground	71.00	13.00	
Rock	13.50	8.67	
C. DESIRABLE SPECIES COVER	6.40	5.75	
D. % COMPOSITION			
Shrubs	43.67	33.28	
Forbs	51.33	37.36	
Grasses	5.00	15.00	

Table 27. Woody Species Density. Emery Mine Reclamation Study. (Pt. Qtr. Method).

Site 9 - Substation Topsoil Pile	*No/Ac*
Atriplex corrugata	34.10
Atriplex confertifolia	1261.69
Chrysothamnus nauseosus	34.10
Sarcobatus vermiculatus	34.10
Total	**1363.99**

Table 28. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 9 - Substa. Topsoil Pile	Mean	SDev
TREES & SHRUBS	0.60	1.02
Atriplex confertifolia		
FORBS	0.80	1.47
Eriogonum inflatum	0.50	0.67
Halogeton glomeratus	2.30	3.07
GRASSES	0.10	0.30
Total Density	4.30	3.03

Table 29. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 10- Topsoil Pile From Pond 1	Mean	SDev	Freq
A. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
Sarcobatus vermiculatus	4.53	6.51	40.00
Suaeda torreyana	6.00	9.02	53.33
FORBS			
Halogeton glomeratus	1.20	1.60	46.67
Lappula occidentalis	4.33	10.46	26.67
GRASSES			
B. TOTAL COVER	10.53	9.65	
Total Living Cover	16.07	12.63	
Litter	11.13	5.83	
Bareground	71.07	14.05	
Rock	1.73	2.24	
C. DESIRABLE SPECIES COVER	10.53	9.65	
D. % COMPOSITION			
Shrubs	62.63	42.88	
Forbs	37.37	42.88	
Grasses	0.00	0.00	

Table 30. Woody Species Density, Emery Mine Reclamation Study. (Pt. Qtr. Method).

Site 10 - Topsoil Pile From Pond 1	*No/Ac*
Sarcobatus vermiculatus	625.85
Suaeda torreyana	818.42
Total	**1444.27**

Table 31. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 10 - Topsoil Pile From Pond 1	Mean	SDev
TREES & SHRUBS		
Sarcobatus vermiculatus	0.13	0.34
Suaeda torreyana	0.53	0.50
FORBS		
Halogeton glomeratus	1.20	1.83
Lappula occidentalis	3.33	7.88
GRASSES		
Total Density	5.20	8.05

Table 32. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 11 -Pond 1 Banks	Mean	SDev	Freq
A.. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
Artemisia pygmaea	0.10	0.44	5.00
Artemisia tridentata	0.25	1.09	5.00
Ceratoides lanata	0.25	1.09	5.00
Chrysothamnus nauseosus	11.60	18.73	55.00
Sarcobatus vermiculatus	25.05	25.74	75.00
Suaeda torreyana	0.90	2.43	15.00
FORBS			
Halogeton glomeratus	0.60	2.62	5.00
GRASSES			
Distichlis spicata	1.25	5.45	5.00
B. TOTAL COVER			
Total Living Cover	40.00	22.19	
Litter	14.45	14.88	
Bareground	44.35	28.52	
Rock	1.20	0.68	
C. DESIRABLE SPECIES COVER	39.40	22.75	
D. % COMPOSITION			
Shrubs	92.60	23.67	
Forbs	2.40	10.46	
Grasses	5.00	21.79	

Table 33. Woody Species Density, Emery Mine Reclamation Study. (Pt. Qtr. Method).

Site 11 - Pond 1 Banks	No/Ac
Artemisia frigida	183.20
Chrysothamnus nauseosus	1557.24
Sarcobatus vermiculatus	1465.64
Suaeda torreyana	412.21
Ceratoides lanata	45.80
Total	**3664.10**

Table 34. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 11 - Pond 1 Banks	Mean	SDev
TREES & SHRUBS		
Artemisia tridentata	0.05	0.22
Artemisia pygmaea	0.05	0.22
Ceratoides lanata	0.10	0.44
Chrysothamnus nauseosus	0.80	1.44
Sarcobatus vermiculatus	0.70	0.78
Suaeda torreyana	0.15	0.65
FORBS		
Halogeton glomeratus	1.60	6.97
GRASSES		
Distichlis spicata	1.25	5.45
Total Density	4.70	8.14

Table 35. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 12 - Greasewood Reference Area (GW3)	Mean	SDev	Freq
A.. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
Sarcobatus vermiculatus	11.20	12.53	60.00
Suaeda torreyana	14.50	9.90	90.00
FORBS			
GRASSES			
B. TOTAL COVER			
Total Living Cover	25.70	15.17	
Litter	17.00	5.16	
Bareground	56.10	19.52	
Rock	1.20	0.40	
C. DESIRABLE SPECIES COVER	25.70	15.17	
D. % COMPOSITION			
Shrubs	100.00	0.00	
Forbs	0.00	0.00	
Grasses	0.00	0.00	

Table 36. Woody Species Density. Emery Mine Reclamation Study. (Pt. Qtr. Method).

Site 12 - Greasewood Reference Area (GW3)	*No/Ac*
Sarcobatus vermiculatus	1956.68
Suaeda torreyana	5870.05
Total	**7826.74**

Table 37. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 12 - Greasewood Reference Area (GW3)	Mean	SDev
TREES & SHRUBS		
Sarcobatus vermiculatus	0.50	0.50
Suaeda torreyana	12.10	9.20
FORBS		
GRASSES		
Total Density	12.60	9.29

Table 38. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 13 - Reference Area Greasewood	Mean	SDev	Freq
A.. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
Artemisia tridentata	0.90	3.92	5.00
Atriplex canescens	0.50	2.18	5.00
Atriplex confertifolia	1.85	3.00	30.00
Gutierrezia sarothrae	0.85	2.29	20.00
Opuntia sp.	2.20	4.64	25.00
Sarcobatus vermiculatus	13.10	19.54	60.00
Suaeda torreyana	1.40	5.45	10.00
FORBS			
Halogeton glomeratus	0.25	1.09	5.00
Lappula occidentalis	0.95	1.96	25.00
Sphaeralcea coccinea	0.15	0.65	5.00
GRASSES			
Hilaria jamesii	4.40	10.74	15.00
Sporobolus airoides	2.95	5.56	30.00
Stipa hymenoides	0.70	2.63	10.00
B. TOTAL COVER			
Total Living Cover	30.20	16.67	
Litter	9.55	6.27	
Bareground	40.70	18.76	
C. DESIRABLE SPECIES COVER	29.00	17.12	
D. % COMPOSITION			
Shrubs	62.25	32.50	
Forbs	6.70	11.56	
Grasses	31.05	34.60	

Table 39. Woody Species Density, Emery Mine Reclamation Study, (Pt. Qtr. Method).

Site 13 - Reference Area Greasewood	No/Ac
Artemisia tridentata	32.66
Atriplex canescens	130.64
Atriplex confertifolia	751.17
Gutierrezia sarothrae	32.66
Suaeda torreyana	97.98
Opuntia polyacantha	163.30
Sarcobatus vermiculatus	1404.37
Total	2612.77

Table 40. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 13 - Reference Area Greasewood	Mean	SDev
TREES & SHRUBS		
Atriplex confertifolia	0.20	0.40
Atriplex canescens	0.15	0.65
Gutierrezia sarothrae	0.90	1.89
Opuntia sp.	0.25	0.54
Sarcobatus vermiculatus	1.35	3.64
Suaeda torreyana	0.15	0.48
FORBS		
Halogeton glomeratus	0.10	0.44
Lappula occidentalis	1.55	3.50
GRASSES		
Hilaria jamesii	0.60	2.62
Sporobolus airoides	1.00	2.12
Stipa hymenoides	0.05	0.22
Total Density	6.30	5.06

Table 41. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 14 - Pond 1 Subsoil Pile	Mean	SDev	Freq
A.. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
Chrysothamnus nauseosus	1.87	3.93	26.67
Sarcobatus vermiculatus	0.27	0.68	13.33
Suaeda torreyana	0.40	1.02	20.00
FORBS			
Halogeton glomeratus	0.53	0.62	46.67
GRASSES			
Hilaria jamesii	0.33	1.25	6.67
Elymus junceus	0.33	1.25	6.67
B. TOTAL COVER			
Total Living Cover	3.73	4.99	
Litter	1.93	1.12	
Bareground	93.27	5.52	
Rock	1.07	0.25	
C. DESIRABLE SPECIES COVER	3.20	5.28	
D. % COMPOSITION			
Shrubs	48.33	46.96	
Forbs	46.67	49.89	
Grasses	5.00	13.54	

Table 42. Woody Species Density, Emery Mine Reclamation Study. (Pt. Qtr. Method).

Site 14 - Pond 1 Subsoil Pile	No/Ac
Symphoricarpos oreophilus	9.55
Atriplex confertifolia	9.55
Chrysothamnus nauseosus	152.81
Suaeda torreyana	191.01
Sarcobatus vermiculatus	210.11
Total	**573.02**

Table 43. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 14 - Pond 1 Subsoil Pile	Mean	SDev
TREES & SHRUBS		
Chrysothamnus nauseosus	0.13	0.34
Sarcobatus vermiculatus	0.07	0.25
Suaeda torreyana	0.20	0.40
FORBS		
Halogeton glomeratus	0.53	0.50
GRASSES		
Hilaria jamesii	0.20	0.75
Elymus junceus	0.07	0.25
Total Density	1.20	0.75

Table 44. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 15 - Riparian Meadow Reference Area 1			
	Mean	SDev	Freq
A.. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
FORBS			
Asclepias speciosa	0.13	0.50	6.67
Erigeron sp.	6.00	8.21	40.00
GRASSES			
Agrostis stolonifera	0.87	2.55	13.33
Carex hoodii	61.00	23.29	93.33
Distichlis spicata	0.33	1.25	6.67
Elymus trachycaulus	5.00	6.32	46.67
Juncus articus	2.67	7.04	13.33
Muhlenbergia asperifolia	5.80	13.77	33.33
B. TOTAL COVER			
Total Living Cover	81.80	12.38	
Litter	13.67	11.88	
Bareground	3.53	7.42	
Rock	1.00	0.00	
C. DESIRABLE SPECIES COVER	81.80	12.38	
D. % COMPOSITION			
Shrubs	0.00	0.00	
Forbs	7.30	9.87	
Grasses	92.70	9.87	

Table 45. Woody Species Density. Emery Mine Reclamation Study. (Pt. Qtr. Method).

Site 15 - Riparian Meadow Ref Area 1	*No/Ac*
Total	0

Table 46. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 15 - Riparian Meadow Reference Area 1	Mean	SDev
(inappropriate method for this site)		

Table 47. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 16 - Riparian Meadow Reference Area 3	Mean	SDev	Freq
A.. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
Chrysothamnus nauseosus	0.63	1.65	12.50
FORBS			
Aster sp.	1.25	2.17	25.00
Erigeron sp.	0.63	1.65	12.50
GRASSES			
Distichlis spicata	25.63	12.36	100.00
Juncus articus	21.88	9.98	87.50
Muhlenbergia asperifolia	1.25	3.31	12.50
Poa pratensis	1.88	2.42	37.50
Sitanion hystrix	6.25	5.45	62.50
B. TOTAL COVER			
Total Living Cover	59.38	9.16	
Litter	30.75	17.16	
Bareground	8.75	10.81	
Rock	1.13	0.33	
C. DESIRABLE SPECIES COVER	59.38	9.16	
D. % COMPOSITION			
Shrubs	1.25	3.31	
Forbs	3.64	6.86	
Grasses	95.11	9.95	

Table 48. Woody Species Density, Emery Mine Reclamation Study. (Pt. Qtr. Method).

Site 16 - Riparian Meadow Reference Area 3	*No/Ac*
Total	0

Table 49. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 16- Riparian Meadow Reference Area 3	Mean	SDev
TREES & SHRUBS		
(inappropriate method for this site)		

Table 50. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 17 - Annual Forb Reference Area 1	Mean	SDev	Freq
A.. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
Artemisia frigida	3.60	3.85	50.00
Atriplex confertifolia	1.20	1.99	30.00
Gutierrezia sarothrae	0.20	0.60	10.00
Opuntia polyacantha	1.00	1.67	30.00
Erigeron sp.	0.30	0.90	10.00
Gilia sp.	0.10	0.30	10.00
Lappula occidentalis	0.50	1.50	10.00
Phacelia sp.	8.30	1.68	100.00
GRASSES			
Hilaria jamesii	6.30	4.98	80.00
B. TOTAL COVER			
Total Living Cover	21.50	3.91	
Litter	4.30	1.10	
Bareground	14.70	11.07	
Rock	59.50	14.04	
C. DESIRABLE SPECIES COVER	21.00	3.74	
D. % COMPOSITION			
Shrubs	29.60	21.94	
Forbs	43.00	10.56	
Grasses	27.40	21.93	

Table 51. Woody Species Density. Emery Mine Reclamation Study. (Pt. Qtr. Method).

Site 17- Annual Forb Reference Area -1	No/Ac
Artemisia frigida	2123.15
Atriplex confertifolia	1011.02
Gutierrezia sarothrae	101.10
Ceratoides lanata	303.31
Opuntia polyacantha	505.51
Total	**4044.09**

Table 52. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 17- Annual Forb Reference Area - 1	Mean	SDev
TREES & SHRUBS		
Artemisia frigida	2.20	4.71
Opuntia polyacantha	0.20	0.40
FORBS		
Gilia sp.	0.10	0.30
Phacelia sp.	7.50	2.46
GRASSES		
Hilaria jamesii	7.70	6.86
Total Density	17.70	10.18

Table 53. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site 18 - Mixed Desert Shrub Reference Area	Mean	SDev	Freq
A. COVER & FREQUENCY BY SPECIES			
TREES & SHRUBS			
Artemisia frigida	4.65	6.94	40.00
Atriplex confertifolia	4.95	5.39	65.00
Ceratoides lanata	0.55	1.36	15.00
Eriogonum corymbosum	0.50	1.50	10.00
Gutierrezia sarothrae	2.65	1.88	80.00
Opuntia polyacantha	3.00	5.60	30.00
FORBS			
Erigeron sp.	0.10	0.44	5.00
GRASSES			
Bouteloua gracilis	0.05	0.22	5.00
Hilaria jamesii	11.60	8.66	80.00
Sporobolus airoides	1.50	2.78	25.00
Stipa hymenoides	2.05	3.07	35.00
B. TOTAL COVER			
Total Living Cover	31.60	7.12	
Litter	6.40	2.22	
Bareground	55.75	7.63	
Rock	6.25	3.37	
C. DESIRABLE SPECIES COVER	31.60	7.12	
D. % COMPOSITION			
Shrubs	51.22	25.79	
Forbs	0.29	1.25	
Grasses	48.49	26.30	

Table 54. Woody Species Density. Emery Mine Reclamation Study. (Pt. Qtr. Method).

Site 18 - Mixed Desert Shrub Ref. Area	No/Ac
Artemisia tridentata	1795.13
Atriplex confertifolia	3191.35
Atriplex canescens	99.73
Ceratoides lanata	698.11
Eriogonum corymbosum	99.73
Gutierrezia sarothrae	897.57
Opuntia polyacantha	997.30
Sarcobatus vermiculatus	99.73
Sclerocactus whipplei	99.73
Total	7978.36

Table 55. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Site 18 - Mixed Desert Shrub Reference Area	Mean	SDev
TREES & SHRUBS		
Artemisia frigida	0.40	0.80
Atriplex confertifolia	0.80	0.81
Ceratoides lanata	0.05	0.22
Eriogonum corymbosum	0.05	0.22
Gutierrezia sarothrae	3.20	3.78
Opuntia polyacantha	0.40	0.86
FORBS		
Erigeron sp.	0.10	0.44
GRASSES		
Hilaria jamesii	9.10	7.56
Sporobolus airoides	0.15	0.36
Stipa hymenoides	0.15	0.36
Total Density	14.40	9.00

Table 56. Cover by Species (A), Total Cover (B), Desirable Plant Species Cover (C), and Lifeform Composition (D).
Emery Mine Reclamation Study.

Site Test Plot			
A. COVER & FREQUENCY BY SPECIES	Mean	SDev	Freq
TREES & SHRUBS			
Atriplex canescens	2.80	7.45	20.00
Sarcobatus vermiculatus	13.20	20.54	30.00
Suaeda torreyana	10.10	11.10	50.00
FORBS			
Bassia hyssopifolia	2.00	6.00	10.00
Sphaeralcea coccinea	0.10	0.30	10.00
GRASSES			
Sporobolus airoides	11.20	19.67	40.00
Sporobolus flexuosus	8.90	13.68	40.00
B. TOTAL COVER			
Total Living Cover	48.30	14.49	
Litter	26.40	14.17	
Bareground	23.90	14.98	
Rock	1.40	0.49	
C. DESIRABLE SPECIES COVER	46.30	13.39	
D. % COMPOSITION			
Shrubs	56.94	31.82	
Forbs	3.23	9.19	
Grasses	39.83	33.45	

Table 57. Woody Species Density, Emery Mine Reclamation Study. (Pt. Qtr. Method).

Site Test Plot	No/Ac
Ceratoides lanata	73.95
Atriplex canescens	813.40
Sarcobatus vermiculatus	369.73
Suaeda torreyana	1700.75
Total	**2957.83**

Table 58. Total Density Per ½ Square Meter.
Emery Mine Reclamation Study.

Test Plot	Mean	SDev
TREES & SHRUBS		
Atriplex canescens	0.20	0.40
Sarcobatus vermiculatus	0.20	0.60
Suaeda torreyana	0.60	0.80
FORBS		
Bassia hyssopifolia	4.00	12.00
GRASSES		
Sporobolus airoides	0.90	1.64
Sporobolus flexuosus	0.30	0.64
Total Density	6.20	11.65

Site Records & History

Records and files were reviewed for historical information about each site which, in some cases, helped determine explanations for current conditions at the site and provided clues to help explain revegetation successes or failures. A summary of the findings from these records is shown below.

Table 59: Historical Information About Each of the Sites.

Site No.	Site Name	History & Notes
1	Subsoil Piles From Pond 4 & 5	Deducing from DOGM inspection reports [Wyatt and Pruit (January 21, 1982); Wyatt (July 14, 1982); Kale (November 10, 1982)], it appears Ponds 4 & 5 were constructed in the winter of 1981-82 along with the Subsoil Piles created from the excavation. This areas were seeded in spring 1982. Pond 4 was a reverse osmosis pond (or evaporation lagoon) whereas Pond 5 was the proposed preparation plant sediment pond. (The preparation plant was never constructed). Wyatt (1982) reports: "Topsoil and subsoil stockpiles excavated from the preparation plant's sediment pond excavation had been reseeded. *Germination is scarce*" . In another inspection report, Shepherd (May 29, 1987) reported "we also looked at the revegetation efforts that were initiated 1 year ago during the installation of the evaporation lagoon. Much of the vegetation of the pond embankments is of a weedy nature (predominantly halogeton). Some of the planted species are evident, however sparse (mostly crested wheatgrass and sweetclover)." (This suggests that the area was re-seeded).

Table 59: Historical Information About Each of the Sites.		
2	Coal Pile Topsoil Pile	In a DOGM inspection report Kale (November 10, 1982) reported that a new disturbance was made for a coal stockpile. Soil was salvaged from this disturbance. Because this topsoil pile was relatively small, it has been postulated that the coal storage pile may have been expanded at a later date (Kirschbaum 2003). *No reports on revegetation success were noted.*
3 4 5	Topsoil Pile From Pond 6 Subsoil Pile (E) From Pond 6 Subsoil Pile (W) from Pond 6	In a DOGM inspection report Haddock (April 18-19, 1989) reported that seeding was completed on the sites of recent construction, namely, the pipeline corridor leading to Pond 6, the topsoil and subsoil piles created during Pond 6 construction and the area surrounding Pond 6. No mulch was used in these areas as a variance to the mulching requirement. This was approved on March 20, 1989. Note - *Haddock (September 7-8, 1989) reported that there was very little vegetation on the new pipeline corridor and topsoil piles associated with Pond 6. He also states that the site had been graded and disced and appears stable.* Demczak (May 30, 1991) stated that the topsoil pile by the main haulage road to the mine will be reseeded this fall. Burton (October 1991) stated that work had begun on reshaping and revegetating the topsoil stockpiles located north of Pond 6. Burton (November 21, 1991) reported that the topsoil and subsoil piles located on the south side of Emery County Road #907 have been reseeded and mulched. Consol first made wedge-shaped depressions with a front-end loader. The depressions are sized approximately 5'L x 1' D x 1' W. The pile was then disced with a tractor around these depressions. The seed was a mix recommended by P. Baker (Division) and was hand broadcast, followed by hand mulching of 1T/ac straw. The mulch was incorporated by discing with a tractor. The mulch in the wedge-shaped depressions was not crimped. The right-of-way on land on the opposite side of the road was treated in the same manner, except that no depressions were formed in the surface of the relatively level ground.

