

0046

C/015/015 Incoming

#3411
R

COPY



CONSOL ENERGY

Consolidation Coal Company
P.O. Box 566
Sesser, IL 62884
(618) 625-2041

October 7, 2009

Daron Haddock
Utah Division of Oil, Gas and Mining
Coal Program
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801

Re: Emery Deep Mine Permit C/015/015
Amendment to add Zero Zero North LBA (UTU-86038) to MRP task id 3411, clean copy submittal

Dear Mr. Haddock:

Per your conditional approval letter, dated October 7, 2009, please consider this a clean copy submittal per task id 3411. Enclosed please find six (6) copies of the submittal, and two (2) CD's with the submittal in pdf format. Also attached please find executed C1 and C-2 forms.

Two (2) copies of the archeology report and all confidential maps are included in red folders as well as confidential cd's and should be placed in the confidential file.

If you have any questions concerning this request, please call me at (618) 625-6850.

Sincerely,

John Gefferth
John Gefferth
Environmental Engineer

CC: Karl Houskeeper – DOGM-Price Field Office
Attachments
JAG/jag emzznorthLBA.tsk3411.cln.doc

File in:

- Confidential
- Shelf
- Expandable

Refer to Record No. 0046 Date 10/07/2009
In C 015/015/2007 Incoming
For additional information Confidential
CD

RECEIVED
OCT 08 2009
DIV. OF OIL, GAS & MINING

APPLICATION FOR COAL PERMIT PROCESSING

Detailed Schedule Of Changes to the Mining And Reclamation Plan



Permittee: Consolidation Coal Company
Mine: Emery Mine **Permit Number:** 015/015
Title: Amnd to add LBA UTU 86038 Zero Zero North area to MRP tsk id3411 clean copy 10/09 pg1/3

Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED

			DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter I, page 8
<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter I, Appendix I-2 pages 1,2,3,4,5,6
<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input checked="" type="checkbox"/> Remove	Chapter I, Appendix I-2 pages 8a and 11
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter I, Appendix I-2 pages 7,8,9,10
<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	
<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter IV, page 1
<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter VI, table of contents, VI-ii, VI-iii
<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	
<input checked="" type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter VI, page 2a
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter VI, page 3
<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter VI, pages 27b, 27c, and 27d
<input checked="" type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter VI, App VI-16 (selected text from Miller Canyon Tract EA)
<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	
<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	
<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter VIII, index page
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter VIII App VIII-6 (Mt. Nebo Scientific, Zero Zero North LBA veg/wldlf/T&E report)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter IX index page
<input checked="" type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter IX App IX-3 (Zero Zero North burrowing owl protection and enhancement plan)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter X index page
<input checked="" type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter X App 5-10 (MOAC 08-096), Archeo ZZN LBA UTU-86038 CONFIDENTIAL
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter X-A page 1
<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	

Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.

Received by Oil, Gas & Mining

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DIV. OF OIL, GAS & MINING

APPLICATION FOR COAL PERMIT PROCESSING

Detailed Schedule Of Changes to the Mining And Reclamation Plan

COPY

Permittee: Consolidation Coal Company

Mine: Emery Mine

Permit Number: 015/015

Title: Amnd to add LBA UTU 86038 Zero Zero North area to MRP

task id 3411 clean copies

10/09 pg2/3

Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED

			DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter I, Plate I-1 Ownership and Leasehold Interest
<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter III, Plate III-9 Permit Boundaries and Bonding Map (Exhibit D)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter IV, Plate IV-2, UG Operations Plan
<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	
<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter V, APP V-5 FIG 1, (Pre-Subsidence survey update)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter V, Plate V-1, Presubsidence Survey-Structures and Utilities
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter V, Plate V-2, Presubsidence Survey- Roadways
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter V, Plate V-3, Presubsidence Survey- Hydrology
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter V, Plate V-4, Presubsidence Survey-Vegetation
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter V, Plate V-5, Subsidence Monitoring Points and Buffer Zones
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter V, Plate V-6, Drill Hole,X-Sect, Geotech test hole locations (Confidential)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter V, Plate V-17, K1 Seam Geology (Confidential)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter V, Plate V-18, K3 Seam Geology (Confidential)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter V, Plate V-19, J Seam Geology (Confidential)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter V, Plate V-20, U1 Seam geology (Confidential)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter V, Plate V-21, L11 Seam Geology (Confidential)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter V, Plate V-22, L15 Seam Geology (Confidential)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter V, Plate V-23, G Seam Geology (Confidential)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter V, Plate V-24, D Seam Geology (Confidential)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter V, Plate V-25, C Seam Geology (Confidential)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter V, Plate V-26, A Seam Geology (Confidential)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	CH VI, Plate VI-1, Upper Ferron Sandstone potentiometric Surface (1979)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	CH VI, Plate VI-2, Lower Ferron Sandstone Potentiometric Surface (1985)
<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	
<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	CH VI, Plate VI-4, Ground Water Monitoring Well and Surface Water Monitoring Site Location Map
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	CH VI, Plate VI-5, General Geology

Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.

Received by Oil, Gas & Mining

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DIV. OF OIL, GAS & MINING

APPLICATION FOR COAL PERMIT PROCESSING

Detailed Schedule Of Changes to the Mining And Reclamation Plan

COPY

Permittee: Consolidation Coal Company

Mine: Emery Mine

Permit Number: 015/015

Title: Amnd to add LBA UTU 86038 Zero Zero North area to MRP task id 3411 clean copies 10/09 pg3/3

Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

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<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	
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<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	CH VI, Plate VI-6, Historic and Planned Mining Sequence
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	CH VI, Plate VI-7, Upper Ferron Sandstone Potentiometric Surface (2006)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	CH VI, Plate VI-8, Lower Ferron Sandstone Potentiometric Surface (2006)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	CH VI, Plate VI-9, Misc. Surface Water Data Collection Sites
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter VI, Plate VI-10, Surface Drainage Control index Map
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<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter VI, Plate VI-12, 4 East Portal Temporary Stream Diversion Drainage Area Map
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter VII, Plate VII-1, Soil Map
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter VIII, Plate VIII-1, Vegetation and Landuse Map
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter IX, Plate 10-1, Selected Wildlife Information (CONFIDENTIAL)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter X, Plate X.A-1, Permit Area Cultural Resources (CONFIDENTIAL)
<input type="checkbox"/> Add	<input checked="" type="checkbox"/> Replace	<input type="checkbox"/> Remove	Chapter XI, Plate XI-1, Alluvial Valley Floor Along Upper Quitcupah Creek
<input type="checkbox"/> Add	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove	
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Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.

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UMC 782.17

Underground operations at the Emery Mine is an ongoing situation which does not occur in phases. The extent of the underground workings over the life of the permit is shown on Plates IV-1 and IV-2. The permit area encompasses approximately 442.5 acres and the adjacent area encompasses approximately 5,762 acres.

It is anticipated that mining activities will continue considerably beyond the five (5) year permit term. This will require renewals at the end of each term.