Table 59: Historical Information About Each of the Sites.		
		Burton (January 21, 1992) reported that the topsoil and subsoil piles located on the south side of Emery County Road #907 were reseeded and mulched in the fall of 1991. Note: In the same report, Burton also stated that at the end of the inspection, a photograph of a dozen cows grazing on the adjacent Pond #6 was taken. The ability of the cows to access the topsoil storage area will severely limit the success of the recent revegetation. She said Consol may want to eliminate the grazing in the area either by fencing or through an agreement with the rancher. The right-of-way on land on the opposite side of the road was also reseeded and should be free of grazing pressure for at least two years as well. Baker (February 13, 1992) reported a few cattle were grazing next to the soil stockpiles by Pond 6, and one of the piles had tracks on it. He said Consol has had difficulty in establishing vegetation on these stockpiles, and I discussed the possible need to fence them. Mr. Bray stated that the company is considering this but that it cannot be done now because the ground is frozen. The inspector obtained copies of the purchase order and invoice for the seed used last fall on these same stockpiles. All species required in the plan were present in the proper proportions. (Seed list was not included in this report). Demczak (March 27, 1992) reported that the topsoil and subsoil piles located near Pond 6 have a history of sparse or no vegetation growing on them. The piles were mulched and reseeded in the fall of 1991. The inspection of the piles revealed single stem plants springing up throughout the topsoil piles. The disturbing factor was that cows have been roaming on to the piles. Thererfore, further investigation into the regulation is needed to prevent these occurrences. Those piles should be protected from contaminants and unnecessary competition that would interfere with revegetation. In a DOGM inspection report Baker (April 9, 1992) said that they looked at the topsoil and subsoil stock pile near sediment Pond 6 that were seeded last fall. He stated that these piles have a moderate number of seedling plants growing on them. The most common plants, however, were grain from the mulch, and weeds. Baker discussed the possible need to fence these stockpiles from cattle that graze in the area. These stockpiles are not particularly subject to erosion, but vegetative cover is needed to retain the viability and usability of the topsoil. Forage in the area is generally fair or poorer quality, and cattle would be inclined to eat desirable vegetation that grows on the stockpiles. Mr. Bray stated that he would discuss the situation with company officials who would decide whether or not to spend the money to fence the stockpiles. Mr. Baker stated that if the piles are not fenced and if there is evidence that vegetation establishment is being impaired by grazing, enforcement action would be considered. Burton (June 18, 1992) reports that the same topsoil and subsoil piles observed. Some grasses and seedlings on the subsoil pile. Plants seemed healthier on the subsoil pile. Livestock hoof prints were evident on pile. Consol said no cattle will be there until fall. Demczak (October 29, 1992) stated that "we have looked at vegetation establishment on the soil stockpiles near Pond 6. Best establishment has been on the small subsoil pile in the middle. The reasons for this better plant establishment should be investigated. I am not sure why this pile was kept separate from the larger subsoil pile on the west, *but the soil may lack some undesirable characteristics of other soils.*

Table 59: Historical Information About Each of the Sites.		
		Demczak (June 22, 1993) reported that "there has been very little vegetation on top of the topsoil piles. The seeding which took place 2 years ago has not been very successful. There are some grasses within the berm ditch around the topsoil pile where moisture has been concentrated and a small amount of native vegetation on the pile." Demczak (July 9, 1993) mentioned that only cover on piles are weeds, but grasses are growing inside berm. He recommended roughening surface of piles. In a later inspection report, Johnson (November 18, 1993) stated that "there are signs that cattle have been walking on the topsoil piles. Since vegetation is difficult to establish on these piles and the soils are highly erodible, measures should be taken to keep the cattle out of the area." Johnson (December 21, 1993) later reports that "there are signs that cattle are waking on the topsoil piles. Some of the grasses in the trough between the topsoil and the berms around the topsoil appear to have been eaten, but it could not be determined whether it was by cattle, rabbits or another animal". Baker (December 30, 1993) provided a qualitative assessment of these pile. In this memorandum he makes the following statements. • Success has been better on the middle, smaller pile. There are several seeded grasses that appeared to have survived the second summer although they are still small and have not set seed. Because they have not set seed, it is impossible to identify them. This pile also contains a few small winterfat and fourwing saltbush plants. Even though this pile has more seeded species growing on it than the other piles, cover from the seeded species is still less than 5%. • The two larger piles have very few seeded grasses growing on them. A few winterfat and fourwing saltbush plants are present, but these are very small and it is questionable how much longer they will survive. • There are more seeded plants in the gouges that were created with the seeding project than on other areas. Cover from seeded species is less than 1%. • There are more native species growing on the topsoil piles now than in 1991, but there is not as much cover from native species as there is in adjacent areas. Some of the possible reasons for not having better success are: 1) the soil is of poor quality, and its quality is diminished even further when it is disturbed. However, other topsoil piles at the mine have substantially more perennial vegetation than these three, 2) precipitation is low in the area, and it may not have come at optimal times for plant establishment, 3) there were some limitations with the equipment that could be used, and the gouges may not have been large enough to capture enough water to make the gouges as useful as they could have been, 4) cattle and rabbits have access to the topsoil piles. I saw evidence of grazing of some of the established plants, including a woody plant that had been bitten off at ground level. During the first winter after the seeding, the cattle appeared to eat some of the mulch and to use it for bedding.
6	Pond 6 Banks	(See Sites 3-5 for History and Notes).

Table 59: Historical Information About Each of the Sites.		
7	Pond 4 & 5 Areas	(See Site No. 1 for History and Notes).
8	Borehole Reclaimed Road	From a DOGM inspection by Portle (April 10, 1984), he stated that the borehole access road was seeded in fall 1982. Another source confirms the above statement and adds "since no earth materials were removed and no road surfacing material was placed during construction (prior to Aug. 3 1977) of these roads, no grading, backfilling or topsoil respreading was required" (Emery Mine MRP, October 2002). The same source shows the following seeds were planted at pounds of pure live seed rates. Crested wheatgrass (0.5) Western wheatgrass (1.0) Indian ricegrass (0.5) Galleta (0.5) Streambank wheatgrass (1.0) Fourwing saltbush (1.5) The same inspection report recommended it be seeded again in spring 1984 because success was not good.
9	Substation Topsoil Pile	According to Behling (2003) this pile was probably created when the substation was constructed and seeded at the same time.
10	Topsoil Pile from Pond 1	This pond was constructed in the early 1980s (Behling 2003). Although not stated directly, it was probably seeded immediately or soon after construction.
11	Pond 1	This pond was constructed in the early 1980s (Behling 2003). Although not stated directly, it was probably seeded immediately or soon after construction.
12	Grease-wood Reference Area (GW3)	Reasons for establishing this reference area are unknown. A larger greasewood reference area has been established in a different location. The larger area was described by Peterson and Keammerer (1980). This is a small area of about 1600 ft^2 (40' x 40').
13	Reference Area Grease-wood	Peterson and Keammerer (1980) stated that they established a greasewood reference area that was "based on characteristics of the vegetation types and other site considerations". The report also states that this reference area was selected as to closely represent the vegetation type within the area to be disturbed. Size of the reference area was 100 feet by 100 feet and was fenced.

Table 59: Historical Information About Each of the Sites.		
14	Pond 1 Subsoil	This pond was constructed in the early 1980s (Behling 2003). Although not stated directly, it was probably seeded immediately or soon after construction. This pile is long and narrow because it was proposed to be a slurry ditch when first constructed.
15	Riparian Meadow Reference Area - 1	No information was found for this reference area. Information was found, however, on the smaller riparian meadow reference area (see Site No. 16 below). Approximate size was 50 feet by 150 feet.
16	Riparian Meadow Reference Area - 3	Peterson and Keammerer (1980) stated that they established a riparian meadow reference area that was "based on characteristics of the vegetation types and other site considerations". The report also stated that this reference area was selected as to closely represent the vegetation type within the area to be disturbed. Another larger riparian meadow reference area was established. No information was found for this area (see Site No. 16 above). Size of the reference area was 40 feet by 60 feet and was fenced.
17	Annual Forb - 1	In an early report prepared by Peterson and Keammerer (1980), this community was described for the Emery Deep Mine permit area. As described in the scope of the Peterson and Keammerer (1980) report, the vegetation "studies were designed to sample and characterize vegetation types within the area to be affected and to establish a reference area for major vegetation types found within the area to be affected". It is not known whether the authors of the report meant "affected" to mean disturbed or merely to be a portion of the permit area 'affected by mining (not necessarily 'disturbed'). In the case of this community it is more practical to presume the later scenario since no obvious disturbances to this area has occurred by mining operations.

Table 59: Historical Information About Each of the Sites.		
18	Mixed Desert Shrub Reference Area	Peterson and Keammerer (1980) stated that they established a mixed desert shrub reference area that was "based on characteristics of the vegetation types and other site considerations". The report also states that this reference area was selected as to closely represent the vegetation type within the area to be disturbed. Size of the reference area was 100 feet by 100 feet and was fenced.

Table 59: Historical Information About Each of the Sites.		
19	Test Plot	Prior to *Mt. Nebo Scientific's* sampling of the Test Plot (also called "Revegetation Demonstration Plot"), several documents were reviewed. Also reviewed was Appendix VII-1 (1987). Following only limited revegetation success, the Test Plot was reconstructed in 1987 to comply with a March 11, 1987 DOGM deficiency received by Consol and *"to evaluate some innovative techniques described in the Intermountain Forest and Range Experiment Station Research Report INT335 dated June, 1985"*. The 1987 document is a good source to review all techniques and changes for the Test Plots. The following additional documents were also reviewed: Consolidation Coal Company (March 31, 1986), Goodrich and Denning (October 5, 1987), Denning and Larson (January 10, 1989), and Denning (March 25, 1992). The aforementioned reference regarding the test plot summarized each years' assessment research plot. These results were summarized well by P. Burton (July 31, 2003) who has taken excerpts from files at DOGM. Some the excerpts and comments from her summary follows below. *The demonstration test plot was constructed in 1984 and reworked in 1987 in an effort to determine successful revegetation techniques for use on subsoils derived from the Mancos Shale. The chemical characteristics of the soils in this plot are described with the Vegetation Data in the 1991 Annual Report. They are extremely sodic, with average values in the top six inches of 9.3 pH and 19.8 SAR. The variables tested in the plots were:* • *topsoil and no topsoil treatments;* • *irrigation and no irrigation treatments;* • *mulch and no mulch treatments;* • *furrows and no furrows; and* • *mature versus containerized transplants.The demonstration test plots were evaluated in 1989 and 1990 by Richard Denning and David Larson of Consolidation Coal Company. The results of the evaluation are included in the Annual Reports for 1988 and 1989. Mortality of transplants and containerized plants was high. At the end of the monitoring period, the 33% of the mature transplants survived and 10% of the containerized transplants were living. The most successful plots were those that received mulch and contained shallow depressions. Thus, the test plots emphasize that the most important variable is the availability of water. Water not only irrigates the plants, but also leaches the salts from the soil.*
20	Canyon Road	This is a road to old portals that have been closed and sealed. At the time of sampling for this report, it had not yet been reclaimed. Therefore, no vegetation sampling was conducted.

DISCUSSION

One of the primary objectives of this study was to monitor and report the findings from quantitative sampling several areas that have been reclaimed or re-seeded at the Emery Mine site. Another objective was to attempt to interpret the data sets in a meaningful way to determine revegetation feasibility. Or, in other words, to attempt to provide explanations for apparent successes or failures of the reclaimed areas. The viability of the reclaimed areas including reclamation techniques, species lists, seeding times, climatic considerations, and other historical information makes this a complicated task.

This section therefore attempts to discuss some of the most meaningful data along with some historical and soil property aspects of the reclaimed and reference areas. As mentioned previously, a soil sampling study was also conducted on each of these sites by James Nyenhuis. The soil study also included information about the locations from which the soils of each of the reclaimed sites were probably taken. Although some of these soil results are discussed in this section, the complete report is also included in this document.

Table 60: Seed Mixture for Arid Land Mixed Desert Shrub and Annual Forb Areas at the Emery Mine

Plant Species	PLS/ Acre
Indian ricegrass	3.0
Alkali sacaton	0.5
Galleta	2.5
Western wheatgrass	3.0
Winterfat	4.0
Fourwing saltbush	4.0
Rubber rabbitbrush	1.0
Yellow sweetclover	1.5
Desert globemallow	0.5
Blueleaf aster	0.5
Sand dropseed	0.1
Gardner saltbush	2.0
Black Sagebrush	0.25
TOTAL	22.85

Table 61: Seed Mixture for Greasewood Areas at the Emery Mine

Plant Species	PLS/ Acre
Blue grama	0.75
Streamb. wheatgrass	3.0
Sand dropseed	0.35
Winterfat	4.0
Fourwing saltbush	4.0
Rubber rabbitbrush	1.0
Big sagebrush	0.25
Greasewood	2.5
Yellow sweetclover	1.0
Blue flax	1.0
Evening primrose	0.5
Gardner saltbush	2.0
Black sagebrush	0.25
TOTAL	20.60

Seed Mixtures

Although some records reported on Table 59 implied that in some cases the seeding mixtures may have varied, the seed mixtures shown on Tables 60-62 were in the Emery Mine's approved plan (Emery Mine MPR, May 2001). Because it was not stated elsewhere in the records we reviewed, it is therefore assumed that these mixtures were seeded in the reclaimed areas.

Living Cover

Along with other summarized data, the RESULTS section above presents tables that show the sampling results of total living cover and cover by species. One of the most meaningful parameters shown on the cover tables was the "Desirable Species Cover" which is comprised of the total living cover minus the "weedy" exotics that were common in some areas. This provides the investigators a more meaningful cover figure that can more accurately be compared to potential revegetation standards, reference areas, or other parameters that represent tangible success as compared to that in which cover has been inflated by the addition of weed plant species cover.

Table 63 shows the desirable plant cover for each of the reclaimed sample areas, listing the values from the most cover to the least amount of cover. Also shown are soil potential problems as described by J. Nyenhuis later in this document.

Table 62: Seed Mixture for Riparian Meadow Areas at the Emery Mine

Plant Species	PLS/Acre
Western wheatgrass	5.0
Slender wheatgrass	3.0
Alkali sacaton	0.25
Spike muly	0.25
Alkaligrass	0.50
Yellow sweetclover	1.5
Blueleaf aster	0.50
Indian blanket	1.0
Jones reedgrass	1.0
Gooseberry globem.	1.0
Alfalfa (Ladak)	1.0
Winterfat	1.0
Fourwing saltbush	2.0
Wood's rose	1.0
TOTAL	19.0

Table 63: Reclamation Areas - Desirable Living Cover (in Descending Order).			
Site No.	Site Name	Desirable Cover %	Soil Problems
19	Test Plot Area	46.30	
11	Pond 1 Banks	39.40	saline and/or sodic
6	Pond 6 Banks	38.50	saline and/or sodic
7	Pond 5 Area	18.00	
1	Subsoil Piles from Ponds 4 & 5	11.80	
4	Subsoil Pile (E) From Pond 6	11.14	
10	Topsoil Pile From Pond 1	10.53	saline and/or sodic
2	Coal Pile Topsoil Pile	10.30	
9	Substation Topsoil Pile	6.40	
14	Pond 1 Subsoil Pile	3.20	saline and/or sodic
8	Borehole Reclaimed Road	2.60	saline and/or sodic
5	Subsoil Pile (W) From Pond 6	1.38	saline and/or sodic
3	Topsoil Pile From Pond 6	0.27	
20	Canyon Bottom Road	N/A	saline and/or sodic
21	Pond 4 Area	N/A	saline and/or sodic
22	4th East Portal Topsoil Pile	N/A	

The **Test Plot** area had the most desirable cover of all the reclaimed areas. For the study several previous monitoring reports were reviewed prior to sampling the plots (see Site 19, Table 59). When the investigators arrived in the field to sample the plots for this study, as-built drawings were reviewed to determine the boundaries of the reclamation treatments employed. Unfortunately, the field plot did not match the drawings or subplots, so treatments used were unknown for sampling purposes. We then consulted more CCC documents and had conversations with Mr. Tim Kirschbaum (CCC) and DOGM representatives in an attempt to decipher the plot design, but were unsuccessful to determine this design with any degree of certainty. We later decided to sampled the site in an area that had good cover, but sampling was conducted without regard to treatments. Soil sampling was accomplished in the same area by James Nyenhuis. Although not specific to reclamation treatments, the data therefore suggest that the area could be reclaimed successfully.

The next two highest cover values were those from **Pond 1** and **Pond 6** banks with very respectable values of 39.40% and 38.50%, respectively. The most accurate reference areas to be compared to these reclaimed sites would be the Site 13 (Reference Area Greasewood) and Site 12 [Greasewood Reference Area (GW3)]. Even though the soils of the reclaimed areas were saline and sodic, the desirable plant cover of Pond 1 and Pond 6 banks exceeded the cover values of their reference areas (see Tables 35-40 and Table 64 for reference area cover).

When one compares the cover values of the reclaimed areas of Table 63, it appears that *the highest cover values were those areas that had either a water supply* (e.g. Pond 1 and Pond 6 banks) *or were those areas that did not have saline or sodic soil problems.*

It should be noted that some of the native, undisturbed soils such as Site 12 also had saline and sodic soil conditions. Historical information may also provide a clue in revegetation success. For

example, Table 59 reports potential predation problems from resident livestock on the reclaimed areas of Pond 6 (Sites 3-6) from several inspections conducted by DOGM.

Table 64: Reference Area Desirable Living Cover (in Descending Order).

Site No.	Site Name	Desirable Cover %	Soil Problems
15	Riparian Meadow Reference Area -1	81.80	poor % CaCO3
16	Riparian Meadow Reference Area -3	59.38	
18	Mixed Desert Shrub Reference Area	31.60	
13	Reference Area Greasewood	29.00	
12	Greasewood Reference Area (GW3)	25.70	saline and/or sodic
17	Annual Forb Reference Area - 1	21.00	poor sat. %

Woody Species Density

Table 65 shows that several of the reclaimed sites had acceptable woody species density values (the number of individuals per acre), many of which came close to those reported in the reference areas (Table 66).

Woody species densities of the reclaimed sites also seemed to be dependant on the whether or not salinity of sodicity was a factor in the soils. With only one exception, the greatest densities were those soils that did not have "poor" or "unacceptable" salt problems. The exception was the Pond 1 Banks, an area where water was more readily available than other sites.

Table 65: Reclamation Area Woody Species Density (in Descending Order).

Site No.	Site Name	Number Per Acre	Soil Problems
2	Coal Pile Topsoil Pile	4382.07	
7	Pond 5 Area	3949.80	
11	Pond 1 Banks	3664.10	saline and/or sodic
19	Test Plot Area	2957.83	
9	Substation Topsoil Pile	1363.99	
1	Subsoil Piles from Ponds 4 & 5	1351.51	
6	Pond 6 Banks	1100.70	saline and/or sodic
8	Borehole Reclaimed Road	648.66	saline and/or sodic
14	Pond 1 Subsoil Pile	573.02	saline and/or sodic
4	Subsoil Pile (E) From Pond 6	197.83	
5	Subsoil Pile (W) From Pond 6	56.55	saline and/or sodic
10	Topsoil Pile From Pond 1	9.65	saline and/or sodic
3	Topsoil Pile From Pond 6	0.00	
20	Pond 4 Area	N/A	saline and/or sodic
21	4th East Portal Topsoil Pile	N/A	saline and/or sodic

Table 66: Reference Area Woody Species Density (in Descending Order).

Site No.	Site Name	Number Per Acre	Soil Problems
18	Mixed Desert Shrub Reference Area	7978.36	
12	Greasewood Reference Area (GW3)	7826.74	saline and/or sodic
17	Annual Forb Reference Area - 1	4044.09	poor sat. %
13	Reference Area Greasewood	2612.77	
15	Riparian Meadow Reference Area -1	0.00	poor % CaCO3
16	Riparian Meadow Reference Area -3	0.00	

SUMMARY & CONCLUSIONS

The four factors that seemed to most influence desirable plant cover and woody species density were: 1) electrical conductivity (EC), 2) sodium adsorption ratios (SAR's), 3) proximity to an available water source and, 3) management practices (i.e. grazing). In other words, those areas where salinity and sodicity were not apparent in the soils or a water source was available for plant growth and livestock were not present for grazing on the reclaimed areas, desirable plant cover and woody species density were highest.

Although three of the reclaimed sites had cover and woody species densities that had the potential to meet or exceed those standards that could potentially be used to represent final revegetation success standards, two of those sites had techniques that would not be practical for final reclamation (the sites were located on the slopes of pond areas). The third area, or Test Plots, had the most cover and good density values. It appears that water availability may also have had an affect on this plot because records indicate that irrigation on the plots was implemented. This area was also fenced to preclude livestock grazing.

It also should be noted that Utah has had 5 consecutive years of drought conditions, a factor that can greatly influence successful revegetation. Many of these sites, however, were seeded prior to the drought and, although it may have greatly reduced cover, reproduction and productivity, it should not have precluded establishment of desirable plant species.

This study provided quantitative data of several reclaimed sites that strongly suggest that revegetation in this area may be challenging, but not impossible. Final reclamation and revegetation planning should emphasize water harvesting (or supplemental irrigation) and the soil characteristics, especially salts which are also inherent in the native soils.

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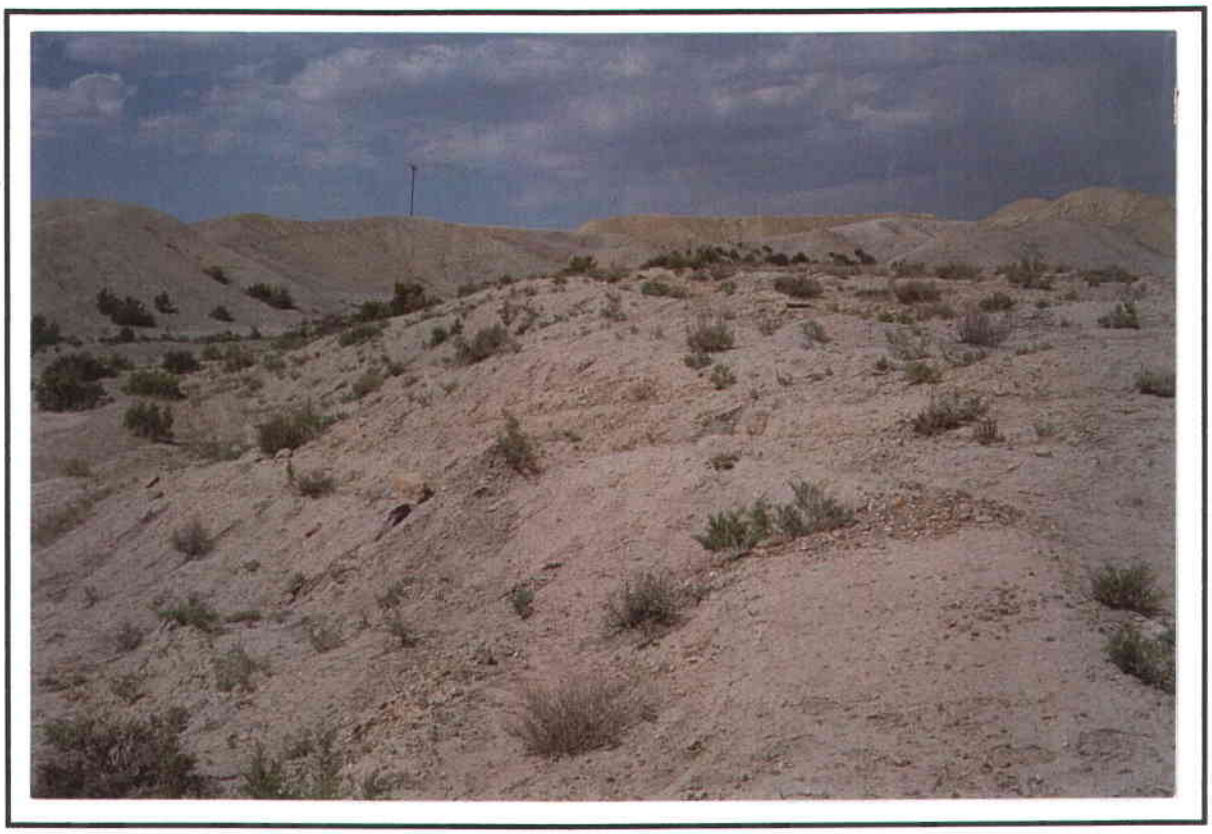
COLOR PHOTOGRAPHS OF THE STUDY SITES

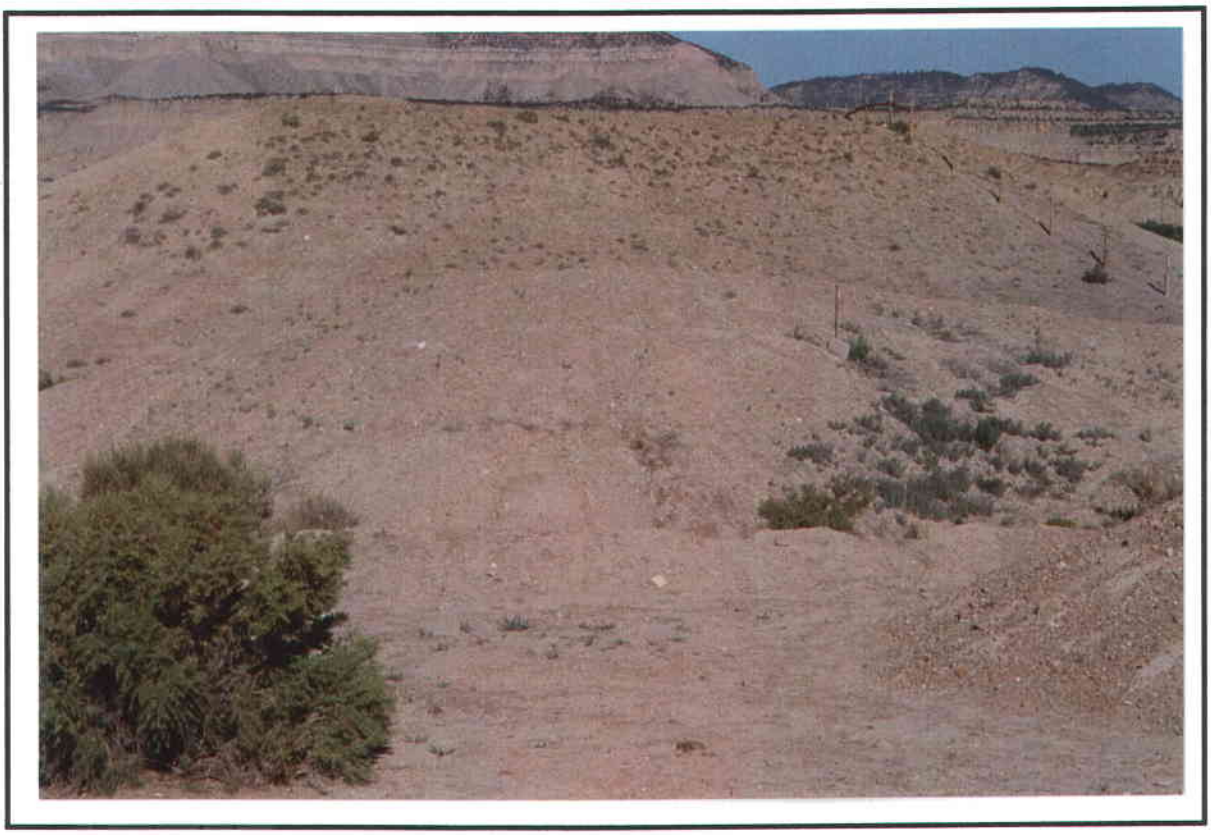


Site 1 - Subsoil Piles From Pond 4 & 5

Site 2 - Coal Pile Topsoil Pile

Site 3 - Topsoil Pile From Pond 6

Site 4 - Subsoil Pile (E) From Pond 6



Site 5 - Subsoil Pile (W) From Pond 6

Site 6 - Pond 6 Banks

Site 7 - Pond 5 Area

Site 8 - Borehole Reclaimed Road

Site 9 - Substation Topsoil Pile

Site 10 - Topsoil Pile From Pond 1

Site 11 - Pond 1 Banks

Site 12 - Greasewood Reference Area (GW3)

Site 13 - Reference Area Greasewood

Site 14 - Pond 1 Subsoil Pile

Site 15 - Riparian Meadow Reference Area - 1

Site 16 - Riparian Meadow Reference Area - 3

Site 17 - Annual Forb Reference Area - 1

Site 18 - Mixed Desert Shrub Reference Area

Site 19 - Test Plot Area

Site 20 - Canyon Bottom Road

Site 21 - Pond 4 Area

Site 22 - 4th East Portal Topsoil Pile

RECLAMATION MONITORING STUDY FOR THE EMERY MINE

SOILS

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INTRODUCTION

The soils component of the Consol Energy Company Emery Reclamation Study includes soils description, sampling, and interpretation of 22 sampling sites. These sites are listed by number and name in soils Table 1. The table also contains the GPS northing and easting coordinates, as well as the topographic quadrangle map, for each site. A map showing sampling locations is on file at Mt. Nebo Scientific but is not included with this report. The resulting field and laboratory soils data was evaluated for characterization and reclamation suitability purposes. Results of this analysis are provided in Section 3.0. The soils information was also provided to Patrick Collins for integration with the vegetation results.

METHODS

The 22 soil and vegetation sampling sites were initially listed by Mr. Tim Kirshbaum (Consol Energy) in consultation with DOGM. The sites are various reclaimed areas, topsoil and subsoil stockpiles, pond areas and banks, a test plot area, and various vegetation reference areas. Because the pond areas had multiple sampling sites (Pond 6 had four sample locations – topsoil pile, subsoil pile east, subsoil pile west, and pond banks; Ponds 4 & 5 had three sample locations – pond 5 area, pond 4 area, and subsoil pile; and Pond 1 had three sample locations – topsoil pile, subsoil pile, and pond banks), the 22 sampling locations can be grouped into 15 separate site areas. Patrick Collins, in consultation with Consol, located and delineated all 22 sampling sites. A GPS northing and easting coordinate was recorded for each sampling location.

Tim Kirschbaum submitted a draft proposal of Consol's reclamation study plan to DOGM on April 1, 2003. A subsequent meeting with DOGM personnel on April 21, including Ms. Priscilla Burton, refined the sampling and analysis protocol. Two soil samples would be collected at a representative location at each sampling site. Composite samples were collected from 0 to 3 inches and from 3 to 6 inches (Kirshbaum, 2003). The upper 6 inches was considered to be the primary rooting depth zone. A standard soil profile description would be completed for the upper 6 inches at each site (Soil Survey Staff, 1993 and 1999; and Schoeneberger et. al., 2002).

A total of 44 soil samples (22 sites x 2 samples per site) were collected and submitted to Colorado State University's Soil Testing Laboratory. The soil analysis parameters included:

- pH
- EC (mmhos/cm)
- Saturation Percent
- Lime estimate and Percent CaCO3 equivalent
- Percent Organic Matter (Loss on Ignition)
- Percent Organic Matter (Walkley-Black)
- Ca, Mg, Na, K (meq/L)
- Sodium Adsorption Ratio (SAR)
- Texture (percent sand, silt, and clay)
- Selenium (Se) and Boron (B) in mg/kg
- Gypsum (meq/100g)

- NO3-N, P, K, Zn, Fe, Mn, and Cu (ppm, AB-DTPA Extract)

Previous soils information for the Consol permit area was obtained and reviewed. The review included the original Consol baseline soils report (Walsh & Associates, 1981) and the completed but unpublished NRCS soil survey information for this part of Emery County (Sasser, 2003). The soil sampling field and laboratory results were evaluated for standard soil suitability parameters contained in DOGM's Table 4, Soil and Spoil Suitability/Unsuitability Evaluation, of "Guidelines for Management of Topsoil and Overburden" (Burton and Davidson, 2002). A copy of the DOGM suitability table is included with this report (Appendix B). Based on the suitability evaluation, the soils at each of the 22 sites were described as acceptable (good and fair rated), poor, or unacceptable. All poor and/or unacceptable rated parameters were listed by soil site. The nature of the problem(s) is discussed in the results section. The soil results were provided to Patrick Collins for integration with the vegetation results.

RESULTS

The soil laboratory results are attached as Appendix A. All soil samples were screened in the field with a No.10 (2mm) screen. Coarse fragment content was recorded on the description forms. Organic matter content was originally determined in the laboratory by the Total Organic Carbon method (TOC, by loss-on-ignition). The TOC results seemed too high for organic matter content for these soils, so a Walkley-Black test was also performed. These results were more accurate for soil organic matter content and should be considered the better results.

Soils Table 2 summarizes the soil characteristics and suitability evaluations for each of the 22 sampling sites. Fifteen of the sites are associated with ongoing reclamation activities for the Emery Mine. Six of the sites are associated with various vegetation reference areas for the Emery Mine. One site (4th East Portal Topsoil Pile) is associated with recent soil salvage for the new 4th East Portal some distance away from the main Emery Mine. Table 2 includes:

- The site name and number
- The soil texture for each depth interval, with clay percent
- The soil reaction (pH) and class name for each depth interval
- The soil suitability evaluation with all poor and/or unacceptable parameters listed with their data values.

A review of the field and laboratory results indicate many sites have all good or fair rated soil material in the upper 6 inches. These sites include:

- Pond 6: Topsoil Pile, and Subsoil Pile (E), sites 3 and 4 respectively
- Ponds 4 & 5: Pond 5 Area, and Subsoil Pile, sites 7 and 1 respectively
- Coal Pile Topsoil Pile, site 2
- Test Plot, site 19
- Substation Topsoil Pile, site 9
- Reference Area Greasewood, site 13

- Riparian Meadow Reference Area – 3, site 16
- Mixed Desert Shrub Reference Area, site 18
- 4th East Portal Topsoil Pile, site 22

Site 15 (Riparian Meadow Reference Area – 1) contains a hydric soil most like the Ferron soil series. It has poor rated carbonates with 40.2 percent in the upper 3 inches, and 31.3 percent in the 3 to 6 inch depth. The upper 3 inches also has 10.5 ppm Boron, 7.5 percent organic matter (Walkley-Black) and 100 percent saturation. EC and SAR are both low.

Site 17 (Annual Forb Reference Area) has poor rated saturation percent with 21.3% in the upper 3 inches, and 22.5% in the 3 to 6 inch depth. Soil texture is very gravelly sandy loam with 12 percent clay and 35 percent mixed gravels.

Eight of the 15 active Emery Mine reclamation sampling sites (53% of the these sites) have pH, EC, and SAR values that results in a "saline-sodic" classification. In addition, one vegetation reference area (Greasewood Reference Area GW-3, Site 12) is also "saline-sodic". A "saline-sodic" typically has EC>4, SAR>15, and pH<8.5 (DOGM, 2002). Excess soluble salts lowers the osmotic potential and plant roots cannot obtain water from the soil. Excess sodium in the soil reduces the soil permeability, and destroys the soil structure by dispersing the soil particles. Soil pores are eliminated and the soil becomes impermeable. Infiltration and drainage of air and water are severely limited, and the erosion hazard increases (DOGM, 2002).

Saline-sodic soil material is generally rated "unacceptable". However, site 5 (Pond 6 – Subsoil Pile West) is grouped with the saline-sodic sites even though the SAR of the 3 to 6 inch depth was 13.1, not quite 15. Likewise, site 21 (Pond 4 Area) is grouped with the "saline-sodic" sites even though the SAR of the 3 to 6 inch depth is 13.3, not quite 15. These sites are grouped with the other "saline-sodic" sites because they are most like them. Both sites 5 and 21 are poor rated because the SAR value is just under 15.

The "saline-sodic" sites are:

- Pond 6 – Subsoil Pile (W), and Pond Banks, sites 5 and 6 respectively
- Ponds 4& 5 – Pond 4 Area, site 21
- Borehole Reclaimed Area, site 8
- Canyon Bottom Road, site 20
- Pond 1 – Topsoil Pile, Subsoil Pile, and Pond Banks, sites 10, 14, and 11 respectively
- Greasewood Reference Area (GW3), site 12

Results of each sampling site are discussed below. Soil profile descriptions and soil suitability discussions are provided. Site description information is also provided, including: (1) location of area and/or probable area from where the soil material was salvaged, (2) landscape of immediate area and native vegetation, (3) coarse fragment content of the site soil surface, (4) site slope, (5) site aspect, (6) site vegetation including a qualitative statement regarding revegetation condition for the 15 reclamation sites, (7) erosion state, and (8) date of sampling. The statements regarding revegetation condition are subjective, first impressions and were a product of discussion between

Patrick Collins and Jim Nyenhuis at the sampling sites. Quantitative statements regarding revegetation condition are primary and are in the main vegetation report.

Individual results for each sampling area are discussed in the order in which they were sampled, as follows:

- Pond 6 (Topsoil Pile; Subsoil Pile, East; Subsoil Pile, West; and Pond Banks)
- Ponds 4 & 5 (Pond 5 Area, Pond 4 Area, and Subsoil Pile)
- Borehole Reclaimed Road
- Coal Pile Topsoil Pile
- Test Plot
- Substation Topsoil Pile
- Canyon Bottom Road
- Pond 1 (Topsoil Pile, Subsoil Pile, Pond Banks)
- Greasewood Reference Area (GW3)
- Reference Area Greasewood
- Riparian Meadow Reference Area-1
- Riparian Meadow Reference Area-3
- Annual Forb Reference Area-1
- Mixed Desert Shrub Reference Area
- 4th East portal Topsoil Pile

Pond 6 Area

Four sampling sites were located in the Pond 6 Area: Topsoil Pile (site 3), Subsoil Pile East (site 4), Subsoil Pile West (site 5), and Pond Banks (site 6). Sites 3 and 4 have good or fair rated soil material in the upper 6 inches. Sites 4 and 5 are considered "saline-sodic". Site 4 is poor rated, and site 5 is unacceptable rated.

<u>Pond 6 Topsoil Pile (Site 3)</u>

Site 3 Site Description: Topsoil material was probably salvaged from the Pond 6 area prior to excavation of the pond. The immediate area is a low terrace to a nearby drainage. Adjacent native area supports greasewood-sueda vegetation. Topsoil pile surface has about 30% mixed gravels and cobbles consistent with salvage from a former terrace. Sample site 3 has 5% slope; SSW aspect; poor revegetation with annual weeds, halogten; slight erosion with small rills present; compacted surface; sampled 8-5-03.

Site 3 Soil Profile Description:

AC horizon – 0 to 3 inches. Brown (10YR 5/3) clay loam with 10% mixed gravels, dark grayish brown (10YR 4/2 moist; moderate medium granular structure; slightly hard, friable, very sticky and plastic consistence; few fine and very fine roots; strongly effervescent, pH 7.8 (slightly alkaline); gradual smooth boundary.

C horizon – 3 to 6 inches. Brown (10YR 5/3) clay loam with 15% mixed gravels, dark grayish brown (10YR 4/2) moist; massive structure; hard, friable, very sticky and plastic consistence; very few very fine roots; strongly effervescent, pH 7.9 (moderately alkaline).

Site 3 Soil Suitability: Although the Pond 6 Topsoil Pile (Site 3) probably came from a terrace deposit with greasewood vegetation, the topsoil material is all good or fair rated. EC is 3.8 for 0 to 3 inches, and 5.7 for 3 to 6 inches. SAR is 4.2 for 0 to 3 inches, and 8.8 for 3 to 6 inches. Calcium carbonate equivalent is 19 to 20 percent. Organic matter (Walkley-Black) is 1 percent.