UMC 782.18, UMC 800.60

Appendix I-5 contains a copy of the insurance certificate, for the Emery Mine, covering personal injury and property damage.

Revised 8-31-95
Revised 4/05
Revised 9/06
Revised 5/09
Revised 8/09

Surface Land Ownership Within and Adjacent to the Permit Area

The following information describes the surface land ownership within and adjacent to the permit. Plate I-1 shows surface land ownership in and adjacent to the permit area.

Section 19 T22S, R6E

George E. & Patricia Olsen
15 E. Center
Orangeville, Utah 84537
(801) 748-2522

Julian Bowman
P.O. Box 141
Huntington, UT 84528-0141

James Olsen
647 N. Main
Spanish Fork, Utah 84660
(801) 798-3322

United States of America (BLM)
Lease No. U-5287
Utah State Offices
440 West 200 South, Suite 500
Salt Lake City, Utah 84145-0155

Utah Power and Light
P.O. Box 899
Salt Lake City, Utah 84522
(801) 748-2570

Wynona P. Olsen (trustee)
3805 Highland Cove Lane
Apt #D18
Salt Lake City, Utah 84146

M. Christensen
Box 35
Emery, Utah 84522
(801) 286-2348

Young Investment LLC
c/o Walt Young
6590 W. Center St.
Mendon, UT 84325

Consolidation Coal Company
1000 Consol Energy Dr
Canonsburgh, PA 15317
(724) 485-4000

Inserted 12/07
Revised 9/09

Surface Land Ownership Within and Adjacent to the Permit Area

The following information describes the surface land ownership within and adjacent to the permit. Plate I-1 shows surface land ownership in and adjacent to the permit area.

Section 20 T22S, R6E

Gary Petty & Jolene
P.O. Box 44
Emery, Utah 84522

Glen R. Anderson
1462 W. 6235 S.
Murray, Utah 84107
(801) 266-4324

Emery County
Emery County Courthouse
Castle Dale, Utah 84513

Osburn Bret and Lori Lynn Carter
P.O. Box 24
Emery, Utah 84522

Kenneth L. & Earlene Christensen
P.O. Box 552
Emery, Utah 84522

Jeffery Christensen
P.O. Box 235
Cleveland, UT 84518

Osburn Bret Carter & J.R. Lawrence
P.O. Box 24
Emery, Utah 84522

Utah Power and Light
P.O. Box 899
Salt Lake City, Utah 84110
(801) 748-2570

Section 21 T22S, R6E

Wayne & Delise Staley
482 N. 2 W.
Emery, Utah 84522
(801) 286-2213

John & Vicki Byars
P.O. Box 575
Emery, Utah 84522

Consolidation Coal Company
1000 Consol Energy DrCanonsburgh, PA
15317
(724) 485-4000

Osburn Bret and Lori Lynn Carter
P.O. Box 24
Emery, Utah 84522

L.D. & C.A. Jensen
179 W. 4 S.
Emery, Utah 84522
(801) 286-2297

Kent Alan Jorgensen et al
3663 Bountiful Blvd.
Bountiful, UT 84010-3313

Morris & Ronnie Sorensen
P.O. Box 104
Emery, UT 84522-0104

Inserted 12/07
Revised 9/09

Surface Land Ownership Within and Adjacent to the Permit Area

The following information describes the surface land ownership within and adjacent to the permit. Plate I-1 shows surface land ownership in and adjacent to the permit area.

Section 22 T22S, R6E

Consolidation Coal Company
1000 Consol Energy Dr
Canonsburgh, PA 15317
(724) 485-40000

John & Vicki Byars
P.O. Box 575
Emery, Utah 84522

Kenneth L. & Earlene Christiansen
P.O. Box 552
Emery, Utah 8452

D.U. Company, Inc.
53 West Angelo Avenue
Salt Lake City, Utah 84115

Section 23 T22S, R6E

Consolidation Coal Company
1000 Consol Energy Drive
Canonsburgh, PA 15317

Section 26 T22S, R6E

United States of America BLM
Leased to Consolidation Coal UTU
86038

Section 27 T22S, R6E

Consolidation Coal Company
1000 Consol Energy Dr
Canonsburgh, PA 15317
(724) 485-4000

Section 28 T22S, R6E

Wayne & Delise Staley
P.O. Box 83
Emery, Utah 84522
(801) 286-2213

Consolidation Coal Company
1000 Consol Energy Dr
Canonsburgh, PA 15317
(724) 485-4000

Russell H. Odle
P.O. Box 23
Emery, UT 84522-0023

Section 29 T22S, R6E

Russell H. Odle
P.O. Box 23
Emery, UT 84522-0023

Emery County
Emery County Courthouse
Castle Dale, Utah 84513

Morgan Robertson
P.O. Box 65
Emery, Utah 84522
(Refer to Page 7b thru 7d for
Exploration & Surface Agreement)

Rainbow Glass
P.O. Box 340
Orangeville, UT 84537

Consolidation Coal Company
1000 Consol Energy Dr
Canonsburgh, PA 15317
(724) 485-4000

Osburn Bret Carter & J.R. Lawrence
P.O. Box 24
Emery, Utah 84522

Inserted 12/07
Revised 9/09

Surface Land Ownership Within and Adjacent to the Permit Area

The following information describes the surface land ownership within and adjacent to the permit. Plate I-1 shows surface land ownership in and adjacent to the permit area.

Section 30 T22S, R6E

George E. & Patricia L. Olsen
15 E. Center
Orangeville, Utah 84537
(801) 748-2522

Josiah K. Eardley
2433 South Highway 10
Price, Utah 84501

Consolidation Coal Company
1000 Consol Energy DrCanonsburgh,
PA 15317
(724) 485-4000
Emery County
Emery County Courthouse
Castle Dale, Utah 84513

Morgan C. Robertson
P.O. Box 65
Emery, Utah 84522
(Right of Entry - Road & Monitoring
Facilities, right-of-way & easement
grant executed 10-3-88, filed &
recorded 10-6-88, Utah, Emery County
Book 174, Page 600-601)

Wynona P. Olsen (trustee)
3805 Highland Cove Lane
Apt #D18
Salt Lake City, Utah 84146

Young Investment LLC
c/o Walt Young
6590 W. Center St.
Mendon, UT 84325

Clara V. Albrechtsen
893 N 800 E
Bountiful, UT 84010-2848

M. Christensen
Box 35
Emery, Utah 84522
(801) 286-2348

Section 31 T22S, R6E

Consolidation Coal Company
1000 Consol Energy DrCanonsburgh, PA
15317
(724) 485-4000

Morgan Robertson
P.O. Box 65
Emery, Utah 84522

Josiah K. & Etta Marie Eardley
2433 South Highway 10
Price, Utah 84501

Osburn Bret Carter et al
P.O. Box 24
Emery, Utah 84522

Section 32 T22S, R6E

Consolidation Coal Company
1000 Consol Energy DrCanonsburgh, PA
15317
(724) 485-4000

Osburn Bret Carter
P.O. Box 24
Emery, Utah 84522

Inserted 12/07
Revised 9/09

Surface Land Ownership Within and Adjacent to the Permit Area

The following information describes the surface land ownership within and adjacent to the permit. Plate I-1 shows surface land ownership in and adjacent to the permit area.