Pond 6 Subsoil Pile (E), Site 4

Site 4 Site Description: Subsoil material (east) was probably salvaged from the Pond 6 area prior to excavation of the pond. The immediate area is a low terrace to a nearby drainage. Adjacent native area supports greasewood-sueda vegetation. Subsoil pile (E) surface has about 35 to 40% mixed gravels consistent with salvage from a former terrace. Sample site 4 has 3% slope; SW aspect; poor revegetation with some shrubs including saltbush, winterfat, and some mixed grasses in small swales; slight erosion; compacted surface; sampled 8-5-03.

Site 4 Soil Profile Description:

AC horizon – 0 to 3 inches. Grayish brown (10YR 5/2) clay loam with 15% mixed gravels, dark grayish brown (10YR 4/2) moist; moderate medium granular structure; slightly hard, friable, sticky and plastic consistence; few fine and very fine roots; strongly effervescent, pH 7.8 (slightly alkaline); gradual smooth boundary.

C horizon – 3 to 6 inches. Grayish brown (10YR 5/2) clay loam with 15% mixed gravels, brown (10YR 4/3) moist; massive structure; hard, firm, very sticky and plastic consistence; very few very fine roots; violently effervescent, pH 7.8 (slightly alkaline).

Site 4 Soil Suitability: Although the Pond 6 Subsoil Pile (E) probably came from a terrace deposit with greasewood vegetation, the subsoil material is all good or fair rated. EC is 3.7 for 0 to 3 inches, and 4.5 for 3 to 6 inches. SAR is 4.1 for 0 to 3 inches, and 6.1 for 3 to 6 inches. Calcium carbonate equivalent is about 19.5 percent. Organic matter (Walkley-Black) is 1.2 to 1 percent.

Pond 6 Subsoil Pile (W), Site 5

Site 5 Site Description:

Subsoil Pile (W) material was probably salvaged from the Pond 6 area prior to excavation of the pond. The immediate area is a low terrace to a nearby drainage. Adjacent native area supports greasewood-sueda vegetation. Subsoil Pile (W) surface has about 50% mixed gravels consistent with salvage from a former terrace. Sample site 5 has 4% slope; SW aspect; poor revegetation; slight erosion; compacted surface; sampled 8-5-03.

Site 5 Soil Profile Description:

AC horizon – 0 to 3 inches. Brown (10YR 5/3) clay loam with 20% mixed gravels, brown (10YR 4/3) moist; moderate medium granular structure; slightly hard, firm, sticky and plastic consistence; few fine and very fine roots; strongly effervescent, pH 7.8 (slightly alkaline); gradual smooth boundary.

C horizon – 3 to 6 inches. Brown (10YR 5/3) clay loam with 20% mixed gravels, brown (10YR 4/3) moist; massive structure; hard, firm, sticky and plastic consistence; very few fine and very fine roots; strongly effervescent, pH 8.0 (moderately alkaline).

Site 5 Soil Suitability: Pond 6 Subsoil Pile (W) is grouped with the "saline-sodic" sites even though the SAR of the 3 to 6 inch depth is 13.1, not quite 15. Site 5 is poor rated. EC is 4.4 for the upper 3 inches, and 8.7 for the 3 to 6 inch depth. SAR is 6.3 for the upper 3 inches, and 13.1 for the 3 to 6 inch depth. Calcium carbonate equivalent is about 19 to 20 percent, and organic matter content (Walkley-Black) is 0.9 to 0.8 percent.

Pond 6 Pond Banks, Site 6

Site 6 Site Description: The Pond Banks soil material was probably salvaged from the Pond 6 area prior to excavation of the pond. The immediate area is a low terrace to a nearby drainage. Adjacent native area supports greasewood-sueada vegetation. Pond Banks surface have about 15% mixed gravels consistent with salvage from a former terrace. Sample site 6 has 10% slope; N aspect; good revegetation with intermediate wheatgrass, rabbitbrush, and greasewood; no erosion; sampled 8-5-03.

Site 6 Soil Profile Description:

AC horizon – 0 to 3 inches. Grayish brown (10YR 5/2) clay loam with 15% mixed gravels, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, friable, very sticky and plastic consistence; common fine and very fine roots; strongly effervescent, pH 8.5 (strongly alkaline); gradual smooth boundary.

C horizon – 3 to 6 inches. Brown (10YR 5/3) clay loam with 15% mixed gravels, brown (10YR 4/3) moist; massive structure; hard, firm, very sticky and plastic consistence; common fine and very fine roots; strongly effervescent, pH 8.4 (moderately alkaline).

Site 6 Soil Suitability: The Pond Banks material is unacceptable rated. EC is 37.5 for the upper 3 inches, and 19.7 for the 3 to 6 inch depth. SAR is 35.7 for the upper 3 inches, and 24.3 for the 3 to 6 inch depth. Calcium carbonate equivalent is about 21 to 22 percent. Organic matter (Walkley-Black) is 1.5 to 1.0 percent.

Ponds 4 & 5 Area

Three sampling sites were located in the Ponds 4 & 5 area: Pond 5 Area (site 7); Pond 4 Area (site 21); and Subsoil Pile (site 1). Sites 7 and 1 have good or fair rated material, site 21 is grouped with the "saline-sodic" sites, and is poor rated.

Pond 5 Area, Site 7

Site 7 Site Description: Pond 5 Area soil material was probably salvaged from the surrounding former shale slopes. The immediate area is Mancos shale slopes with greasewood vegetation. The Pond 5 Area surface has about 15% mixed gravels. Sample site 7 has 8% slope; SW aspect; fair to good revegetation with greasewood, rabbitbrush, fourwing saltbush, and shadscale; slight erosion; sampled 8-6-03.

Site 7 Soil Profile Description:

AC horizon – 0 to 3 inches. Pale brown (10YR 6/3) loam with 15% mixed gravels, brown (10YR 4/3) moist; moderate medium platy structure; hard, firm, sticky and plastic consistence; few fine and very fine roots; strongly effervescent, pH 7.8 (slightly alkaline); gradual smooth boundary.

C horizon – 3 to 6 inches. Pale brown (10YR 6/3) sandy clay loam with 10% mixed gravels, brown (10YR 4/3) moist; massive structure; hard, firm, very sticky and plastic consistence; few fine and very fine roots; strongly effervescent, pH 7.9 (moderately alkaline).

Site 7 Soil Suitability: Pond 5 Area material is good or fair rated. EC is 3.5 in the upper 3 inches, and 4.1 in the 3 to 6 inch depth. SAR is 2.4 in the upper 3 inches, and 3.4 in the 3 to 6 inch depth. Calcium carbonate equivalent is just under 15 percent. Organic matter (Walkley-Black) is 0.4 to 0.5 percent.

Pond 4 Area, Site 21

Site 21 Site Description: Pond 4 Area soil material was probably salvaged from the surrounding former shale slopes. The immediate area is Mancos shale slopes with greasewood vegetation. The Pond 4 Area surface has about 20% mixed gravels. Sample site 21 has 10% slope, SE aspect; poor revegetation with greasewood and halogten; very slight erosion; sampled 8-6-03.

Site 21 Soil Profile Description:

AC horizon – 0 to 3 inches. Grayish brown (10YR 5/2) clay loam with 20% mixed gravels, dark grayish brown (10YR 4/2) moist; moderate medium granular structure; slightly hard, friable, sticky and plastic consistence; very few very fine roots; strongly effervescent, pH 7.9 (moderately effervescent); gradual smooth boundary.

C horizon – 3 to 6 inches. Brown (10YR 5/3) clay loam with 20% mixed gravels, brown (10YR 4/3) moist; massive structure; very hard, firm, very sticky and plastic consistence; no roots observed; strongly effervescent, pH 8.0 (moderately alkaline).

Site 21 Soil Suitability: Pond 4 Area material is considered "saline-sodic" and is poor rated. EC is 4.9 for the upper 3 inches, and 8.1 for the 3 to 6 inch depth. SAR is 6.9 for the upper 3 inches, and 13.3 for the 3 to 6 inch depth. Calcium carbonate equivalent is 14.6 percent, and organic matter (Walkley-Black) is 0.9 to 0.7 percent.

Subsoil Pile, Site 1

Site 1 Site Description: Subsoil Pile from Ponds 4 and 5 material was probably salvaged from the surrounding former shale slopes. The immediate area is Mancos shale slopes supporting native greasewood vegetation. The Subsoil Pile surface has about 25% mixed gravels. Sample site 1 has 6% slope; N aspect; good revegetation with greasewood and shadscale; slight erosion; compacted surface; sampled 8-6-03.

Site 1 Soil Profile Description:

AC horizon – 0 to 3 inches. Brown (10YR 5/3) clay loam with 20% mixed gravels, brown (10YR 4/3) moist; weak medium platy structure; slightly hard, friable, sticky and plastic consistence; very few very fine roots; strongly effervescent, pH 7.7 (slightly alkaline); gradual wavy boundary.

C horizon – 3 to 6 inches. Brown (10YR 5/3) clay loam with 20% mixed gravels, brown (10YR 4/3) moist; massive structure; hard, firm, sticky and plastic consistence; no roots observed; strongly effervescent, pH 8.0 (moderately alkaline).

Site 1 Soil Suitability: Subsoil Pile from Ponds 4 and 5 material is good to fair rated. EC is 3.2 for the upper 3 inches, and 5.8 for the 3 to 6 inch depth. SAR is 2.3 for the upper 3 inches, and 7.1 for the 3 to 6 inch depth. Calcium carbonate equivalent is about 12 to 14.5 percent. Organic matter (Walkley-Black) is 0.6 to 0.5 percent.

Borehole Reclaimed Road, Site 8

Site 8 Site description: Borehole Reclaimed Road soil material was probably salvaged from the immediate Mancos shale rolling hills where the borehole road was located. The adjacent native vegetation is mat saltbush. The Site 8 surface has 15% mixed gravels; 1% slope; W aspect; poor revegetation with greasewood; slight erosion; soft surface but weakley compacted; sampled 8-6-03.

Site 8 Soil Profile Description:

AC horizon – 0 to 3 inches. Grayish brown (10YR 5/2 and 2.5Y 5/2) clay with 10% mixed gravels, dark grayish brown (2.5Y 4/2) moist; weak medium platy structure; soft, very friable, very sticky and very plastic consistence; very few very fine roots; strongly effervescent, pH 8.2 (moderately alkaline); gradual wavy boundary.

C horizon – 3 to 6 inches. Grayish brown (2.5Y 5/2) clay loam with 10% mixed gravels, dark grayish brown (2.5Y 4/2) moist; massive structure; slightly hard, friable, very sticky and very plastic consistence; very few very fine roots; violently effervescent, pH 8.5 (strongly alkaline).

Site 8 Soil Suitability: Borehole Reclaimed Road soil material is "saline-sodic", and is rated unacceptable. EC is 11 for the upper 3 inches, and 15.3 for the 3 to 6 inch depth. SAR is 21.4 for the upper 3 inches, and 27.7 for the 3 to 6 inch depth. Calcium carbonate equivalent is 13 to 19 percent. Organic matter (Walkley-Black) is 0.7 to 0.6 percent.

Coal Pile Topsoil Pile, Site 2

Site 2 Site Description: The Coal Pile Topsoil Pile material was probably salvaged from the immediate area with rolling Mancos shale hills with a thin sandstone slopewash material on top. The adjacent native area has shadscale vegetation. The Site 2 surface has about 30% mixed gravels; 6% slope; NW aspect; good revegetation with shadscale; slight erosion; sampled 8-6-03.

Site 2 Soil Profile Description:

AC horizon – 0 to 3 inches. Pale Brown (10YR 6/3) clay with 20% mixed gravels, yellowish brown (10YR 5/4) moist; moderate medium granular structure; slightly hard, friable, sticky and slightly plastic consistence; few fine and very fine roots; violently effervescent, pH 7.7 (slightly alkaline); gradual smooth boundary.

C horizon – 3 to 6 inches. Pale brown (10YR 6/3) clay loam with 20% mixed gravels, yellowish brown (10YR 5/4) moist; massive structure; hard, firm, sticky and slightly plastic consistence; few fine and very fine roots; violently effervescent, pH 7.9 (moderately alkaline).

Site 2 Soil Suitability: The Coal Pile Topsoil Pile is generally good to fair rated although the SAR is poor rated for the 3 to 6 inch depth. EC is 3.3 for the upper 3 inches, and 6.7 for the 3 to 6 inch depth. SAR is 2.6 for the upper 3 inches, and 11.2 for the 3 to 6 inch depth. Calcium carbonate equivalent is 13 to 18 percent. Organic matter (Walkley-Black) is 0.7 percent.

Test Plot, Site 19

Site 19 Site Description: The Test Plot is an area fenced off in the early 1980's for the purpose of reclamation tests. The area is on a stream terrace of Quitchupah Creek just before the confluence with Christiansen Wash on the Walker Flat quadrangle. It is unknown whether topsoil material was previously brought in and put on the test plot area. The soil surface today appears natural although the organic matter content (Walkley-Black) of the upper 6 inches (3.0% for the upper 3 inches, and 2.6% for the 3 to 6 inch depth) is too high for a native greasewood terrace. Perhaps the soil was amended with organic matter in some manner during the reclamation trials. The sandy loam texture of the upper 6 inches is also atypical for greasewood terraces in the general area. The adjacent native area has greasewood vegetation. The Test Plot surface has about 2% mixed gravels; 0 to 2% slope; W aspect; good revegetation in some areas with greasewood and poor revegetation in other areas; no erosion; sampled 8-6-03.

Site 19 Soil Profile Description:

A horizon – 0 to 3 inches. Brown (10YR 5/3) sandy loam with 1% mixed gravels, brown (10YR 4/3) moist; moderate medium granular structure; slightly hard, friable, nonsticky and nonplastic consistence; few medium, fine and very fine roots; moderately effervescent, pH 8.0 (moderately alkaline); gradual smooth boundary.

C horizon – 3 to 6 inches. Pale brown (10YR 6/3) sandy loam with 1% mixed gravels, brown (10YR 4/3) moist; massive structure; hard, friable, nonsticky and nonplastic consistence; few fine and very fine roots; moderately effervescent, pH 8.1 (moderately alkaline).

Site 19 Soil Suitability: The Test Plot soil material is generally good to fair rated although the SAR is poor rated for the 3 to 6 inch depth. EC is 1.6 for the upper 3 inches, and 2.4 for the 3 to 6 inch depth. SAR is 4.1 for the upper 3 inches, and 9.1 for the 3 to 6 inch depth. Calcium carbonate equivalent is about 13 to 14 percent. Organic matter (Walkley-Black) is 3.0 percent for the upper 3 inches, and 2.6 percent for the 3 to 6 inch depth.

Substation Topsoil Pile, Site 9

Site 9 Site Description: The Substation Topsoil Pile material was probably salvaged from the immediate substation area which is within rolling Mancos shale hills. The adjacent native vegetation is shadscale with some mat saltbush. The topsoil pile surface area has 10 to 15% mixed gravels; 6% slope; S aspect; good shadscale revegetation; slight erosion; sampled 8-6-03.

Site 9 Soil Profile Description:

AC horizon – 0 to 3 inches. Brown (10YR 5/3) clay loam with 15% mixed gravels, brown (10YR 4/3) moist; moderate medium granular structure; slightly hard, friable, sticky and slightly plastic consistence; very few fine and very fine roots; violently effervescent, pH 7.9 (moderately alkaline); gradual smooth boundary.

C horizon – 3 to 6 inches. Brown (10YR 5/3) loam with 15% mixed gravels, brown (10YR 4/3) moist; massive structure; hard, friable, sticky and slightly plastic; very few very fine roots; violently effervescent, pH 7.9 (moderately alkaline).

Site 9 Soil Suitability: The Substation Pile topsoil, at site 9, is all good to fair rated. EC is 3.0 for the upper 3 inches, and 5.5 for the 3 to 6 inch depth. SAR is 1.3 for the upper 3 inches, and 7.4 for the 3 to 6 inch depth. Calcium carbonate equivalent is about 15 to 16 percent. Organic matter (Walkley-Black) is 0.9 to 0.6 percent.

Canyon Bottom Road, Site 20

Site 20 Site Description: The Canyon Bottom Road site is on a narrow terrace adjacent to Christiansen Wash. Adjacent vegetation is tamarisk and greasewood. The roadside was recently regraded but not yet reseeded. Reapplied soil was present. Its source is unknown. The reclaimed soil surface has about 15% mixed gravels; 4% slope; W aspect; no revegetation due to recent regrading; no erosion; sampled on 8-6-03.

Site 20 Soil Profile description:

C1 horizon – 0 to 3 inches. Pale brown (10YR 6/3) clay loam with 15% mixed gravels, brown (10YR 4/3) moist; massive structure; slightly hard, friable, sticky and slightly plastic; no roots; violently effervescent, pH 8.1 (moderately alkaline); no boundary.

C1 horizon – 3 to 6 inches. Pale brown (10YR 6/3) clay loam with 15% mixed gravels, brown (10YR 4/3) moist; massive structure; hard, friable, sticky and slightly plastic; no roots; violently effervescent, pH 8.0 (moderately effervescent).

Site 20 Soil Suitability: The Site 20 soil material is considered "saline-sodic" and is rated unacceptable. EC is 9.7 in the upper 3 inches, and 9.8 in the 3 to 6 inch depth. SAR is 15.7 in the upper 3 inches, and 15.6 in the 3 to 6 inch depth. Calcium carbonate equivalent is about 17 percent. Organic matter (Walkley-Black) is 0.6 to 0.5 percent.

Pond 1 Area

The Pond 1 Area has three sampling sites: Topsoil Pile, Site 10; Subsoil Pile, Site 14, and Pond Banks, Site 11. All three sites are considered "saline-sodic" and are rated unacceptable.

Topsoil Pile, Site 10

Site 10 Site Description: The Topsoil Pile material was probably salvaged from the immediate Pond 1 Area which is located in bottomland alluvium with greasewood vegetation. The topsoil pile surface has about 5% mixed gravels; 15% slope; W aspect; fair revegetation with greasewood; slight erosion; sampled 8-6-03.

Site 10 Soil Profile Description:

AC horizon – 0 to 3 inches. Grayish brown (10YR 5/2) clay loam with 5% mixed gravels, brown (10YR 4/3) moist; moderate medium granular structure; slightly hard, friable, sticky and slightly plastic consistence; few fine and very fine roots; violently effervescent, pH 7.8 (slightly effervescent); gradual smooth boundary.

C horizon – 3 to 6 inches. Grayish brown (10YR 5/2) loam with 3% mixed gravels, brown (10YR 5/3) moist; massive structure; hard, firm, sticky and slightly plastic consistence; few very fine roots; violently effervescent, pH 8.0 (moderately alkaline).

Site 10 Soil Suitability: Topsoil Pile, Site 10, material is considered "saline-sodic" and is rated unacceptable. EC is 7.2 in the upper 3 inches, and 14.3 in the 3 to 6 inch depth. SAR is 10.5 in the upper 3 inches, and 20.5 in the 3 to 6 inch depth. Calcium carbonate equivalent is 16 to nearly 19 percent. Organic matter (Walkley-Black) is 1.8 to 0.9 percent.

Subsoil Pile, Site 14

Site 14 Site Description: The Subsoil Pile material was probably salvaged from the immediate Pond 1 Area which is located in bottomland alluvium with greasewood vegetation. The Subsoil Pile surface has 1% mixed gravels; 6% slope; W aspect; poor revegetation with greasewood; slight erosion; sampled 8-6-03.

Site 14 Soil Profile Description:

AC horizon – 0 to 3 inches. Brown (10YR 5/3) clay loam with 1% mixed gravels, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, friable, sticky and slightly plastic consistence; few fine and very fine roots; violently effervescent, pH 8.6 (strongly alkaline); gradual wavy boundary.

C horizon – 3 to 6 inches. Brown (10YR 5/3) clay loam with 1% mixed gravels, brown (10YR 4/3) moist; massive structure; hard, firm, sticky and slightly plastic consistence; no roots observed; violently effervescent, pH 8.6 (strongly alkaline).

Site 14 Soil Suitability: Subsoil Pile, Site 14, material is considered "saline-sodic" and is rated unacceptable. EC is 21 for the upper 3 inches and 21.2 for the 3 to 6 inch depth. SAR is 32 for the upper 3 inches, and 30.7 for the 3 to 6 inch depth. Calcium carbonate equivalent is about 19 percent. Organic matter (Walkley-Black) is 0.7 percent.

Pond Banks, Site 11

Site 11 Site Description: Pond Banks, Site 11, soil material was probably salvaged from the immediate Pond 1 Area which is located in bottomland alluvium with greasewood vegetation. The Pond Banks surface has 1% mixed gravels; 15% slope; W aspect; good revegetation with greasewood and rabbitbrush; slight erosion; sampled 8-6-03.

Site 11 Soil Profile Description:

AC horizon – 0 to 3 inches. Pale brown (10YR 6/3) loam with 1% mixed gravels, brown (10YR 4/3) moist; moderate medium granular structure; slightly hard, friable, sticky and slightly plastic consistence; few fine and very fine roots; violently effervescent, pH 8.3 (moderately alkaline); gradual wavy boundary.

C horizon – 3 to 6 inches. Pale brown (10YR 6/3) loam with 1% mixed gravels, brown (10YR 4/3) moist; massive structure; slightly hard, friable, slightly sticky and slightly plastic consistence; few fine and very fine roots; strongly effervescent, pH 8.4 (moderately alkaline).

Site 11 Soil Suitability: Pond Banks, Site 11, material is considered "saline-sodic", and is rated unacceptable. EC is 13.2 for the upper 3 inches, and 24.9 for the 3 to 6 inch depth. SAR is 20.1 for the upper 3 inches, and 29.6 for the 3 to 6 inch depth. Calcium carbonate equivalent is about 15.5 percent. Organic matter (Walkley-Black) is 0.7 to 0.6 percent.

Greasewood Reference Area (GW3), Site 12

Site 12 Site Description: Site 12 is in an undisturbed slopewash alluvial area with native greasewood vegetation. The area was delineated as a greasewood reference area (GW3) years ago. The Site 12 surface has 1% mixed gravels; 1% slope; SW aspect; slight erosion; sampled 8-6-03.

Site 12 Soil Profile Description:

A horizon – 0 to 3 inches. Brown (10YR 5/3) loam with 1% mixed gravels, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, friable, sticky and plastic consistence; common fine and very fine roots; violently effervescent, pH 8.1 (moderately alkaline); clear smooth boundary.

B horizon – 3 to 6 inches. Brown (10YR 5/3) clay loam with 1% mixed gravels, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic consistence; few fine and very fine roots; violently effervescent, pH 8.2 (moderately alkaline).

Site 12 Soil Suitability: The Site 12 soil material within the Greasewood Reference Area (GW3) is considered "saline-sodic" and is rated unacceptable. EC is 6.2 for the upper 3 inches, and 11 for the 3 to 6 inches. SAR is 15.3 for the upper 3 inches, and 17.6 for the 3 to 6 inch depth. Calcium carbonate equivalent is 16 to 17 percent. Organic matter (Walkley-Black) is 0.8 percent.

Reference Area Greasewood, Site 13

Site 13 Site Description: Site 13 is an undisturbed alluvial fan area with native greasewood vegetation. The area was delineated as a greasewood reference area years ago. The area has a thin gravelly slopewash over Mancos shale. The Site 13 surface has 30% mixed gravels and 5% mixed cobbles; 5% slope; SW aspect; slight erosion; sampled 8-6-03.

Site 13 Soil Profile Description:

A horizon – 0 to 3 inches. Brown (10YR 5/3) sandy loam with 30% mixed gravels and 5% mixed cobbles, brown (10YR 4/3) moist; weak medium granular structure; hard, friable, sticky and slightly plastic consistence; few coarse, medium, fine and very fine roots; strongly effervescent, pH 8.0 (moderately alkaline); gradual wavy boundary.

B horizon – 3 to 6 inches. Brown (10YR 5/3) sandy clay loam with 30% mixed gravels and 5% mixed cobbles, brown (10YR 4/3) moist; moderate medium subangular blocky structure; very hard, firm, sticky and slightly plastic consistence; few coarse, medium, fine and very fine roots; violently effervescent, pH 7.8 (slightly alkaline).

Site 13 Soil Suitability: The Site13 soil material is good to fair rated. EC is 0.8 for the upper 3 inches, and 2.4 for the 3 to 6 inch depth. SAR is 2.7 for the upper 3 inches, and 2.0 for the 3 to 6 inch depth. Calcium carbonate equivalent is nearly 19 percent. Organic matter (Walkley-Black) is 1.3 to 1.5 percent.

Riparian Meadow Reference Area-1, Site 15

Site 15 Site Description: Site 15 is within the Riparian Meadow Reference Area-1. The area is on a Mancos shale slope that has wetness due to water seepage from upslope. The soil is developing in slopewash alluvium and has a sod cover. The soil is hydric due to wetness and mottling, and is most like the Ferron soil series. Coarse fragment content is less than 2% mixed gravels. Site 15 has 6% slope; SW aspect; sedges and rushes vegetation; no erosion; sampled 8-6-03.

Site 15 Soil Profile Description:

A horizon – 0 to 3 inches. Reddish yellow (7.5YR 6/6) sandy loam, strong brown (7.5YR 5/6) moist with common high chroma mottles; sod cover/moderate medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic consistence; many coarse, medium, fine and very fine roots; violently effervescent, pH 7.5 (slightly alkaline); clear wavy boundary.

Bg Horizon – 3 to 6 inches. Light gray (10YR 6/1) loam, dark gray (10YR 4/1) moist (gleyed); massive structure; slightly hard, friable, slightly sticky and slightly plastic consistence; many coarse, medium, fine and very fine roots; moderately effervescent, pH 7.5 (slightly alkaline).

Site 15 Soil Suitability: The soil in this Riparian Meadow Reference Area-1 meets criteria for hydric status, and is most like the Ferron soil series. The soil has poor rated carbonates with 40.2 percent in the upper 3 inches, and 31.3 percent in the 3 to 6 inch depth. EC and SAR are both low. The upper 3 inches also has 10.5 ppm Boron, 7.5 percent organic matter (Walkley-Black), and 100 percent saturation.

Riparian Meadow Reference Area-3, Site 16

Site 16 Site description: Site 16 is within Riparian Meadow Reference Area-3. The area is on a Mancos shale slope with some sandstone slopewash from upslope. The soil has wetness due to water seepage from upslope. The soil is developing in slopewash alluvium with some sandstone influence. The soil surface has 1% mixed gravels. Site 16 has 2% slope; W aspect; native vegetation including bluegrass, foxtail, rushes, and saltgrass; no erosion; sampled 8-6-03. Site 16 is drier than Site 15.

Site 16 Soil Profile Description:

A horizon – 0 to 3 inches. Grayish brown (10YR 5/2) loam with 1% mixed gravels, dark grayish brown (10YR 4/2) moist; sod cover/moderate medium granular structure; slightly hard, friable, sticky and very plastic consistence; many coarse, medium, fine and very fine roots; violently effervescent, pH 7.8 (slightly alkaline); clear smooth boundary.

Bw horizon – 3 to 6 inches. Grayish brown (10YR 5/2) loam with 1% mixed gravels, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic consistence; many coarse, medium, fine and very fine roots; violently effervescent, pH 7.7 (slightly alkaline).

Site 16 Soil Suitability: Soil material at Site 16 is good to fair rated. EC and SAR are both low. Calcium carbonate equivalent is about 18 to 22 percent. Organic matter (Walkley-Black) is 3.9 to 1.8 percent.

Annual Forb Reference Area-1, Site 17

Site 17 Site Description: Site 17 is in an undisturbed Annual Forb Reference Area. The area is on a rounded ridge spur knob. The soil is developing in gravelly sandy clay loam alluvium and residuum from sandstone. The soil surface has about 45 percent mixed gravels. Site 17 has 2% slope; W aspect; native vegetation including Phacelia, shadscale, and galleta; no erosion; sampled 8-6-03.

Site 17 Soil Profile Description:

A horizon – 0 to 3 inches. Light brown (7.5YR 6/4) sandy loam with 35% mixed gravels, brown (7.5YR 5/4) moist; moderate medium granular structure; hard, friable, sticky and slightly plastic consistence; few medium, fine and very fine roots; violently effervescent, pH 8.1 (moderately alkaline); gradual smooth boundary.

C horizon – 3 to 6 inches. Light brown (7.5YR 6/4) sandy loam with 35% mixed gravels, brown (7.5YR 5/4) moist; massive structure; hard, friable, sticky and slightly plastic consistence; few fine and very fine roots; violently effervescent, pH 8.3 (moderately alkaline).

Site 17 Soil Suitability: Site 17 has poor rated saturation percent with 21.3% for the upper 3 inches, and 22.5% for the 3 to 6 inch depth. All other parameters are good to fair rated. EC and SAR are both low. Calcium carbonate equivalent is 20 to 22 percent. Organic matter (Walkley-Black) is 0.6 to 0.5 percent.

Mixed Desert Shrub Reference Area, Site 18

Site 18 Site description: Site 18 is in an undisturbed Mixed Desert Shrub Reference Area. The area is on a mid-backslope with native shadscale and galleta vegetation. The soil is developing in slopewash alluvium and residuum from sandstone. The Site 18 surface has about 10% mixed small gravels; 4% slope; E aspect; slight erosion; sampled 8-7-03.

Site 18 Soil Profile Description:

A horizon – 0 to 3 inches. Yellowish brown (10YR 5/4) sandy loam with 5% mixed gravels, brown (10YR 5/3) moist; weak medium granular structure; soft, very friable, sticky and plastic consistence; common medium, fine, and very fine roots; violently effervescent, pH 8.0 (moderately alkaline); clear smooth boundary.

Bw horizon – 3 to 6 inches. Yellowish brown (10YR 5/4) sandy loam with 5% mixed gravels, brown (10YR 5/3) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic consistence; common medium, fine, and very fine roots; violently effervescent, pH 7.9 (moderately alkaline).

Site 18 Soil Suitability: Site 18 has good to fair rated soil material. EC and SAR are both low. Calcium carbonate equivalent is 16 to 18 percent. Organic matter (Walkley-Black) is 0.7 to 0.8 percent.

4th East Portal Topsoil Pile, Site 22

Site 22 Site Description: Site 22 is located on the Topsoil Pile for the 4th East Portal area. The topsoil pile has imprinted micro-basins with good revegetation of grasses in the basins where water collects. The area's former vegetation was shadscale. The Site 22 soil surface has about 7% mixed gravels; 3% slope; E aspect; slight to no erosion; sampled 8-7-03.

Site 22 Soil Profile Description:

C1 horizon – 0 to 3 inches. Yellowish brown (10YR 5/4) sandy loam to loamy sand with 7% mixed gravels, dark yellowish brown (10YR 4/4) moist; massive structure; hard, friable, slightly sticky and nonplastic consistence; very few fine and very fine roots; violently effervescent, pH 7.8 (slightly alkaline); gradual wavy boundary.

C2 horizon – 3 to 6 inches. Yellowish brown (10YR 5/4) sandy loam to loamy sand with 7% mixed gravels, dark yellowish brown (10YR 4/4) moist; massive structure; hard, friable, slightly sticky and nonplastic consistence; very few fine and very fine roots; violently effervescent, pH 7.9 (moderately alkaline).

Site 22 Soil Suitability: Site 22 has good to fair rated soil material. EC and SAR are both low. Calcium carbonate equivalent is only 2 to 5 percent. Organic matter (Walkley-Black) is 0.6 to 0.7 percent.

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TABLE 1

LIST OF SOIL SAMPLE SITES
Consol Emery Reclamation Study

Site No.	Site Name	Easting Coord.	Northing Coord.	Quad Map
1	Subsoil Pile from Ponds 4 & 5	0477617	4301502	Walker Flat
2	Coal Pile Topsoil Pile	0477455	4301122	Walker Flat
3	Topsoil Pile from Pond 6	0475735	4302965	Emery Flat
4	Subsoil Pile (East) from Pond 6	0475735	4302965	Emery Flat
5	Subsoil Pile (West) from Pond 6	0475735	4302965	Emery Flat
6	Pond 6 Banks	0475735	4302965	Emery Flat
7	Pond 5 Area	0477377	4301439	Walker Flat
8	Borehole Reclaimed Road	0477219	4301680	Walker Flat
9	Substation Topsoil Pile	0477837	4301441	Walker Flat
10	Topsoil Pile from Pond 1	0476595	4301661	Walker Flat
11	Pond 1 Banks	0476658	4301177	Walker Flat
12	Greasewood Reference Area (GW3)	0477207	4301424	Walker Flat
13	Reference Area Greasewood	0477660	4302069	Walker Flat
14	Pond 1 Subsoil Pile	0476595	4301661	Walker Flat
15	Riparian Meadow Reference Area-1	0477646	4302263	Walker Flat
16	Riparian Meadow Reference Area-3	047747	4302167	Walker Flat
17	Annual Forb Reference Area-1	0477558	4302484	Walker Flat
18	Mixed Desert Shrub Reference Area	0477966	4302119	Walker Flat
19	Test Plot Area	0477294	4301015	Walker Flat
20	Canyon Bottom Road	0477949	4301108	Walker Flat
21	Pond 4 Area	0477377	4301439	Walker Flat
22	4th East Portal Topsoil Pile	0479668	4302679	Walker Flat

TABLE 2

SOIL CHARACTERISTICS AND SUITABILITY

Site Name	Site No.	Soil Texture[1] 0-3"/3-6", and % Clay	Soil Reaction (pH)[2] 0-3"/3-6"	Soil Suitability Poor/Unacceptable Parameters[3]
Pond 1 Topsoil Pile[4]	10	Clay Loam, 31% / Loam, 26%	7.8 (sl. alk), 8.0 (mod alk)	0-3": poor SAR (10.5) 3-6": poor EC (14.3), unaccept. SAR (20.5)
Subsoil Pile[4]	14	Clay Loam, 32% Clay	8.6 (strongly alk)	0-3": unaccept. EC (21.0), unaccept. SAR (32.0) 3-6": unaccept. EC (21.2), unaccept. SAR (30.7)
Pond Banks[4]	11	Loam, 17% Clay	8.3 (mod alk), 8.4 (mod alk)	0-3": poor EC (13.2), unaccept. SAR (20.1) 3-6": unaccept EC (24.9), unaccept SAR (29.6)
Greasewood Reference Area (GW3)[4]	12	Loam, 24% / Clay Loam, 31%	8.1 (mod alk), 8.1 (mod alk)	0-3": unaccept. SAR (15.3) 3-6": poor EC (11.0), unaccept. SAR (17.6)
Reference Area Greasewood	13	Grv. Sandy Loam, 14% / Sandy Clay Loam, 22%	8.0 (mod alk), 7.8 (sl. alk)	
Riparian Meadow Reference Area-1	15	Sandy Loam, 11% / Loam, 25%	7.6 (sl. alk), 7.5 (sl. alk)	0-3": poor % $CaCO_3$ (40.2) 3-6": poor % $CaCO_3$ (31.3)
Riparian Meadow Reference Area-3	16	Loam, 18%	7.8 (sl. alk), 7.7 (sl. alk)	
Annual Forb Reference Area-1	17	Sandy Loam, 12%	8.1 (mod alk), 8.3 (mod alk)	0-3": poor Sat % (21.3) 3-6": poor Sat % (22.5)
Mixed Desert Shrub Reference Area	18	Sandy Loam, 19%	8.0 (mod alk), 7.9 (mod alk)	
4th East Portal Topsoil Pile	22	Loamy Sand, 7%	7.8 (sl. alk), 7.9 (mod alk)	

[1]See laboratory data for full texture data. Gravelly or very gravelly modifier taken from field soil profile descriptions. Coarse fragment content determined by field screening (No. 10 Screen, 2 mm).

[2]pH Classes (partial list):

Slightly alkaline 7.4 – 7.8
Moderately alkaline 7.9 – 8.4
Strongly alkaline 8.5 – 9.0

[3]Suitability criteria and thresholds contained in DOGM Table 4 "Soil and Spoil Suitability/Unsuitability Evaluation" (Burton and Davidson, 2002). All Sample sites not listed as Poor or Unacceptable are evaluated as either Good or Fair.

[4]Based on pH, EC, and SAR values, the site is considered "Saline-Sodic." The soil values for "Saline-Sodic" are: EC (>4), SAR (>15), and typical pH (<8.5). Saline-sodic values are taken from DOGM Table 5 "Saline and Sodic Soil Categories" (Burton and Davidson, 2002).

APPENDIX A

(Soil Laboratory Results Report)

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Lab #	Sample ID #	paste pH	paste EC mmhos/cm	% saturation	Lime Estimate	% OM	AB-DTPA Extract ppm NO_3-N	P	K	Zn	Fe	Mn	Cu
R754	Site 1 0-3"	7.7	3.2	33.3	High	2.3	2.7	<0.1	153	0.36	3.75	1.15	1.48
R755	Site 1 3-6"	8.0	5.8	32.8	High	2.6	2.3	0.3	139	0.33	3.16	0.64	0.67
R756	Site 2 0-3"	7.7	3.3	37.4	High	3.2	6.3	0.3	216	0.17	2.84	1.89	0.88
R757	Site 2 3-6"	7.9	6.7	33.9	High	3.5	3.8	0.9	184	0.17	2.11	1.34	1.29
R758	Site 3 0-3"	7.8	3.8	37.5	High	2.6	7.2	2.0	234	0.46	4.11	1.04	1.24
R759	Site 3 3-6"	7.9	5.7	38.1	High	2.7	15.1	2.0	218	0.52	4.01	0.93	1.26
R760	Site 4 0-3"	7.8	3.7	35.9	High	2.2	20.0	3.3	330	0.48	5.73	1.88	1.37
R761	Site 4 3-6"	7.8	4.5	36.9	High	2.3	25.8	3.1	318	0.47	4.00	0.81	1.72
R762	Site 5 0-3"	7.8	4.4	36.7	High	2.7	10.4	1.4	189	0.56	3.98	1.17	2.53
R763	Site 5 3-6"	8.0	8.7	37.2	High	2.6	12.9	1.6	165	0.52	3.78	0.80	2.04
R764	Site 6 0-3"	8.5	37.5	41.4	High	3.0	3.5	9.8	547	0.92	11.8	2.28	1.12
R765	Site 6 3-6"	8.4	19.7	44.8	High	2.5	1.7	1.7	343	0.65	12.4	1.08	1.54
R766	Site 7 0-3"	7.8	3.5	31.8	High	2.1	1.7	1.3	152	0.31	2.96	1.31	1.49
R767	Site 7 3-6"	7.9	4.1	30.8	High	2.1	1.5	1.2	145	0.31	3.38	1.36	1.05
R768	Site 8 0-3"	8.2	11.0	48.9	High	2.7	12.0	1.1	346	0.53	5.26	0.99	2.58
R769	Site 8 3-6"	8.5	15.3	46.7	High	3.2	6.4	0.7	324	0.60	4.61	0.81	1.12
R770	Site 9 0-3"	7.9	3.0	34.3	High	2.7	4.6	1.2	205	0.30	2.97	1.01	1.66
R771	Site 9 3-6"	7.9	5.5	33.3	High	2.3	3.4	3.6	120	0.27	2.73	0.58	1.42
R772	Site 10 0-3"	7.8	7.2	38.1	High	2.3	16.4	1.8	271	0.46	6.13	1.94	2.22
R773	Site 10 3-6"	8.0	14.3	33.4	High	1.8	17.8	2.5	403	0.39	5.00	1.40	1.33
R774	Site 11 0-3"	8.3	13.2	32.2	High	1.2	4.9	2.3	206	0.39	11.9	1.92	2.05
R775	Site 11 3-6"	8.4	24.9	33.4	High	2.1	1.1	1.5	266	0.48	10.2	0.89	2.61