Section 33 T22S, R6E

Consolidation Coal Company
1000 Consol Energy DrCanonsburgh,
PA 15317
(724) 485-4000

Section 36 T22S, R5E

Consolidation Coal Company
1000 Consol Energy DrCanonsburgh, PA
15317
(724) 485-4000
M. Robertson
P.O. Box 65
Emery, UT 84522-0065

Section 34 T22S, R6E

Consolidation Coal Company
1000 Consol Energy DrCanonsburgh,
PA 15317
(724) 485-4000
United States of America (BLM)

Section 6 T23S, R6E

Consolidation Coal Company
1000 Consol Energy DrCanonsburgh, PA
15317
(724) 485-4000

Section 25 T22S, R5E

Rex Addley
Emery, Utah 84522
(801) 286-2250

United States of America (BLM)
Not Leased

George Lewis
75 E. 3rd South
Salt Lake City, Utah 84111
Phone Unknown

Osburn Bret Carter
P.O. Box 24
Emery, Utah 84522

Robert Lewis
107 W. 2 S.
Emery, Utah 84522
(801) 286-2424

Section 5 T23S, R6E

Osburn Bret Carter
P.O. Box 24
Emery, Utah 84522

United States of America (BLM)
Not Leased

United States of America (BLM)
Not Leased

Section 4 T23S, R6E

United States of America (BLM)
Not Leased

Section 1, T23S, R5E

United States of America (BLM)
Not Leased

Inserted 12/07
Revised 9/09

Coal Ownership Within and Adjacent to the Permit Area

All the holdings described below that are shown as controlled by P&M or Consol were subject to a 50/50 lease agreement between Consol and P&M (through Gulf Oil Company's acquisition of Kemmerer Coal Company) dated August 23, 1966 and amended 9/1/72 and 2/27/75 . Any reference, below, to Kemmerer should be read as P&M. This agreement was terminated by an agreement made effective 3/31/93 giving Consolidation Coal Company sole control of the Emery Coal Mine and all real property associated with it. A copy of this latest agreement is provided at the end of this appendix. The documents and lands listed below pertain only to coal ownership. Plate I-1 shows coal ownership in and adjacent to the permit area.

Township 22 South, Range 6 East (SLM)

Section 19	NE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ E $\frac{1}{2}$ SE $\frac{1}{4}$ S $\frac{1}{2}$ NE $\frac{1}{4}$	Lease from USA (BLM) to Kemmerer and Consol dated 7/1/70 (#U-527) Utah State Offices University Club Building Salt Lake City, Utah (801) 524-5330
	SE $\frac{1}{4}$ SW $\frac{1}{4}$ dated 5/14/68	Deed from Emery County to Kemmerer Coal Co.
	SW $\frac{1}{4}$ SE $\frac{1}{4}$	Deed from L.M. and S.M. Pratt to Kemmerer Coal Co. dated 6/22/49
	N $\frac{1}{2}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$	United States of America Not Leased
	W $\frac{1}{2}$ SW $\frac{1}{4}$	Emery County 95 E. Main Castledale, Utah 84513 (801) 748-2474
Section 20	NW $\frac{1}{4}$ SW $\frac{1}{4}$ S $\frac{1}{2}$ S $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$	Lease from United States of America (BLM) to Kemmerer and Consol dated 7/1/70 (#U-5287)
	NE $\frac{1}{4}$ E $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$	Deed from San Rafael Fuel Co. to Kemmerer Coal Co. date 10/1/58
	W $\frac{1}{2}$ NW $\frac{1}{4}$	United States of America Not Leased
Section 21	W $\frac{1}{2}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ W $\frac{1}{2}$ NE $\frac{1}{4}$	Deed from San Rafael Fuel Co. to Kemmerer Coal Co.
	SE $\frac{1}{4}$ NE $\frac{1}{4}$	Deed from L.M. and S.M. Pratt to Kemmerer Coal Co.

Replaced/reordered 9/09

Section 22	NW¼NW¼	Deed from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58
	SW¼SW¼ SE¼NE¼	Deed from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58
	SW¼NW¼ N½SW¼ SE¼SW¼	Lease from United States of America (BLM) to Consol dated 7/1/83 (#U-50044)
	W½SE¼ E½NW¼ W½NE¼ NE¼NE¼	Deed from I. Browning to Kemmerer Coal Co. dated 8/23/66
Section 23	SW¼NW¼	Deed from I. Browning to Kemmerer Coal Co. dated 8/23/66
	NW¼SW¼	Deed from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58
	S1/2SW1/4	Lease from USA (BLM) to Consol dated ?????(UTU 86038)
Section 26	NW1/4NW1/4	Lease from USA (BLM) to Consol dated ?????(UTU 86038)
Section 27	S½ NW¼ SW¼NE¼	Deed from San Rafael Coal Co. to Kemmerer Coal Co. dated 10/1/58
	N½NE¼	Deed from L.M. and S.M. Pratt to Kemmerer Coal Co. dated 6/22/49
	S½NE¼	Deed from Kemmerer Coal Co.
Section 28	NW¼	Deed from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58
	NE¼	Dated from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58
	S½	Deed from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58
Section 29	NW¼NW¼ E½NW¼ W½NE¼ NW¼SE¼	Lease from United States of America (BLM) to Kemmerer and Consol dated 7/1/70 (#U-5287)

Beginning 20 rods South of
the NW corner of the SW
Quarter of Section 29,
thence South 60 rods, thence
East 80 rods, thence North 20
rods, thence Northwesterly to
the place of the beginning.

Lease from John and Carolyn Lewis
to Consol and Kemmerer
dated 11/12/80
1163 E. 25th Street
Idaho Falls, ID 83401
(208) 522-3646

SW $\frac{1}{4}$ NW $\frac{1}{4}$, beginning at the NW corner of SW $\frac{1}{4}$, thence E 80 rods, thence S 76 rods, thence Northwesterly to the place of the beginning.

Lease from George Olsen to Consolidation Coal Co. dated 12/17/80
15 E. Center
Orangeville, Utah
(801) 748-2522

SE $\frac{1}{4}$ NE $\frac{1}{4}$

Lease from R.D. Jensen and D.R. Close to Consolidation Coal Co. dated 12/17/80
520 E. 1 N.
Cleveland, Utah 84518
(801) 653-2252

NE $\frac{1}{4}$ NE $\frac{1}{4}$
E $\frac{1}{2}$ SE $\frac{1}{4}$
SW $\frac{1}{4}$ SE $\frac{1}{4}$
NE $\frac{1}{4}$ SW $\frac{1}{4}$

Deed from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58

S $\frac{1}{2}$ SW $\frac{1}{4}$

State of Utah
Lease Relinquished by Consolidation Coal Co.