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Lab #	Sample ID #	paste pH	paste EC mmhos/cm	% saturation	Lime Estimate	% OM	AB-DTPA Extract ppm NO_3-N	P	K	Zn	Fe	Mn	Cu
R776	Site 12 0-3"	8.1	6.2	34.6	High	1.6	13.5	5.4	332	0.31	5.37	1.75	2.31
R777	Site 12 3-6"	8.2	11.0	39.6	High	2.3	7.5	1.8	240	0.26	3.37	1.26	1.89
R778	Site 13 0-3"	8.0	0.8	30.6	High	1.5	6.0	20.5	289	0.69	4.96	2.42	1.14
R779	Site 13 3-6"	7.8	2.4	31.6	High	1.5	3.2	4.4	283	0.37	3.98	1.42	1.58
R780	Site 14 0-3"	8.6	21.0	41.8	High	2.1	14.7	3.4	504	0.39	10.4	1.80	2.25
R781	Site 14 3-6"	8.6	21.2	45.3	High	2.2	6.9	2.1	477	0.35	8.91	0.97	1.49
R782	Site 15 0-3"	7.6	4.4	100	High	6.9	2.1	1.6	83.6	1.50	113	2.75	1.99
R783	Site 15 3-6"	7.5	3.3	58.5	High	3.8	1.2	1.7	111	2.10	107	1.42	4.46
R784	Site 16 0-3"	7.8	2.0	49.2	High	4.5	2.7	1.6	195	2.20	26.6	0.54	3.66
R785	Site 16 3-6"	7.7	3.2	39.7	high	3.3	1.9	0.6	161	1.67	30.7	0.32	2.84
R786	Site 17 0-3"	8.1	0.8	21.3	High	1.1	2.2	4.2	303	0.20	3.90	2.04	1.43
R787	Site 17 3-6"	8.3	0.7	22.5	High	1.2	1.9	2.8	325	0.20	3.72	1.68	2.12
R788	Site 18 0-3"	8.0	0.4	31.1	High	1.7	2.3	3.4	223	0.18	3.08	1.35	1.81
R789	Site 18 3-6"	7.9	0.4	29.3	High	1.9	1.0	2.4	182	0.19	2.97	0.96	2.80
R790	Site 19 0-3"	8.0	1.6	38.7	High	2.3	18.7	10.6	433	1.29	5.34	3.84	2.53
R791	Site 19 3-6"	8.1	2.4	34.7	High	4.2	7.3	4.0	420	0.67	4.89	1.85	0.88
R792	Site 20 0-3"	8.1	9.7	40.4	High	2.5	25.3	1.3	185	0.37	4.54	1.19	0.69
R793	Site 20 3-6"	8.0	9.8	39.4	High	2.9	28.8	1.1	170	0.29	3.45	0.83	0.64
R794	Site 21 0-3"	7.9	4.9	37.1	High	2.4	18.9	2.6	207	0.35	4.34	1.51	0.99
R795	Site 21 3-6"	8.0	8.1	43.0	High	2.8	31.8	1.0	153	0.38	4.52	0.93	0.93
R796	Site 22 0-3"	7.8	2.9	26.3	High	1.0	5.7	2.5	134	0.18	2.86	3.44	0.69
R797	Site 22 3-6"	7.9	3.2	26.0	High	1.0	4.2	2.5	152	0.15	3.25	1.13	0.86

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Lab #	Sample ID #	meq/L Ca	meq/L Mg	meq/L Na	meq/L K	SAR	% Sand	% Silt	% Clay	Texture	mg/kg Se	mg/kg B	meq/100g gypsum
R754	Site 1 0-3"	19.7	10.6	8.8	0.8	2.3	39	31	30	Clay Loam	0.003	2.3	19.6
R755	Site 1 3-6"	17.3	18.8	30.3	0.8	7.1	43	27	30	Clay Loam	0.010	2.3	20.0
R756	Site 2 0-3"	21.5	7.2	9.8	1.3	2.6	23	33	44	Clay	0.004	3.1	19.3
R757	Site 2 3-6"	18.7	11.1	43.2	1.4	11.2	31	31	38	Clay Loam	0.008	3.6	20.9
R758	Site 3 0-3"	20.4	10.4	16.3	0.9	4.2	36	29	35	Clay Loam	0.007	3.1	20.5
R759	Site 3 3-6"	19.1	11.0	34.0	0.9	8.8	36	31	33	Clay Loam	0.012	2.5	16.8
R760	Site 4 0-3"	21.7	6.0	15.2	1.6	4.1	36	29	35	Clay Loam	0.013	2.3	6.6
R761	Site 4 3-6"	21.0	7.4	23.0	1.4	6.1	36	30	34	Clay Loam	0.007	2.0	8.2
R762	Site 5 0-3"	19.5	9.5	24.1	0.7	6.3	42	27	31	Clay Loam	0.001	2.4	22.3
R763	Site 5 3-6"	18.8	15.3	54.1	0.8	13.1	38	29	33	Clay Loam	0.005	2.3	24.3
R764	Site 6 0-3"	15.2	38.9	185.5	7.7	35.7	40	26	34	Clay Loam	0.007	2.2	21.6
R765	Site 6 3-6"	15.8	28.2	114.0	3.7	24.3	40	23	37	Clay Loam	0.008	2.1	16.6
R766	Site 7 0-3"	20.8	11.8	9.5	0.9	2.4	51	28	21	Loam	0.010	1.9	21.2
R767	Site 7 3-6"	19.9	14.3	14.0	0.8	3.4	52	26	22	Sandy Clay Loam	0.003	2.2	21.1
R768	Site 8 0-3"	15.6	9.4	75.5	1.7	21.4	18	37	45	Clay	0.008	2.9	11.4
R769	Site 8 3-6"	14.5	13.6	103.6	2.0	27.7	24	38	38	Clay Loam	0.008	2.3	11.3
R770	Site 9 0-3"	21.5	8.9	5.0	0.8	1.3	41	31	28	Clay Loam	0.007	2.3	22.6
R771	Site 9 3-6"	18.0	14.9	30.1	0.8	7.4	45	29	26	Loam	0.010	2.5	21.1
R772	Site 10 0-3"	20.9	9.7	41.1	1.6	10.5	37	32	31	Clay Loam	0.015	2.3	8.3
R773	Site 10 3-6"	18.8	14.3	83.3	3.3	20.5	45	29	26	Loam	0.009	2.0	12.7
R774	Site 11 0-3"	16.2	16.3	81.2	2.3	20.1	45	39	16	Loam	0.010	2.1	6.6
R775	Site 11 3-6"	13.2	30.6	138.6	4.2	29.6	47	35	18	Loam	0.011	2.3	7.7

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R776	Site 12 0-3"	10.3	6.7	44.5	1.4	15.3	36	40	24	Loam	0.012	1.8	2.0
R777	Site 12 3-6"	17.2	14.6	70.2	1.1	17.6	33	36	31	Clay Loam	0.010	2.5	16.5
R778	Site 13 0-3"	2.6	1.1	3.6	0.9	2.7	66	20	14	Sandy Loam	0.009	1.0	0.5
R779	Site 13 3-6"	14.4	6.5	6.6	1.4	2.0	56	22	22	Sandy Clay Loam	0.008	1.2	0.3
R780	Site 14 0-3"	14.9	17.2	128.1	4.6	32.0	26	40	34	Clay Loam	0.010	2.6	14.5
R781	Site 14 3-6"	13.6	21.2	128.0	4.2	30.7	34	36	30	Clay Loam	0.012	2.7	10.4
R782	Site 15 0-3"	18.6	17.9	12.4	1.1	2.9	69	20	11	Sandy Loam	0.018	10.5	14.5
R783	Site 15 3-6"	19.9	13.0	6.3	0.5	1.5	42	33	25	Loam	0.009	4.1	13.8
R784	Site 16 0-3"	10.6	9.5	4.1	0.8	1.3	46	36	18	Loam	0.012	4.2	0.5
R785	Site 16 3-6"	19.1	13.7	4.9	0.7	1.2	47	35	18	Loam	0.015	3.0	20.8
R786	Site 17 0-3"	1.6	1.4	4.3	0.7	3.6	71	17	12	Sandy Loam	0.011	1.4	1.2
R787	Site 17 3-6"	1.0	0.9	4.9	0.6	5.0	71	17	12	Sandy Loam	0.008	1.7	1.5
R788	Site 18 0-3"	2.1	0.8	0.7	0.1	0.6	66	16	18	Sandy Loam	0.009	0.8	0.7
R789	Site 18 3-6"	1.8	0.7	1.1	0.1	1.0	60	20	20	Sandy Loam	0.010	1.1	0.9
R790	Site 19 0-3"	3.9	2.2	7.1	3.5	4.1	64	32	4	Sandy Loam	0.012	1.4	0.3
R791	Site 19 3-6"	3.4	2.0	15.5	3.6	9.4	54	40	6	Sandy Loam	0.007	1.5	0.6
R792	Site 20 0-3"	16.5	14.8	62.0	0.9	15.7	43	27	30	Clay Loam	0.009	5.6	14.1
R793	Site 20 3-6"	16.5	15.4	62.3	0.8	15.6	41	29	30	Clay Loam	0.008	5.5	14.2
R794	Site 21 0-3"	20.8	7.9	25.9	1.0	6.9	42	28	30	Clay Loam	0.012	3.4	15.2
R795	Site 21 3-6"	17.2	12.9	51.6	0.6	13.3	38	28	34	Clay Loam	0.013	5.8	15.8
R796	Site 22 0-3"	19.8	10.6	3.0	0.9	0.8	80	13	7	Loamy Sand	0.010	1.3	2.7
R797	Site 22 3-6"	19.1	13.3	5.0	1.0	1.2	81	12	7	Loamy Sand	0.009	1.3	6.9

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RESEARCH SOIL ANALYSIS

Consolidated Coal CO Emery Utah Reclamation Study

Lab #	Sample ID #	% $CaCO_3$ equiv	Walkley Black % OM	Lab #	Sample ID #	% $CaCO_3$ equiv	Walkley Black % OM
R754	Site 1 0-3"	14.4	0.6	R776	Site 12 0-3"	16.1	0.8
R755	Site 1 3-6"	12.3	0.5	R777	Site 12 3-6"	16.8	0.8
R756	Site 2 0-3"	18.2	0.7	R778	Site 13 0-3"	18.9	1.3
R757	Site 2 3-6"	13.2	0.7	R779	Site 13 3-6"	18.5	1.5
R758	Site 3 0-3"	20.3	1.0	R780	Site 14 0-3"	18.9	0.7
R759	Site 3 3-6"	19.1	1.0	R781	Site 14 3-6"	19.1	0.7
R760	Site 4 0-3"	19.6	1.2	R782	Site 15 0-3"	40.2	7.5
R761	Site 4 3-6"	19.5	1.0	R783	Site 15 3-6"	31.3	4.3
R762	Site 5 0-3"	20.5	0.9	R784	Site 16 0-3"	21.5	3.9
R763	Site 5 3-6"	19.3	0.8	R785	Site 16 3-6"	18.6	1.8
R764	Site 6 0-3"	21.4	1.5	R786	Site 17 0-3"	21.6	0.6
R765	Site 6 3-6"	22.3	1.0	R787	Site 17 3-6"	20.3	0.5
R766	Site 7 0-3"	14.8	0.4	R788	Site 18 0-3"	16.6	0.7
R767	Site 7 3-6"	14.9	0.5	R789	Site 18 3-6"	18.0	0.8
R768	Site 8 0-3"	13.3	0.7	R790	Site 19 0-3"	13.0	3.0
R769	Site 8 3-6"	18.8	0.6	R791	Site 19 3-6"	13.6	2.6
R770	Site 9 0-3"	15.7	0.9	R792	Site 20 0-3"	17.0	0.6
R771	Site 9 3-6"	15.6	0.6	R793	Site 20 3-6"	17.3	0.5
R772	Site 10 0-3"	18.5	1.8	R794	Site 21 0-3"	14.6	0.9
R773	Site 10 3-6"	16.1	0.9	R795	Site 21 3-6"	14.6	0.7
R774	Site 11 0-3"	15.6	0.7	R796	Site 22 0-3"	2.3	0.6
R775	Site 11 3-6"	15.8	0.6	R797	Site 22 3-6"	5.3	0.7

APPENDIX B

Table 4 from "Guidelines for Management of Topsoil and Overburden" (Burton and Davidson, 2002).

Table 4. Soil and Spoil Suitability/Unsuitability Evaluation

CRITERIA	GOOD	FAIR	POOR	UNACCEPTABLE
Saturation %	25 to 80		<25 >80	
pH	6.5 to 8.2	6.0 to 6.4 8.2 to 8.5	5.5 to 6.0 8.6 to 9.0	< 5.5 > 9.0
EC (mS/cm 25°C)	0 to 4	4 to 8	8 to 15	> 15
SAR [a,b]	0 to 4	5 to 10	10 to 15	> 15 [a]
%$CaCO_3$	<15	15 - 30	>30	
Texture [c]	sl, l, sil, scl, vfsl, fsl	c, sicl, sc, ls, lfs	sic, s, sc, c, cos, fs, vfs	g, vcos
Total Organic Carbon	<10%			≥10%
Available Water Capacity[d]	> 0.10 moderate	0.05 to 0.10 low	< 0.05 very low	
K factor[e]	< 0.37		> 0.37	

[a] For clay textured soils unacceptable is SAR >14. For sandy textured soils unacceptable is >20.

[b] For most Western soils, the SAR to ESP relationship is usually 1:1, up to ESP ≈ 20. If SAR>20, then determine ESP. (Evangelou, 2000.)

[c] s=sand, l= loam, si= silt, c= clay, v= very, f= fine, co=coarse, g=gravel

[d] Available Water Capacity is adjusted for texture.

[e] K factor recommendations from the USDA Soil Conservation Service.1978. National Soils Handbook Notice 24. (3/31/78). NSH Part II –403.6(a).

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Tipple Stacker Reclaim 01																			27696
	Tipple Control Station 02																			427
	Tipple Transformer Bld 03																			379
	Steam Cleaner Bld 04																			407
	Transformer Storage Pad 05																			393
	Mine Substation 06																			4032
	Rock Dust Silo 07																			567
	Mine Fan Bld 08																			1453
	Foreman Office Trailer 09																			1448
	Warehouse Office Bld 10																			3725
	Fresh Water Treatment Bld 11																			716
	Explosive Storage Bld 12																			44
	Bathhouse 3 Trailers 13																			3989
	Truck Scale Old 14																			1295
	Truck Scale New 15																			1174
	Bridge Quitchupah Creek 16																			1413
	Sewage Pumping Station 17																			415
	Borehole Pump Facility 18																			15106
	Power Line 19																			2845
	Metal Storage Bld 20																			199
	Storage Tank Containment Area 21																			850
	Water Tank 100000 Gallon 22																			826
	Stoker Oil Heater Enclosure 23																			816
	NPDES Outfalls 24																			824
	Storage Trailers Three 25																			3989
	Fence 26																			2030
	Seal Portals 27																			20800
	4th East Portal																			
	Crusher Screen Building 28																			13662
	Conveyor System 29																			438
	Radial Stacker 30																			1303
	Water Tank 31																			6375
	Rock Dust Bin 32																			681
	Ventilation Fan 33																			11880
	Coal Stockpile Feeder 34																			88
	Loadout 35																			8648
	Powerline 36																			10050
	Entrances 4th East 37																			25600
	Wind Fence 38																			1333
	Cattle Guard 39																			419
	Concrete Barriers 40																			1768
	Sampler Building 41																			5731
	Oil Storage Building																			3747
	Recessed Feeder																			282
	Trash Pit																			848
	Forth East Fence 45																			10523
	Skid Mounted Sheds 46																			4191
	Rescue Training Pad 47																			590
	Total																			**206015**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Tipple Stacker Reclaim 01																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0012	0.29	/CF						996					CY		26892	CF	7799
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	Disposal on site	02 41 16 17 4200	8.8	/CY															
	Steel's Weight											112				TON		112	TON	
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									7		HR		0.9	Day	392
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**8191**
	Equipment 's Disposal Cost	Steel Bld. Large	02 41 16 13 0012	0.29	/CF	754	5	3										11310	CF	3280
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs													1		HR		0.1	DY	
	Transport Costs	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day							16				TON		16	TON	44
	Disposal Costs																			
	Subtotal																			**3324**
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						305					CY		305	CY	3026
	Concrete's Vol. Demolished																1.3	397	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													397	CY	631
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. md. trip	31 23 23 18 0320	3.73	/CY													397	CY	1481
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													397	CY	3494
	Subtotal																			**8632**
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						150					CY		150	CY	1488
	Concrete's Vol. Demolished																1.3	195	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													195	CY	310
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. md. trip	31 23 23 18 0320	3.73	/CY													195	CY	727
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													195	CY	1716
	Subtotal																			**4241**
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						117					CY		117	CY	1161
	Concrete's Vol. Demolished																1.3	152	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													152	CY	242
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. md. trip	31 23 23 18 0320	3.73	/CY													152	CY	567
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													152	CY	1338
	Subtotal																			**3308**
	Total																			**27696**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Tipple Control Station 02																			
	Structure's Demolition Cost										23					CY		621	CF	0
	Structure's Vol. Demolished										5					CY				
	Rubble's Weight (exclude steel)												1.4			TON/CY				
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Non Steel Drive	Nielson Construction	Neilson Con.	7	/TON													7	TON	49
	Disposal Cost Non Steel	Disposal on site	02 41 16 17 4200	8.8	/CY						6					CY		6	CY	53
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**276**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY													5.25	CY	52
	Concrete's Vol. Demolished																1.3	7	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													7	CY	11
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													7	CY	26
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													7	CY	62
	Subtotal																			**151**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**427**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Tipple Transformer Bld 03																			
	Structure's Demolition Cost										69					CY		1863	CF	0
	Structure's Vol. Demolished										5					CY				
	Rubble's Weight (exclude steel)												1.4			TON/CY				
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Non Steel Drive	Nielson Construction	Neilson Con.	7	/TON													7	TON	49
	Disposal Cost Non Steel	Disposal on site	02 41 16 17 4200	8.8	/CY						8					CY		8	CY	70
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**293**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						3					CY		3	CY	30
	Concrete's Vol. Demolished																1.3	4	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													4	CY	6
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. tri	31 23 23 18 0320	3.73	/CY													4	CY	15
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													4	CY	35
	Subtotal																			**86**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**379**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Steam Cleaner Bld 04																			
	Structure's Demolition Cost										25					CY		675	CF	0
	Structure's Vol. Demolished										5					CY				
	Rubble's Weight (exclude steel)												1.4			TON/CY				
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Non Steel Drive	Nielson Construction	Neilson Con.	7	/TON													7	TON	49
	Disposal Cost Non Steel	Disposal on site	02 41 16 17 4200	8.8	/CY						4					CY		4	CY	35
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**258**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						5					CY		5	CY	50
	Concrete's Vol. Demolished																1.3	7	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													7	CY	11
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													7	CY	26
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													7	CY	62
	Subtotal																			**149**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**407**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Transformer Storage Pad 05																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						14					CY		14	CY	139
	Concrete's Vol. Demolished																1.3	18	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													18	CY	29
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. tri	31 23 23 18 0320	3.73	/CY													18	CY	67
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													18	CY	158
	Subtotal																			**393**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**393**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Mine Substation 06																			
	Structure's Demolition Cost	300 H. P. (D8)	01 54 33 20 4310	1140.8	/day															
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Remove Substation																			
	Equipment 's Disposal Cost	300 H. P. (D8)	01 54 33 20 4310	1140.8	/day									2		HR		0.3	Day	342
	Dismantling Cost	Mechanical equipment heavy	25 05 05 10 3600	615	/ton							2			3	TON		6	TON	3690
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			**4032**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**4032**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Rock Dust Silo 07																			
	Structure's Demolition Cost										112					CY		3024	CF	0
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight											32				TON				
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**174**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						14					CY		14	CY	139
	Concrete's Vol. Demolished																1.3	18	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													18	CY	29
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													18	CY	67
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													18	CY	158
	Subtotal																			**393**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**567**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Mine Fan Bld 08																			
	Structure's Demolition Cost										525					CY		14175	CF	0
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight											64				TON				
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**174**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						45					CY		45	CY	446
	Concrete's Vol. Demolished																1.3	59	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													59	CY	94
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. md. trip	31 23 23 18 0320	3.73	/CY													59	CY	220
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													59	CY	519
	Subtotal																			**1279**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**1453**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Foreman Office Trailer 09																			
	Structure's Demolition Cost					50	20	10								CF		10000	CF	0
	Structure's Vol. Demolished										130					CY	0.35	130	CY	
	Rubble's Weight (exclude steel)												1.4			TON/CY		182	TOM	
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Non Steel Drive	Nielson Construction	Neilson Con.	7	/TON													182	TOM	1274
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**1448**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**1448**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Warehouse Office Bld 10																			
	Structure's Demolition Cost										5496					CY		148392	CF	0
	Structure's Vol. Demolished										60					CY				
	Rubble's Weight (exclude steel)												1.4			TON/CY		84	TON	
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Non Steel Drive	Nielson Construction	Neilson Con.	7	/TON													84	TON	588
	Disposal Cost Non Steel																			
	Steel's Weight											96				TON		96	TON	
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**936**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Light Floor's																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						58					CY		58	CY	575
	Concrete's Vol. Demolished																1.3	75	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													75	CY	119
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													75	CY	280
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													75	CY	660
	Subtotal																			**1634**
	Heavy Wall's																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						41					CY		41	CY	407
	Concrete's Vol. Demolished																1.3	53	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													53	CY	84
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													53	CY	198
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													53	CY	466
	Subtotal																			**1155**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**3725**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Fresh Water Treatment Bld 11																			
	Structure's Demolition Cost										226					CY		6102	CF	0
	Structure's Vol. Demolished										15					CY				
	Rubble's Weight (exclude steel)												1.4			TON/CY		21	TON	
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Non Steel Drive	Nielson Construction	Neilson Con.	7	/TON													21	TON	147
	Disposal Cost Non Steel																			
	Steel's Weight											21				TON		21	TON	
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**321**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished										16					CY		16	CY	
	Loading Costs																			
	Transport Costs	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Disposal Costs	Nielson Construction	Neilson Con.	7	/TON							22				TON		22	TON	154
	Subtotal																			**328**
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						2.5					CY		2.5	CY	25
	Concrete's Vol. Demolished																1.3	3	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													3	CY	5
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													3	CY	11
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													3	CY	26
	Subtotal																			**67**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**716**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Explosive Storage Bld 12																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight											4				TON				
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									1		HR		0.1	Day	44
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**44**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**44**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Bathhouse 3 Trailers 13																			
	Structure's Demolition Cost					50	20	10							3	CF		30000	CF	0
	Structure's Vol. Demolished											389				CY	0.35			
	Rubble's Weight (exclude steel)												1.4			TON/CY		545	TON	
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Non Steel Drive	Nielson Construction	Neilson Con.	7	/TON													545	TON	3815
	Disposal Cost Non Steel																			
	Steel's Weight											545				TON		545	TON	
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**3989**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**3989**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Truck Scale Old 14																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished										30					CY				
	Rubble's Weight (exclude steel)											42				TON		42	TON	
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Non Steel Drive	Nielson Construction	Neilson Con.	7	/TON													42	TON	294
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**468**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						22					CY		22	CY	218
	Concrete's Vol. Demolished																1.3	29	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													29	CY	46
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													29	CY	108
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													29	CY	255
	Subtotal																			**627**
	Fill to Grade	Backfill structural 200 HP 300' Dirt	31 23 23 13 5420	1.63	/CY						123					CY		123	CY	200
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			**200**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**1295**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Truck Scale New 15																			
	Structure's Demolition Cost										25					CY		675	CF	0
	Structure's Vol. Demolished										15					CY				
	Rubble's Weight (exclude steel)												1.4			TON/CY		21	TON	
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Non Steel Drive	Nielson Construction	Neilson Con.	7	/TON													21	TON	147
	Disposal Cost Non Steel																			
	Steel's Weight											32				TON		32	TON	
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**495**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						20					CY		20	CY	198
	Concrete's Vol. Demolished																1.3	26	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													26	CY	41
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. md. tri	31 23 23 18 0320	3.73	/CY													26	CY	97
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													26	CY	229
	Subtotal																			**565**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Footer's Demolition																			
	Demolition Cost																			
	Footer's Vol. Demolished	Backfill structural 200 HP 300' Dirt	31 23 23 13 5420	1.63	/CY						70					CY		70	CY	114
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			**114**
	Total																			**1174**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Bridge Quitchupah Creek 16																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						50					CY		50	CY	496
	Concrete's Vol. Demolished																1.3	65	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													65	CY	103
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													65	CY	242
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													65	CY	572
	Subtotal																			**1413**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**1413**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Sewage Pumping Station 17																			
	Structure's Demolition Cost										25					CY		675	CF	0
	Structure's Vol. Demolished										5					CY				
	Rubble's Weight (exclude steel)												1.4			TON/CY				
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Non Steel Drive	Nielson Construction	Neilson Con.	7	/TON													7	TON	49
	Disposal Cost Non Steel	Disposal on site	02 41 16 17 4200	8.8	/CY						6					CY		6	CY	53
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**276**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						1					CY		1	CY	10
	Concrete's Vol. Demolished																1.3	1	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													1	CY	2
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													1	CY	4
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													1	CY	9
	Subtotal																			**25**
	Wall's Demolition																			
	Demolition Cost	Backfill structural 200 HP 300' Dirt	31 23 23 13 5420	1.63	/CY						70					CY		70	CY	114
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			**114**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**415**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Borehole Pump Facility 18																			
	Structure's Demolition Cost	Plug Well	AML3	5000	EA.															
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost	Plug Well	AML3	5000	EA.										3	EA		3	EA	15000
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			**15000**
	Footer's Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						3.5					CY		3.5	CY	35
	Footer's Vol. Demolished																1.3	5	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													5	CY	8
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													5	CY	19
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													5	CY	44
	Subtotal																			**106**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**15106**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Power Line 19																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost	Wire Removal	26 05 05 10 1900	16.35	CLF	1.1									3	mile		174	CLF	2845
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			**2845**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**2845**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Metal Storage Bld 20																			
	Structure's Demolition Cost										345					CY		9315	CF	0
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight											32				TON				
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**174**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						1					CY		1	CY	10
	Concrete's Vol. Demolished																1.3	1	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													1	CY	2
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. md. tri	31 23 23 18 0320	3.73	/CY													1	CY	4
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													1	CY	9
	Subtotal																			**25**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**199**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Storage Tank Containment Area 21																			
	Structure's Demolition Cost										106					CY		2862	CF	0
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight											1				TON				
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**174**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						24					CY		24	CY	238
	Concrete's Vol. Demolished																1.3	31	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													31	CY	49
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. md. trip	31 23 23 18 0320	3.73	/CY													31	CY	116
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													31	CY	273
	Subtotal																			**676**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**850**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Water Tank 100000 Gallon 22																			
	Structure's Demolition Cost										490					CY		13230	CF	0
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight											32				TON		32	TON	
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**174**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						23					CY		23	CY	228
	Concrete's Vol. Demolished																1.3	30	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													30	CY	48
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. tri	31 23 23 18 0320	3.73	/CY													30	CY	112
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													30	CY	264
	Subtotal																			**652**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**826**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Stoker Oil Heater Enclosure 23																			
	Structure's Demolition Cost										56					CY		1512	CF	0
	Structure's Vol. Demolished										15					CY				
	Rubble's Weight (exclude steel)												1.4			TON/CY		21	TON	
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Non Steel Drive	Nielson Construction	Neilson Con.	7	/TON													21	TON	147
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**495**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished										15					CY				
	Loading Costs																			
	Transport Costs	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Disposal Costs	Nielson Construction	Neilson Con.	7	/TON													21	TON	147
	Subtotal																			**321**
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						0					CY		0	CY	0
	Concrete's Vol. Demolished																1.3	0	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													0	CY	0
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. md. trip	31 23 23 18 0320	3.73	/CY													0	CY	0
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													0	CY	0
	Subtotal																			**0**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**816**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	NPDES Outfalls 24																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Footer's Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						20					CY		20	CY	198
	Footer's Vol. Demolished																1.3	26	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													26	CY	41
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													26	CY	97
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													26	CY	229
	Subtotal																			**565**
	Wall's Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						9					CY		9	CY	89
	Wall's Vol. Demolished																1.3	12	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													12	CY	19
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													12	CY	45
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													12	CY	106
	Subtotal																			**259**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**824**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Storage Trailers Three 25																			
	Structure's Demolition Cost					50	20	10							3	CY		30000	CF	0
	Structure's Vol. Demolished																0.35	389	CY	
	Rubble's Weight (exclude steel)												1.4			TON/CY		545	TON	
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									3		HR		0.4	Day	174
	Transportation Cost Non Steel Drive	Nielson Construction	Neilson Con.	7	/TON													545	TON	3815
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**3989**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**3989**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Fence 26																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Silt Fence Disposal Cost																			
	Silt Fence	Silt fence	31 25 13 10 1000	0.84	LF	69										FT		69	FT	58
	Supply Yard Fence	Chain link remove 8'-10'	02 41 13 60 1700	3.43	/LF	575										FT		575	FT	1972
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			**2030**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**2030**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Seal Portals 27																			
	Structure's Demolition Cost	Seal Portals	AML1	5200	EA.										4	EA		4	EA	20800
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**20800**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**20800**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
28	Crusher Screen Building 28																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0012	0.29	/CF						33000					CF		33000	CF	9570
	Structure's Vol. Demolished																0.3	367	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									46		HR		5.8	Day	2529
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**12099**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						55					CY		55	CY	546
	Concrete's Vol. Demolished																1.3	72	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													72	CY	114
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. md. tri	31 23 23 18 0320	3.73	/CY													72	CY	269
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													72	CY	634
	Subtotal																			**1563**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**13662**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Conveyor System 29																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0012	0.29	/CF						1060					CF		1060	CF	307
	Structure's Vol. Demolished																0.3	12	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									2		HR		0.3	Day	131
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**438**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**438**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Radial Stacker 30																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						46					CY		46	CY	456
	Concrete's Vol. Demolished																1.3	60	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													60	CY	95
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. tri	31 23 23 18 0320	3.73	/CY													60	CY	224
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													60	CY	528
	Subtotal																			**1303**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**1303**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Water Tank 31																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0012	0.29	/CF						17177					CF		17177	CF	4981
	Structure's Vol. Demolished																0.3	191	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									24		HR		3	Day	1308
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**6289**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						3					CY		3	CY	30
	Concrete's Vol. Demolished																1.3	4	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													4	CY	6
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. tri	31 23 23 18 0320	3.73	/CY													4	CY	15
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													4	CY	35
	Subtotal																			**86**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**6375**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Rock Dust Bin 32																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0012	0.29	/CF						1600					CF		1600	CF	464
	Structure's Vol. Demolished																0.3	18	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									2		HR		0.3	Day	131
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**595**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						3					CY		3	CY	30
	Concrete's Vol. Demolished																1.3	4	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													4	CY	6
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													4	CY	15
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													4	CY	35
	Subtotal																			**86**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**681**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Ventilation Fan 33																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0012	0.29	/CF						29167					CF		29167	CF	8458
	Structure's Vol. Demolished																0.3	324	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									40		HR		5	Day	2180
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**10638**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						44					CY		44	CY	436
	Concrete's Vol. Demolished																1.3	57	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													57	CY	91
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													57	CY	213
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													57	CY	502
	Subtotal																			**1242**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**11880**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Coal Stockpile Feeder 34																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0012	0.29	/CF						150					CF		150	CF	44
	Structure's Vol. Demolished																0.3	2	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									0.4		HR		0.1	Day	44
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			88
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			88

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Loadout 35																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0012	0.29	/CF						23660					CF		23660	CF	6861
	Structure's Vol. Demolished																0.3	263	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									33		HR		4.1	Day	1787
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**8648**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**8648**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Powerline 36																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost																			
	Dismantling Cost	Powerpole	Emery Deep 01	125	EA										32	EA		32	EA	4000
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			**4000**
	Equipment 's Disposal Cost																			
	Dismantling Cost	Wire Removal	26 05 05 10 1900	16.35	CLF	36960										LF		370	CLF	6050
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			**6050**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**10050**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Entrances 4th East 37																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Portals																			
	Equipment 's Disposal Cost	Seal Portals	AML1	5200	EA.										3	EA		3	EA	15600
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			**15600**
	Shaft																			
	Equipment 's Disposal Cost	Seal Shaft	AML2	5000	EA.										1	EA		1	EA	5000
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			**5000**
	Borehole																			
	Equipment 's Disposal Cost	Plug Well	AML3	5000	EA.										1	EA		1	EA	5000
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			**5000**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**25600**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Wind Fence 38																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0012	0.29	/CF						1300					CF		1300	CF	377
	Structure's Vol. Demolished																0.3	14	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									4		HR		0.5	Day	218
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**595**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						26					CY		26	CY	258
	Concrete's Vol. Demolished																1.3	34	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													34	CY	54
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													34	CY	127
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													34	CY	299
	Subtotal																			**738**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**1333**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Cattle Guard 39																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0012	0.29	/CF						96					CF		96	CF	28
	Structure's Vol. Demolished																0.3	1	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									4		HR		0.5	Day	218
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**246**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						6					CY		6	CY	60
	Concrete's Vol. Demolished																1.3	8	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													8	CY	13
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													8	CY	30
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													8	CY	70
	Subtotal																			**173**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**419**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Concrete Barriers 40																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0012	0.29	/CF						96					CF		96	CF	28
	Structure's Vol. Demolished																0.3	1	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									1		HR		0.1	Day	44
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			72
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						60					CY		60	CY	595
	Concrete's Vol. Demolished																1.3	78	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													78	CY	124
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													78	CY	291
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													78	CY	686
	Subtotal																			1696
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			1768

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Sampler Building 41																			
	Building	Steel Bld. Large	02 41 16 13 0012	0.29	/CF	18	12	40								FT		8640	CF	2506
	Conveyor	Steel Bld. Large	02 41 16 13 0012	0.29	/CF	60	2	15								FT		1800	CF	522
	Conveyor	Steel Bld. Large	02 41 16 13 0012	0.29	/CF	80	2	15								FT		2400	CF	696
	Structure's Vol. Demolished																0.3	143	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									33		HR		4.1	Day	1787
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**5511**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY	18	12	1								CY		8	CY	79
	Concrete's Vol. Demolished																1.3	10	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													10	CY	16
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													10	CY	37
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													10	CY	88
	Subtotal																			**220**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**5731**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Oil Storage Building																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0012	0.29	/CF	60	18	8								FT		8640	CF	2506
	Structure's Vol. Demolished																0.3	96	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									2		day		2	Day	872
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**3378**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY	60	18	0.33								CY		13	CY	129
	Concrete's Vol. Demolished																1.3	17	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													17	CY	27
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. md. tri	31 23 23 18 0320	3.73	/CY													17	CY	63
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													17	CY	150
	Subtotal																			**369**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**3747**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Recessed Feeder																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						10					CY		10	CY	99
	Concrete's Vol. Demolished																1.3	13	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													13	CY	21
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. md. tri	31 23 23 18 0320	3.73	/CY													13	CY	48
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													13	CY	114
	Subtotal																			**282**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**282**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Trash Pit																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						30					CY		30	CY	298
	Concrete's Vol. Demolished																1.3	39	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													39	CY	62
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													39	CY	145
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													39	CY	343
	Subtotal																			**848**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**848**

Ref.	Description Task2929	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Forth East Fence 45																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost	Chain link remove 8'-10'	02 41 13 60 1700	3.43	/LF	3068										FT		3068	FT	10523
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			**10523**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**10523**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Task2929																			
	Skid Mounted Sheds 46																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0012	0.29	/CF	10	16	8							1	ft		1280	CF	371
		Steel Bld. Large	02 41 16 13 0012	0.29	/CF	8	12	8							2	ft		1536	CF	445
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	435.96	/day									1		day		1	Day	436
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			**1252**
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY						104					CY		104	CY	1032
	Concrete's Vol. Demolished																1.3	135	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													135	CY	215
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. tri	31 23 23 18 0320	3.73	/CY													135	CY	504
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													135	CY	1188
	Subtotal																			**2939**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**4191**

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Rescue Training Pad 47																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	ConcreteDemo1	9.92	/CY	37	47	0.33								ft		21	CY	208
	Concrete's Vol. Demolished																1.3	27	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.59	/CY													27	CY	43
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 18 0320	3.73	/CY													27	CY	101
	Disposal Costs	Disposal on site	02 41 16 17 4200	8.8	/CF													27	CY	238
	Subtotal																			**590**
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			**590**

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Backfill and Grade Portal Area 01															173692
Coal Fines Removal 02															127774
Coal Mine Waste 03															188765
Coal Mine Waste 03a															320947
Roadside Berms 04															7654
Dike Improvements 05															14842
Pond No One 06															87889
Pond No Two 07															14842
Pond No Three 08															1624
Pond No Four 09															17160
Pond No Five 10															7190
Pond No Six 11															42900
Pond No 1 Road 12															696
Pump No 1 Road 13															929
Tank Road 14															929
MineYardRoads15															8813
The 4th East Portal 16															478676
Total															**1495322**

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Emery Deep Mine Backfilling and Grading Backfill and Grade Portal Area 01															
627G EROPS (9-49) (2nd2007)	14970	83.9	0.1	60.1	245.95	6	1475.7	$/HR	52600	CY	702	CY/HR	74.9	HR	110530
D7N DS XR Series II (9-51) (2nd 2007)	13145	58.55	0.1	60.1	206.66	1	206.66	$/HR					74.9	HR	15479
D8T (9-52)(2nd2007)	18000	76.85	0.1	60.1	257.14	1	257.14	$/HR					74.9	HR	19260
12H EROPS (9-11)(2H2007)	5585	28.65	0.1	60.1	126.52	1	126.52	$/HR					74.9	HR	9476
5,000 gal H2O truck Diesel (20-17) (2nd2006)	5170	35.7	0.1	47.35	118.93	1	118.93	$/HR					74.9	HR	8908
Pickup Crew 4x4 1 ton 340 hp (20-17) (2nd2007)	1060	14.5	0.1	0	22.58	1	22.58	$/HR					74.9	HR	1691
CLAB					47.05	1	47.05	$/HR					74.9	HR	3524
Foreman Average, Outside					64.4	1	64.4	$/HR					74.9	HR	4824
Subtotal															173692

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Emery Deep Mine Backfilling and Grading Coal Fines Removal 02															
627G EROPS (9-49) (2nd2007)	14970	83.9	0.1	60.1	245.95	6	1475.7	$/HR	38700	CY	702	CY/HR	55.1	HR	81311
D7N DS XR Series II (9-51) (2nd 2007)	13145	58.55	0.1	60.1	206.66	1	206.66	$/HR					55.1	HR	11387
D8T (9-52)(2nd2007)	18000	76.85	0.1	60.1	257.14	1	257.14	$/HR					55.1	HR	14168
12H EROPS (9-11)(2H2007)	5585	28.65	0.1	60.1	126.52	1	126.52	$/HR					55.1	HR	6971
5,000 gal H2O truck Diesel (20-17) (2nd2006)	5170	35.7	0.1	47.35	118.93	1	118.93	$/HR					55.1	HR	6553
Pickup Crew 4x4 1 ton 340 hp (20-17) (2nd2007)	1060	14.5	0.1	0	22.58	1	22.58	$/HR					55.1	HR	1244
CLAB					47.05	1	47.05	$/HR					55.1	HR	2592
Foreman Average, Outside					64.4	1	64.4	$/HR					55.1	HR	3548
Subtotal															127774

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Backfilling and Regrading															
Coal Mine Waste 03															
Task 2929															
627G EROPS (9-49) (2nd2007)	14970	83.9	0.1	60.1	245.95	6	1475.7	$/HR	57110	CY	702	CY/HR	81.4	HR	120122
D7N DS XR Series II (9-51) (2nd 2007)	13145	58.55	0.1	60.1	206.66	1	206.66	$/HR					81.4	HR	16822
D8T (9-52)(2nd2007)	18000	76.85	0.1	60.1	257.14	1	257.14	$/HR					81.4	HR	20931
12H EROPS (9-11)(2H2007)	5585	28.65	0.1	60.1	126.52	1	126.52	$/HR					81.4	HR	10299
5,000 gal H2O truck Diesel (20-17) (2nd2006)	5170	35.7	0.1	47.35	118.93	1	118.93	$/HR					81.4	HR	9681
Pickup Crew 4x4 1 ton 340 hp (20-17) (2nd2007)	1060	14.5	0.1	0	22.58	1	22.58	$/HR					81.4	HR	1838
CLAB					47.05	1	47.05	$/HR					81.4	HR	3830
Foreman Average, Outside					64.4	1	64.4	$/HR					81.4	HR	5242
Subtotal															188765