Section 30

S $\frac{1}{2}$ NE $\frac{1}{4}$
E $\frac{1}{2}$ NW $\frac{1}{4}$
NW $\frac{1}{4}$ SE $\frac{1}{4}$
SW $\frac{1}{4}$ SE $\frac{1}{4}$
SE $\frac{1}{4}$ SW $\frac{1}{4}$

Deed from Emery County to Kemmerer Coal Co. dated 5/14/68

N $\frac{1}{2}$ NE $\frac{1}{4}$
SW $\frac{1}{4}$ NW $\frac{1}{4}$
NE $\frac{1}{4}$ SW $\frac{1}{4}$

Deed from L.M. and S.M. Pratt to Kemmerer Coal Co. dated 6/22/49

NW $\frac{1}{4}$ NW $\frac{1}{4}$

Private ownership, Ralph Lewis
4053 S. 850 W.
Bountiful, Utah 84010
(801) 292-1204

SW $\frac{1}{4}$ SW $\frac{1}{4}$
S $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$

Lease from George Lewis to Consolidation Coal Co. dated 8/30/82

NE $\frac{1}{4}$ SE $\frac{1}{4}$

Lease from John and Carolyn Lewis to Consolidation Coal Co. dated 11/12/80

SE $\frac{1}{4}$ SE $\frac{1}{4}$

State of Utah
Lease relinquished by Consolidation Coal Company

N $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$

Lease from Robert Lewis to Consolidation Coal Co. dated 10/3/74
107 W. 2 S.
Emery, Utah 84522
(801) 286-2424

Section 31

W $\frac{1}{2}$ NE $\frac{1}{4}$
E $\frac{1}{2}$ NW $\frac{1}{4}$
NW $\frac{1}{4}$ NW $\frac{1}{4}$
SW $\frac{1}{4}$ NW $\frac{1}{4}$
W $\frac{1}{2}$ SW $\frac{1}{4}$
SW $\frac{1}{4}$ SE $\frac{1}{4}$
E $\frac{1}{2}$ NE $\frac{1}{4}$

Deed from Emery County to Kemmerer Coal Co. dated 5/14/68

See Note A.

Deed from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58

	NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$	State of Utah Lease Not Renewed
	E $\frac{1}{2}$ SE $\frac{1}{4}$	Deed from L.M. and S.M. Pratt to Kemmerer Coal Co. dated 6/22/49
Section 32	NW $\frac{1}{4}$ E $\frac{1}{2}$	Deed from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58
	SW $\frac{1}{4}$	Deed from L.M. and S.M. Pratt to Kemmerer Coal Co. dated 6/22/49
Section 33	All	Deed from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58
Section 34	N $\frac{1}{2}$	Deed from San Rafael Fuel Co. to Kemmerer Coal Co. dated 10/1/58
	S $\frac{1}{2}$	United States of America Not Leased

Township 22 South Range 5 East (SLM)

Section 25	E $\frac{1}{2}$ E $\frac{1}{2}$	United States of America Not Leased
Section 36	All	Utah State, not leased

Township 23 South Range 5 East (SLM)

Section 1	All	United States of America Not Leased
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Township 23 South Range 6 East (SLM)

Section 6	N $\frac{1}{2}$ W $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$	See Note A.
	NE $\frac{1}{4}$ NE $\frac{1}{4}$	Deed from L.M. and S.M. Pratt to Kemmerer Coal Co. dated 6/22/49
Section 5	NW $\frac{1}{4}$ NW $\frac{1}{4}$	Deed from L.M. and S.M. Pratt to Kemmerer Coal Co. dated 6/22/49
	E $\frac{1}{2}$ E $\frac{1}{2}$ W $\frac{1}{2}$ W $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$	United States of America (BLM) Not Leased
Section 4	W $\frac{1}{2}$	United States of America (BLM) Not Leased
	E $\frac{1}{2}$	United States of America (BLM) Not Leased

NOTE A: The Kemmerer Coal Company has been paying taxes on these lands for a number of years. However, during the title investigations, the deed from Ira Browning to Kemmerer was found to be missing, but these lands are not included in the Browning estate. Therefore, it is Consol-Kemmerer's contention that these coal lands do indeed belong to Consol-Kemmerer, although judicial action will probably be necessary to clear them. The legal proceedings for these properties will be initiated in the near future.

Replaced/reordered 9/09

CHAPTER IV ENGINEERING DESIGNS

IV.A UNDERGROUND MINE PLAN

This part covers the description of the underground mining operations to be conducted at the Emery Mine.

IV.A.1 UNDERGROUND MINE PLAN

UMC 783.12(a), 783.24(c), 783.25(e), 783.25(h), 784.11(a), 784.23(a)

The Adjacent Area for the Emery Mine encompasses approximately 5,762 acres. The permit area for the Emery Mine encompasses approximately 442.5 acres. The boundary of the Adjacent Area and permit area is shown on the Permit Boundaries and Bonding Map (Plate III-9). The description of the Adjacent area is as follows:

Township 22 South, Range 6 East

Section 19: S/2NE/4, SE/4, E/2SW/4

Section 20: S/2NE/4, SE/4NW/4, S/2

Section 21: S/2N/2, S/2

Section 22: S/2, SW/4NW/4, portions of the following E/2SE/4NW/4, SW/4SE/4NW/4, S/2NW/4NE/4, SW/4NE/4, SW/4SW/4NE/4NE/4, W/2SE/4NE/4, S/2NE/4SE/4NE/4, SE/4SE/4NE/4

Section 23: portions of the following SW/4NW/4, NW/4SW/4 Section 27: W/2, portion of NE/4

Section 23: S/2, SW1/4

Section 26: NW1/4NW1/4

Section 28: All

Section 29: All

Section 30: E/2, E/2NW/4, SW/4NW/4, N/2NW/4SW/4, E/2SW/4

Section 31: N/2, W/2SW/4, E/2SE/4, SW/4SE/4

Section 32: All

Section 33: W/2, NE/4

The description of the permit area is as follows:

Township 22 South, Range 6 East

Section 27: portions of NW/4, SW/4, NE/4

Section 30: portions of NE/4

Section 32: portions of NW/4, NE/4, SE/4

Section 33: portions of NW/4, NE/4, SW/4

Mining operations at the Emery Mine are conducted in the IJ Zone utilizing the room and pillar mining method. Plate IV-1 shows the layout, the present mine workings and the projected areas to be mined during the permit term. The existing workings have been marked to show the extent of underground mining operations (1) before August 3, 1977, (2) between August 3, 1977 and May 3, 1978, and (3) after May 3, 1978 up to the permit approval date of January 5, 1986. There are no surface mining operations at the Emery Mine. The projected mine workings are delineated by year for the next five year permit term. Plate IV-2 shows the same plan on a 1"=1000' map to show the extent of the projected life of mine plan in the IJ Zone. The Emery Mine operates under the General Safety Orders, Utah Coal Mines issued by the Industrial Commission of Utah and the applicable regulations issued by the Mine Health and Safety Administration (MSHA).

Access to the underground workings is through the portals shown on Plate II-1. All of the present portals are drift openings at the outcrop of the seam. These openings consist of intake, return, and belt entries. It may be necessary in the future to install ventilation raises in other areas of the property; however, these locations are not known at the present time. Future portals may consist of ramp excavations and shafts to access the coal seam. The new 4 East portal will use a ramp excavation down to the top of the IJ seam. A new set of portals will be installed for the southern main entries of the mine when production from the southern part of the mine warrants it.

Revised 8-31-95
Revised 4/05
Revised 3/07
Revised 5/09
Revised 9/09

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VI.2.2.5 Surface Topography

Surface topographic features in the permit and adjacent areas are shown on the base maps used for many of the plates in this submittal.

VI.2.3 Sampling and Analysis

All water samples collected under this MRP have been analyzed according to methods in either the "Standard Methods for the Examination of Water and Wastewater" or 40 CFR parts 136 and 434. Where feasible, these same references have been used as the basis for sample collection.

VI.2.4 Baseline Information

Surface and groundwater resource information is presented in this section to assist in understanding hydrologic conditions in the mine area. This information provides a basis for determining if mining operations have had, or can be expected to have, a significant impact on the hydrologic balance of the area. Additional information regarding the hydrology of the Miller Canyon Tract (Zero Zero North mine panel) is provided in Appendix VI-16.

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VI.2.4.1 Groundwater Information

This section presents a discussion of baseline groundwater conditions in the permit and adjacent areas. The locations of wells and springs in the area are presented on Plates VI-3 and VI-4. Lithologic and completion logs for monitoring wells in the permit and adjacent areas are provided in Appendix VI-2.

Geologic conditions in the permit and adjacent areas are described in Volume V of this MRP. Groundwater in the permit and adjacent areas occurs predominantly in the Ferron Sandstone. However, perched aquifers of limited areal extent are present in overlying materials. Hydrogeologic conditions within the permit and adjacent areas are summarized below.

Quaternary Deposits (Qal)

Discontinuous, shallow perched zones are contained within Quaternary alluvial, mud and slope wash, and pediment deposits scattered throughout the Emery area (see Plate VI-5). These Quaternary deposits are generally less than 50 feet thick, with boundaries defined by the contact with the underlying Blue Gate Member of the Mancos Shale.

Recharge to Quaternary *alluvial deposits* in the area occurs primarily by streamflow seepage along adjacent water courses. During the spring and summer months, much of this water consists of irrigation return flow. Groundwater discharges from these Quaternary alluvial deposits primarily via evapotranspiration and horizontal, subsurface outflow to topographically lower areas. Given the relatively impermeable nature of the underlying Blue Gate Member, it is assumed that only minor quantities of alluvial groundwater discharge to the adjacent bedrock.

Most recharge to the Quaternary *mud and slope wash and pediment deposits* occurs via seepage of irrigation water applied to adjacent land. This water, which in the Emery area is diverted predominantly from Muddy Creek, is either evapotranspired or moves horizontally through these deposits and then discharges to the surface at the underlying contact with the relatively impervious Blue Gate Member. Several seepage points representing irrigation return flow from this subsurface mud and slope wash/pediment water are noted on Plate VI-5 (specifically SP-1 through SP-14). Water flowing from some of these seeps becomes trapped in swales which, coupled with the high salinity of the Blue Gate, creates areas of salt accumulation.

Consol conducted an inventory of seepage points within one mile of the permit area on October 24, 1979, and again on June 11, 1980. Each point was evaluated in the field for its geologic setting, and field data were collected to define the temperature, pH, specific conductance, dissolved oxygen, and discharge (where possible) of the seepage.

Within the study area, 16 seepage points were identified in 1979-1980. Locations and field measurements for each of the points are exhibited on Plate VI-5 and Table VI-3, respectively. All but two of the seepage points were observed to be issuing from pediment

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Zero Zero North Panel. The probable hydrologic consequences of mining in the Zero Zero North panel were evaluated in an environmental assessment published by the U.S. Bureau of Land Management in 2009¹. The following is extracted from Section 4.2.1.1 of that document and describes those probable hydrologic consequences:

No surface disturbances (other than indirect subsidence-caused settling) would occur under the proposed action, thus the accelerated runoff and erosion typical of disturbed areas would not occur. However, within the 55 acres of the Tract where full extraction would occur, planned subsidence may locally alter drainage patterns through slight but non-uniform settling and development of tension cracks. This could change infiltration, ponding, erosion/deposition, and runoff characteristics on a very small and local scale but would not be expected to have off-site impacts or otherwise affect either the Miller Canyon or Christiansen Wash streamflow or sediment regimes. Over time, tension cracks would be likely to fill and seal, particularly in the areas where soils have substantial clay components and overly shale parent materials (soil mapping units PCE2 and NME2 – Figure 5 [of the EA]). Similarly, as small depressions collect runoff, conveyed sediments would deposit and over time these depressions would fill, causing local topography to reach pre-subsidence uniformity.

Because the proposed action would simply be an extension of mining, there would be no change to the existing condition regarding other potential surface effects (off of the Tract) such as those related to coal transport, hydrocarbon spillage, surface infrastructure, discharge of intercepted groundwater, etc. Consol would continue to monitor surface and groundwater impacts related to its existing operations to ensure that there are no material damages to the hydrologic balance as per the Emery Mine's already approved MRP.

As mining expands into the Tract, groundwater contained in the Ferron Sandstone would continue to be intercepted. Given the small area (55 acres) of undermining associated with the Tract, as compared to the past, current, and already approved mining, the additional quantity of intercepted groundwater associated with the Emery Mine is not expected to substantially change. Similarly, the discharge of that intercepted groundwater water to Quitchupah Creek would continue, as allowed by the current UPDES Permit, at similar rates and water quality as if the Tract were not mined. In addition, there would be no change in the consumptive use of this groundwater (due to entrainment in the coal, dust control in-mine and on the surface, and evaporative losses due to mine ventilation).

Under existing approvals that are irrespective of the proposed action being evaluated here, it has been predicted that Christiansen Spring (also known as SP -15) will be within the cone of depression due to mining and resultant dewatering of the upper Ferron Sandstone aquifer. Groundwater modeling presented in Consol's approved MRP (Consolidation Coal Company 2008) suggests that the potentiometric surface in the vicinity of the spring will temporarily decline about 24 feet; this decline can be expected to affect the discharge of Ferron Sandstone groundwater at Christiansen Spring. As overall premining groundwater levels reestablish after mining is complete, the spring can be expected to again discharge this groundwater. Mining the

¹ U.S. Bureau of Land Management. 2009. Environmental Assessment of the Consolidation Coal Company Emery Mine – Miller Canyon Tract Lease UTU-86038, Emery County, Utah. Environmental Assessment UT-070-2008-104. Price, Utah.

Tract would not alter either the diminishment or the reestablishment of the spring as it is already expected to occur under the existing mine plan.

Further, this spring is not within the footprint of the area that would be mined or subsided under the proposed action. As such, its physical setting would not be disturbed.