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Excavate Coal Mine Waste Site															
Coal Mine Waste 03a															
Task 2929															
627G EROPS (9-49) (2nd2007)	14970	83.9	0.1	60.1	245.95	6	1475.7	$/HR	97130	CY	702	CY/HR	138.4	HR	204237
D7N DS XR Series II (9-51) (2nd 2007)	13145	58.55	0.1	60.1	206.66	1	206.66	$/HR					138.4	HR	28602
D8T (9-52)(2nd2007)	18000	76.85	0.1	60.1	257.14	1	257.14	$/HR					138.4	HR	35588
12H EROPS (9-11)(2H2007)	5585	28.65	0.1	60.1	126.52	1	126.52	$/HR					138.4	HR	17510
5,000 gal H2O truck Diesel (20-17) (2nd2006)	5170	35.7	0.1	47.35	118.93	1	118.93	$/HR					138.4	HR	16460
Pickup Crew 4x4 1 ton 340 hp (20-17) (2nd2007)	1060	14.5	0.1	0	22.58	1	22.58	$/HR					138.4	HR	3125
CLAB					47.05	1	47.05	$/HR					138.4	HR	6512
Foreman Average, Outside					64.4	1	64.4	$/HR					138.4	HR	8913
Subtotal															320947

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Emery Deep Mine Backfilling and Grading Roadside Berms 04															
627G EROPS (9-49) (2nd2007)	14970	83.9	0.1	60.1	245.95	6	1475.7	$/HR	2300	CY	702	CY/HR	3.3	HR	4870
D7N DS XR Series II (9-51) (2nd 2007)	13145	58.55	0.1	60.1	206.66	1	206.66	$/HR					3.3	HR	682
D8T (9-52)(2nd2007)	18000	76.85	0.1	60.1	257.14	1	257.14	$/HR					3.3	HR	849
12H EROPS (9-11)(2H2007)	5585	28.65	0.1	60.1	126.52	1	126.52	$/HR					3.3	HR	418
5,000 gal H2O truck Diesel (20-17) (2nd2006)	5170	35.7	0.1	47.35	118.93	1	118.93	$/HR					3.3	HR	392
Pickup Crew 4x4 1 ton 340 hp (20-17) (2nd2007)	1060	14.5	0.1	0	22.58	1	22.58	$/HR					3.3	HR	75
CLAB					47.05	1	47.05	$/HR					3.3	HR	155
Foreman Average, Outside					64.4	1	64.4	$/HR					3.3	HR	213
Subtotal															7654

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Emery Deep Mine Backfilling and Grading Dike Improvements 05															
627G EROPS (9-49) (2nd2007)	14970	83.9	0.1	60.1	245.95	6	1475.7	$/HR	4500	CY	702	CY/HR	6.4	HR	9444
D7N DS XR Series II (9-51) (2nd 2007)	13145	58.55	0.1	60.1	206.66	1	206.66	$/HR					6.4	HR	1323
D8T (9-52)(2nd2007)	18000	76.85	0.1	60.1	257.14	1	257.14	$/HR					6.4	HR	1646
12H EROPS (9-11)(2H2007)	5585	28.65	0.1	60.1	126.52	1	126.52	$/HR					6.4	HR	810
5,000 gal H2O truck Diesel (20-17) (2nd2006)	5170	35.7	0.1	47.35	118.93	1	118.93	$/HR					6.4	HR	761
Pickup Crew 4x4 1 ton 340 hp (20-17) (2nd2007)	1060	14.5	0.1	0	22.58	1	22.58	$/HR					6.4	HR	145
CLAB					47.05	1	47.05	$/HR					6.4	HR	301
Foreman Average, Outside					64.4	1	64.4	$/HR					6.4	HR	412
Subtotal															14842

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Emery Deep Mine Backfilling and Grading Pond No One 06															
627G EROPS (9-49) (2nd2007)	14970	83.9	0.1	60.1	245.95	6	1475.7	$/HR	26600	CY	702	CY/HR	37.9	HR	55929
D7N DS XR Series II (9-51) (2nd 2007)	13145	58.55	0.1	60.1	206.66	1	206.66	$/HR					37.9	HR	7832
D8T (9-52)(2nd2007)	18000	76.85	0.1	60.1	257.14	1	257.14	$/HR					37.9	HR	9746
12H EROPS (9-11)(2H2007)	5585	28.65	0.1	60.1	126.52	1	126.52	$/HR					37.9	HR	4795
5,000 gal H2O truck Diesel (20-17) (2nd2006)	5170	35.7	0.1	47.35	118.93	1	118.93	$/HR					37.9	HR	4507
Pickup Crew 4x4 1 ton 340 hp (20-17) (2nd2007)	1060	14.5	0.1	0	22.58	1	22.58	$/HR					37.9	HR	856
CLAB					47.05	1	47.05	$/HR					37.9	HR	1783
Foreman Average, Outside					64.4	1	64.4	$/HR					37.9	HR	2441
Subtotal															87889

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Emery Deep Mine Backfilling and Grading Pond No Two 07															
627G EROPS (9-49) (2nd2007)	14970	83.9	0.1	60.1	245.95	6	1475.7	$/HR	4500	CY	702	CY/HR	6.4	HR	9444
D7N DS XR Series II (9-51) (2nd 2007)	13145	58.55	0.1	60.1	206.66	1	206.66	$/HR					6.4	HR	1323
D8T (9-52)(2nd2007)	18000	76.85	0.1	60.1	257.14	1	257.14	$/HR					6.4	HR	1646
12H EROPS (9-11)(2H2007)	5585	28.65	0.1	60.1	126.52	1	126.52	$/HR					6.4	HR	810
5,000 gal H2O truck Diesel (20-17) (2nd2006)	5170	35.7	0.1	47.35	118.93	1	118.93	$/HR					6.4	HR	761
Pickup Crew 4x4 1 ton 340 hp (20-17) (2nd2007)	1060	14.5	0.1	0	22.58	1	22.58	$/HR					6.4	HR	145
CLAB					47.05	1	47.05	$/HR					6.4	HR	301
Foreman Average, Outside					64.4	1	64.4	$/HR					6.4	HR	412
Subtotal															14842

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Emery Deep Mine Backfilling and Grading Pond No Three 08															
627G EROPS (9-49) (2nd2007)	14970	83.9	0.1	60.1	245.95	6	1475.7	$/HR	500	CY	702	CY/HR	0.7	HR	1033
D7N DS XR Series II (9-51) (2nd 2007)	13145	58.55	0.1	60.1	206.66	1	206.66	$/HR					0.7	HR	145
D8T (9-52)(2nd2007)	18000	76.85	0.1	60.1	257.14	1	257.14	$/HR					0.7	HR	180
12H EROPS (9-11)(2H2007)	5585	28.65	0.1	60.1	126.52	1	126.52	$/HR					0.7	HR	89
5,000 gal H2O truck Diesel (20-17) (2nd2006)	5170	35.7	0.1	47.35	118.93	1	118.93	$/HR					0.7	HR	83
Pickup Crew 4x4 1 ton 340 hp (20-17) (2nd2007)	1060	14.5	0.1	0	22.58	1	22.58	$/HR					0.7	HR	16
CLAB					47.05	1	47.05	$/HR					0.7	HR	33
Foreman Average, Outside					64.4	1	64.4	$/HR					0.7	HR	45
Subtotal															1624

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Emery Deep Mine Backfilling and Grading Pond No Four 09															
627G EROPS (9-49) (2nd2007)	14970	83.9	0.1	60.1	245.95	6	1475.7	$/HR	5200	CY	702	CY/HR	7.4	HR	10920
D7N DS XR Series II (9-51) (2nd 2007)	13145	58.55	0.1	60.1	206.66	1	206.66	$/HR					7.4	HR	1529
D8T (9-52)(2nd2007)	18000	76.85	0.1	60.1	257.14	1	257.14	$/HR					7.4	HR	1903
12H EROPS (9-11)(2H2007)	5585	28.65	0.1	60.1	126.52	1	126.52	$/HR					7.4	HR	936
5,000 gal H2O truck Diesel (20-17) (2nd2006)	5170	35.7	0.1	47.35	118.93	1	118.93	$/HR					7.4	HR	880
Pickup Crew 4x4 1 ton 340 hp (20-17) (2nd2007)	1060	14.5	0.1	0	22.58	1	22.58	$/HR					7.4	HR	167
CLAB					47.05	1	47.05	$/HR					7.4	HR	348
Foreman Average, Outside					64.4	1	64.4	$/HR					7.4	HR	477
Subtotal															17160

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Emery Deep Mine Backfilling and Grading Pond No Five 10															
627G EROPS (9-49) (2nd2007)	14970	83.9	0.1	60.1	245.95	6	1475.7	$/HR	2200	CY	702	CY/HR	3.1	HR	4575
D7N DS XR Series II (9-51) (2nd 2007)	13145	58.55	0.1	60.1	206.66	1	206.66	$/HR					3.1	HR	641
D8T (9-52)(2nd2007)	18000	76.85	0.1	60.1	257.14	1	257.14	$/HR					3.1	HR	797
12H EROPS (9-11)(2H2007)	5585	28.65	0.1	60.1	126.52	1	126.52	$/HR					3.1	HR	392
5,000 gal H2O truck Diesel (20-17) (2nd2006)	5170	35.7	0.1	47.35	118.93	1	118.93	$/HR					3.1	HR	369
Pickup Crew 4x4 1 ton 340 hp (20-17) (2nd2007)	1060	14.5	0.1	0	22.58	1	22.58	$/HR					3.1	HR	70
CLAB					47.05	1	47.05	$/HR					3.1	HR	146
Foreman Average, Outside					64.4	1	64.4	$/HR					3.1	HR	200
Subtotal															7190

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Emery Deep Mine Backfilling and Grading Pond No Six 11															
627G EROPS (9-49) (2nd2007)	14970	83.9	0.1	60.1	245.95	6	1475.7	$/HR	13000	CY	702	CY/HR	18.5	HR	27300
D7N DS XR Series II (9-51) (2nd 2007)	13145	58.55	0.1	60.1	206.66	1	206.66	$/HR					18.5	HR	3823
D8T (9-52)(2nd2007)	18000	76.85	0.1	60.1	257.14	1	257.14	$/HR					18.5	HR	4757
12H EROPS (9-11)(2H2007)	5585	28.65	0.1	60.1	126.52	1	126.52	$/HR					18.5	HR	2341
5,000 gal H2O truck Diesel (20-17) (2nd2006)	5170	35.7	0.1	47.35	118.93	1	118.93	$/HR					18.5	HR	2200
Pickup Crew 4x4 1 ton 340 hp (20-17) (2nd2007)	1060	14.5	0.1	0	22.58	1	22.58	$/HR					18.5	HR	418
CLAB					47.05	1	47.05	$/HR					18.5	HR	870
Foreman Average, Outside					64.4	1	64.4	$/HR					18.5	HR	1191
Subtotal															42900

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Emery Deep Mine Backfilling and Grading Pond No 1 Road 12															
627G EROPS (9-49) (2nd2007)	14970	83.9	0.1	60.1	245.95	6	1475.7	$/HR	200	CY	702	CY/HR	0.3	HR	443
D7N DS XR Series II (9-51) (2nd 2007)	13145	58.55	0.1	60.1	206.66	1	206.66	$/HR					0.3	HR	62
D8T (9-52)(2nd2007)	18000	76.85	0.1	60.1	257.14	1	257.14	$/HR					0.3	HR	77
12H EROPS (9-11)(2H2007)	5585	28.65	0.1	60.1	126.52	1	126.52	$/HR					0.3	HR	38
5,000 gal H2O truck Diesel (20-17) (2nd2006)	5170	35.7	0.1	47.35	118.93	1	118.93	$/HR					0.3	HR	36
Pickup Crew 4x4 1 ton 340 hp (20-17) (2nd2007)	1060	14.5	0.1	0	22.58	1	22.58	$/HR					0.3	HR	7
CLAB					47.05	1	47.05	$/HR					0.3	HR	14
Foreman Average, Outside					64.4	1	64.4	$/HR					0.3	HR	19
Subtotal															696

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Emery Deep Mine Backfilling and Grading Pump No 1 Road 13															
627G EROPS (9-49) (2nd2007)	14970	83.9	0.1	60.1	245.95	6	1475.7	$/HR	300	CY	702	CY/HR	0.4	HR	590
D7N DS XR Series II (9-51) (2nd 2007)	13145	58.55	0.1	60.1	206.66	1	206.66	$/HR					0.4	HR	83
D8T (9-52)(2nd2007)	18000	76.85	0.1	60.1	257.14	1	257.14	$/HR					0.4	HR	103
12H EROPS (9-11)(2H2007)	5585	28.65	0.1	60.1	126.52	1	126.52	$/HR					0.4	HR	51
5,000 gal H2O truck Diesel (20-17) (2nd2006)	5170	35.7	0.1	47.35	118.93	1	118.93	$/HR					0.4	HR	48
Pickup Crew 4x4 1 ton 340 hp (20-17) (2nd2007)	1060	14.5	0.1	0	22.58	1	22.58	$/HR					0.4	HR	9
CLAB					47.05	1	47.05	$/HR					0.4	HR	19
Foreman Average, Outside					64.4	1	64.4	$/HR					0.4	HR	26
Subtotal															929

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Emery Deep Mine Backfilling and Grading Tank Road 14															
627G EROPS (9-49) (2nd2007)	14970	83.9	0.1	60.1	245.95	6	1475.7	$/HR	300	CY	702	CY/HR	0.4	HR	590
D7N DS XR Series II (9-51) (2nd 2007)	13145	58.55	0.1	60.1	206.66	1	206.66	$/HR					0.4	HR	83
D8T (9-52)(2nd2007)	18000	76.85	0.1	60.1	257.14	1	257.14	$/HR					0.4	HR	103
12H EROPS (9-11)(2H2007)	5585	28.65	0.1	60.1	126.52	1	126.52	$/HR					0.4	HR	51
5,000 gal H2O truck Diesel (20-17) (2nd2006)	5170	35.7	0.1	47.35	118.93	1	118.93	$/HR					0.4	HR	48
Pickup Crew 4x4 1 ton 340 hp (20-17) (2nd2007)	1060	14.5	0.1	0	22.58	1	22.58	$/HR					0.4	HR	9
CLAB					47.05	1	47.05	$/HR					0.4	HR	19
Foreman Average, Outside					64.4	1	64.4	$/HR					0.4	HR	26
Subtotal															929

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Emery Deep Mine Backfilling and Grading MineYardRoads15															
627G EROPS (9-49) (2nd2007)	14970	83.9	0.1	60.1	245.95	6	1475.7	$/HR	2700	CY	702	CY/HR	3.8	HR	5608
D7N DS XR Series II (9-51) (2nd 2007)	13145	58.55	0.1	60.1	206.66	1	206.66	$/HR					3.8	HR	785
D8T (9-52)(2nd2007)	18000	76.85	0.1	60.1	257.14	1	257.14	$/HR					3.8	HR	977
12H EROPS (9-11)(2H2007)	5585	28.65	0.1	60.1	126.52	1	126.52	$/HR					3.8	HR	481
5,000 gal H2O truck Diesel (20-17) (2nd2006)	5170	35.7	0.1	47.35	118.93	1	118.93	$/HR					3.8	HR	452
Pickup Crew 4x4 1 ton 340 hp (20-17) (2nd2007)	1060	14.5	0.1	0	22.58	1	22.58	$/HR					3.8	HR	86
CLAB					47.05	1	47.05	$/HR					3.8	HR	179
Foreman Average, Outside					64.4	1	64.4	$/HR					3.8	HR	245
Subtotal															8813

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
The 4th East Portal 16															
Grade berm into surrounding area															
D6R XL Series III (9-51) (2nd 2007)	10295	48.9	0.1	60.1	178.23	1	178.23	$/HR	3721	CY	189	CY/HR	19.7	HR	3511
Partial Backfilling of Portal Boxcut															
D8T (9-52)(2nd2007)	18000	76.85	0.1	60.1	257.14	1	257.14	$/HR	34277	CY	287	CY/HR	119.4	HR	30703
Reclamation of In Place Topsoil															
D6R XL Series III (9-51) (2nd 2007)	10295	48.9	0.1	60.1	178.23	1	178.23	$/HR	12100	CY	1455	CY/HR	8.3	HR	1479
Multi-Shank Ripper 190-259 P (9-58) (2nd2007)	1510	5.05	0.1		14.99	1	14.99	$/HR					8.3	HR	124
Materail Stock Pile															
988H EROPS (9-35) (2nd2007)	19460	90.7	0.1	60.1	281.5	1	281.5	$/HR	113711	CY	349	CY/HR	325.8	HR	91713
769D (20-11) (2nd2007)	11580	52.25	0.1	47.35	177.2	2	354.4	$/HR					325.8	HR	115464
Topsoil															
988H EROPS (9-35) (2nd2007)	19460	90.7	0.1	60.1	281.5	1	281.5	$/HR	100911	CY	465	CY/HR	217	HR	61086
6X4 40,000lbs 8-10 CY (20-11) (2nd2007)	2650	34.8	0.1	47.35	102.19	3	306.57	$/HR					217	HR	66526
Pocking															
446D 4WD (9-27) (2nd 2007)	5560	25.5	0.1	60.1	122.9	1	122.9	$/HR	8873	CY	192	CY/HR	46.2	HR	5678
Support Personel and Equipment															
Foreman Average, Outside					64.4	1	64.4	$/HR					353	HR	22733
CLAB					47.05	2	94.1	$/HR					353	HR	33217
Pickup Crew 4x4 1 ton 340 hp (20-17) (2nd2007)	1060	14.5	0.1	0	22.58	1	22.58	$/HR					353	HR	7971
5,000 gal H2O truck Diesel (20-17) (2nd2006)	5170	35.7	0.1	47.35	118.93	1	118.93	$/HR					353	HR	41982
Subtotal															478676

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Vegetation																			
	Main Facilities 01																			454428
	The 4th East Portals 02																			142325
	Total																			596753

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Main Facilities 01																			
	Vegeation																			
	Spread Topsoil	Backfill structural 200 HP 300' Dirt	31 23 23 13 5420	1.63	/CY						43300					CY		43300	CY	70579
	Till Soil	75 HP Dozerw/scarifiers	32 91 13 23 3100	4.53	MSF						53.7					AC		2339	MSF	10596
	Seeding	Wildflower Seed Mix	32 92 19 14 5800	49.5	MSF						53.7					AC		2339	MSF	115781
	Mulch	Hay 1 inch small power mulcher	32 91 13 16 0250	62	/MSF						53.7					AC		2339	MSF	145018
	Fertilizer	Fetilizer Hydro Spread	32 01 90 13 0180	4.25	/MSF						53.7					AC		2339	MSF	9941
	Erosion Control	Hay bale	Reveg007	166.1	/ton							70				Ton		70	TON	11627
	Subtotal																			363542
	Reseeding																			90886
	25% of Vegetation Cost																			90886
	Subtotal																			
	Total																			454428

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	The 4th East Portals 02																			
	Vegeation																			
	Seeding	Wildflower Seed Mix	32 92 19 14 5800	49.5	MSF						16					AC		697	MSF	34502
	Mulch	Hay 1 inch small power mulcher	32 91 13 16 0250	62	/MSF						16					AC		697	MSF	43214
	Fertilizer	Fetilizer Hydro Spread	32 01 90 13 0180	4.25	/MSF						16					AC		697	MSF	2962
	Erosion Control	Hay bale	Reveg007	166.1	/ton							30				Ton		30	TON	4983
		Revegetation mat, webbed	31 25 13 10 0120	7.05	SY	300	14									FT		467	SY	3292
	Subtotal																			88953
	Reseeding																			
	25% of Vegetation Cost																			53372
	Subtotal																			53372
	Total																			142325