A reach of the Miller Canyon channel would be undermined and subsided as a result of the proposed action. The small earthen dam mentioned in Section 3.1.1 [of the EA] is within this reach, as is the noted zone of piping and interception of stream flows. As was previously discussed, the dominant source for water stored in the dam and conveyed through Miller Canyon is excess irrigation water that is released under the current flood-irrigation system. As this part of the Tract is mined and subsided, ground movements could occur and it would be possible that the already-compromised dam could fail further, perhaps ceasing to have any impoundment capacity, and that the already occurring piping and interception of flows could be exacerbated.

Because the dam is located on ground that Consol owns, they would have several options: (1) reconstruct the dam at that location for the lessee's use, (2) construct another dam further upstream outside of the Tract, (3) enlarge the excavated impoundments located on their property north of the Tract for the lessee's use, or (4) forego the ability to impound water at this location. The fact that the flood irrigation system may soon be converted to a pressurized sprinkler irrigation system and the fact that this structure is not a State Engineer-permitted structure reduce the level of impact associated with the potential loss of the dam's functionality.

The proposed action's potential exacerbation of the piping and interception of flows that are already occurring within this reach of Miller Canyon would represent a greater concern. Once the channel subsides, the intercepted water may not be able to make its way back into the channel as it currently does. In addition to the physical alteration of the existing piping and joint network, the overall lowering of the channel bed through this reach would locally change the channel gradient. These combined effects could result in less water continuing downstream to lower Miller Canyon and Muddy Creek. Because most Miller Canyon discharge is related to irrigation, and comprised of flow that is regulated but not measured, quantification of this potential water loss is not possible. However, as noted, flows may diminish in Miller Canyon in the near future, irrespective of the proposed action, due to the irrigation system conversion. Any loss of water in Miller Canyon due to the proposed action may simply cause this change to occur sooner than it would otherwise occur. Regardless, the BLM's stockwatering right in lower Miller Canyon, which apparently depends in large part upon irrigation releases, may be affected.

The fate of any Miller Canyon flow that may be lost from the surface within the subsided area cannot be predicted with certainty. It may, as it does currently, move laterally down gradient and reappear in the stream channel downstream of the mined area. Alternatively, its movement may have a greater vertical component, and be conveyed into the mine via tension cracks and/or natural joints. If the latter, it would require handling and subsequent discharge to Quitcupah Creek through Consol's UPDES permit.

VI.2.9 Cumulative Hydrologic Impact Assessment (CHIA)

A Cumulative Hydrologic Impact Assessment to include the permit and adjacent areas has been prepared by the Division.

VI.3 OPERATION PLAN

VI.3.1 General Requirements

This permit application includes an operation plan which addresses the following:

- Groundwater and surface water protection and monitoring plans;
- Design criteria and plans;
- Performance standards; and
- A reclamation plan.

VI.3.1.1 Hydrologic-Balance Protection

Groundwater Protection. To protect the hydrologic balance, coal mining and reclamation operations will be conducted to handle earth materials and runoff in a manner that minimizes acidic, toxic, or other harmful infiltration to the groundwater system. Additionally, the mine will manage excavations and disturbances to prevent or control discharges of pollutants to the groundwater.

APPENDIX VI-16

Selected Text from
Miller Canyon Tract EA

The following is extracted from pages 18 through 20 of the Emery Mine-Miller Canyon Tract Lease Environmental Assessment¹ (the area of the Zero Zero North mine panel):

3.3.1 Water Resources

The Tract is bisected by the upper reaches of Miller Canyon (**Figure 4**). Miller Canyon joins Muddy Creek about one mile downstream of the Tract. Though most of the Tract is drained by Miller Canyon, runoff from the western part flows toward Christiansen Wash, which is also tributary to Muddy Creek via Quitcupah Creek. Muddy Creek and the Fremont River combine to form the Dirty Devil River before it joins the Colorado River.

Along a several-mile reach of Muddy Creek, beginning at the Emery Canal diversion (which often completely dewateres the channel) located about 15 miles northwest of the Tract, continuing downstream to include the reach of stream just east of the Tract, stream flows are generally supported by seepage and irrigation returns (Mundorff 1979). Within this reach of Muddy Creek, total dissolved solids (TDS) concentrations markedly increase. For example, TDS in samples collected by the US Geological Survey (USGS) during the 2005 and 2006 water years were consistently below 300 mg/L at the USGS Muddy Creek station upstream of Emery near the canal diversion, but were as high as 3,714 mg/L in Muddy Creek just below Miller Creek (USGS 2008). The increase is due to diversion of good quality water into the Emery Canal, interaction with the soluble marine deposits associated with Mancos Shale Formation outcrops, and contribution of irrigation-affected seepage and return flow. Miller Canyon itself conveys irrigation return flow, runoff from storms and snow melt, and discharge from a small spring. Each of these sources is discussed in more detail below.

Within the reach of Miller Canyon that flows through the Tract, irrigation return flow is seasonal, but of sufficient duration and volume to support a riparian corridor and to provide water for downstream stock uses. It appears to be the largest sustained contributor to Miller Canyon flow: a site visit on April 24, 2008, prior to the start of irrigation, documented an absence of stream flow in Miller Canyon upstream of contributions from a small spring (less than one gallon per minute) near the downstream end of the Tract; a repeat visit on June 4 documented irrigation flows (in excess of 100 gallons per minute) throughout the previously dry reach. Further, field notes from Consol personnel, who routinely visit the area to monitor flows at the spring, often indicate that the presence of irrigation water hinders their ability to measure spring discharge (personal communication, Peter Behling, Consol, April 28, 2008).

While the Emery area has been flood-irrigated for more than 100 years, the practice is likely to be modified in the near future, and this modification may have a direct bearing on future flows in Miller Canyon (unrelated to Consol's plan to mine the Tract). The Tract is within a larger area established by the USDA Natural Resource Conservation Service (NRCS) as the Muddy Creek Unit of the Colorado River Salinity Control Program. As with other salinity control units, this area was determined to be an area where salt load reduction was potentially economical. In October 2004, the NRCS (2004) finalized a plan to construct a new irrigation delivery system and implement an irrigation conversion project (from flood to sprinkler) on the Muddy Creek Unit. Once implemented, this project will result in more efficient water use, which in turn tends to improve water quality by reducing dissolved salts. Irrigation conversion also generally reduces deep percolation, seepage, and excess water in return ditches. Once implemented on the fields upstream of the Tract, stream flows through Miller Canyon are likely to diminish. Those reduced flows, in turn, may result in a diminished riparian corridor and associated habitat. In fact, the NRCS's EA (NRCS 2004) recognizes that at least some of the seeps, wetlands, and riparian areas that have been artificially created over many years of inefficient irrigation practices in the Muddy Creek area are likely to be negatively impacted by the salinity control project.

¹ U.S. Bureau of Land Management. 2009. Environmental Assessment of the Consolidation Coal Company Emery Mine-Miller Canyon Tract Lease UTU-86038, Emery County, Utah. Environmental Assessment UT-070-2008-104. Price, Utah.

Runoff from thunderstorms and seasonal snowmelt is another source that contributes stream flow to Miller Canyon. At Muddy Creek near 1-70, the USGS (2008) attributed more than twice the amount of snowmelt runoff as compared to direct runoff during the 2005-2006 water years, but also notes the large temporal and spatial variability of flows in the Muddy Creek Basin. Snowmelt in Miller Canyon would likely peak in May or early June, and would typically contain very few dissolved solids. Late summer or fall thunderstorms produce most of the direct runoff, and this source is — by nature — infrequent and irregular. Channel morphology in Miller Canyon does not suggest that severe flash floods are common. As with most streams in the area, when the flow is comprised of high-intensity runoff from thunderstorms, sediment concentrations in Miller Canyon are likely to be elevated, and TDS concentrations are likely to be higher than during snowmelt-dominated flow events.

Due to a small, currently unmaintained earthen dike across the Miller Canyon channel at the upstream end of the Tract (**Figure 4**), both irrigation water and runoff are at least partially impounded. During the previously mentioned June 2008 site visit, seepage was occurring beneath the dam, and significant piping and interception of flows was occurring immediately downstream of it (which appears to be related to bedrock joints or fissures as the intercepted flows were observed to resurface well downstream of the dam). Several smaller impoundments have been excavated just upstream of the dam, within and north of the Tract on land owned by Consol but leased to an irrigator. These impoundments were apparently constructed to compensate for the dam's only partially functional ability to store water. The stored water is apparently used to supply drinking water for the lessee's livestock.

As mentioned above, a small spring discharges groundwater along the west bank of Miller Canyon near the downstream Tract boundary (**Figure 4**). This spring is not documented on USGS mapping or in other published sources, but was identified a number of years ago in association with the Emery Mine's baseline data gathering. Named Christiansen Spring (or SP-15), Consol monitors this source quarterly. According to Consol's MRP (Consolidation Coal Company 2008a), the spring discharges from the upper zone of the Ferron Sandstone Member of the Mancos Shale. Consol has a water right (#94-92) that was originally associated with this spring, and which now includes stockwatering rights for a reach upstream of the spring.

Downstream of the spring and the Tract, continuing through Miller Canyon to its confluence with Muddy Creek, BLM has an in-stream point-to-point water right (#94-1716) for stock watering and livestock uses (**Figure 3**). As with the upstream reach of Miller Canyon, flows in this segment of the canyon are most likely supported largely by irrigation return flows.

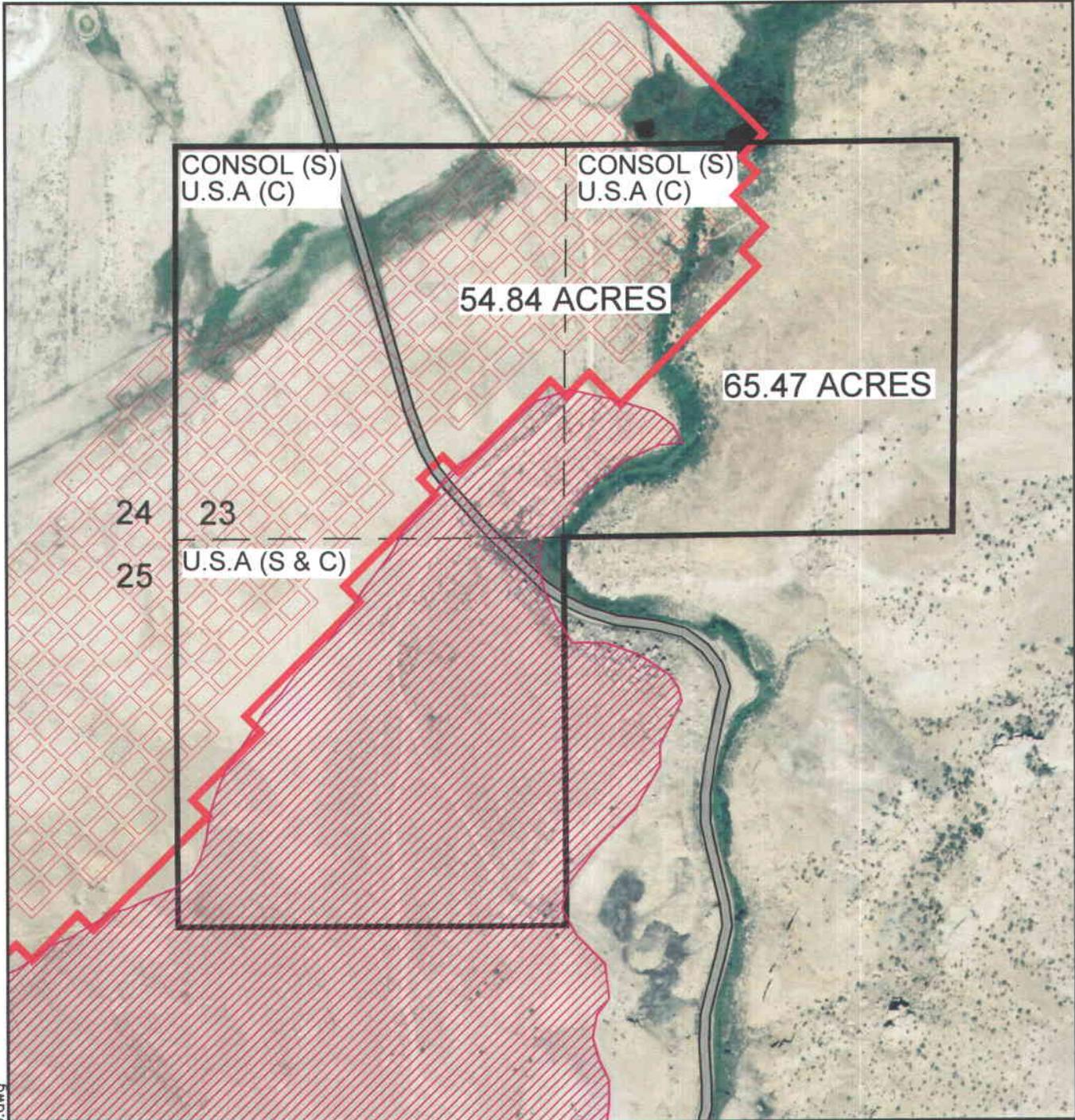
The Ferron Sandstone is considered to be the primary bedrock aquifer within the general area encompassing the Tract. Located between the more impermeable shales of the Blue Gate (overlying) and the Tununk (underlying) members of the Mancos Shale, the aquifer associated with the Ferron Sandstone is commonly divided into a lower, middle, and an upper aquifer unit. The minable coal seam is located between the middle and upper divisions. The Emery Mine intercepts groundwater from this aquifer, and continually discharges the majority of the intercepted water to Quitcupah Creek. In 2006, the mine discharged this water at an average rate of about 527 gallons per minute; its TDS averaged approximately 3,480 mg/L (EarthFax Engineering, Inc., 2008). The discharge is permitted by the Utah Division of Water Quality (UDWQ) under the Utah Pollutant Discharge Elimination System (UPDES) program. Consol owns several water rights for groundwater, and uses this water for industrial and agricultural purposes.

The Ferron Sandstone aquifer is primarily recharged from the high-elevation Wasatch Plateau to the west, and is under artesian pressure in the vicinity of the Emery Mine. Within the Tract, the Ferron Sandstone is the uppermost bedrock unit, and it is exposed as outcrop along portions of Miller Canyon, including at the location of the above-described spring. Generally though, within and near the outcrop area the Ferron is not saturated. By intercepting and continually discharging the intercepted water, mining has lowered the potentiometric surface of the Ferron, (primarily the upper Ferron zone and to a lesser extent the middle and lower zones) (Consolidation Coal Company 2008b). Once mining ceases, the trough of

depression caused by past and currently approved mining activities will gradually diminish and pre-mining groundwater levels will eventually be approximately reestablished.

The water quality of the Ferron varies with depth and with distance down gradient from the recharge area. The TDS concentration of groundwater in the upper Ferron Sandstone averages about 1,600 mg/L, though in the vicinity of the Emery Mine is locally higher, likely due to interaction between the Ferron and the overlying shales.

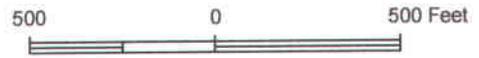
Neither the surface- nor groundwater resources in the vicinity of the Tract supply public or private drinking water systems. This is largely due to a lack of need in this sparsely populated area, but in part is due to high TDS concentrations.



BASE USGS 7.5' TOPOGRAPHIC MAP: EMERY EAST, 1968 PHOTOREVISED 1978, UTAH

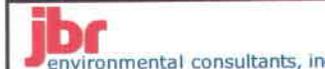
EXPLANATION

-  New Road
-  Tract Boundary (T22S, R6E, Sections 23 and 26, Emery County, Utah)
-  Non-subsidence Boundary
-  Forecasted 00 North Panel
-  Burn.Oxidized Area

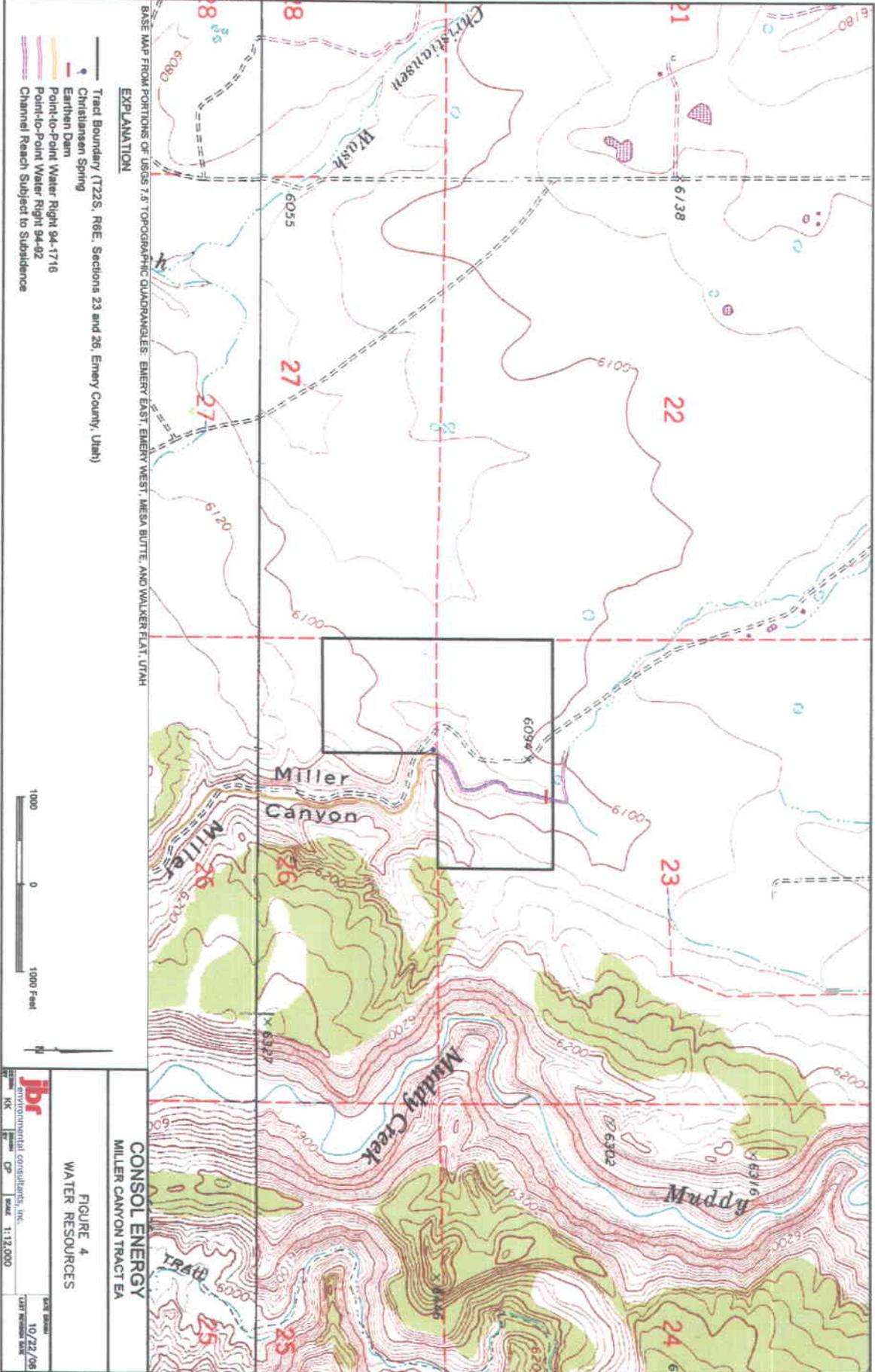


CONSOL ENERGY
MILLER CANYON TRACT EA

FIGURE 3
SITE MAP

			DATE DRAWN
			12/18/08
DESIGN BY: KK DRAWN BY: CP SCALE: 1:6000			LAST REVISION DATE
			01/05/09

drawings\Consol_Miller_Canyon\Fig3_Site_Map.dwg



CHAPTER VIII VEGETATION

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VIII-4	Biological Resources of the Full Extraction Pillar Splitting, Life of Mine Surface Area Report Mt. Nebo Scientific, November 2008
VIII-5	Biological Resources of the Zero Zero North Area, Mt. Nebo Scientific, June 2009
VIII-6	Biological Resources of the Zero Zero North LBA UTU-86038, Mt Nebo Scientific, Nov 2008 Plant Communities, Threatened, Endangered & Sensitive Species study, Burrowing Owl Survey, Prairie Dog Survey
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CHAPTER VIII

APPENDIX VIII-6

PLANT COMMUNITIES

**MILLER TRACT AREA
EMERY MINE
2008**



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November 2008



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INTRODUCTION

The Emery Mine is located in south-central Utah in Emery County. Expansion of underground coal mining activities have been planned in an area known as the Miller Tract. In planning for the future, studies regarding impacts to the land surface above the mining have been conducted.

The plant communities located within the Miller Tract area have been mapped and briefly described in this document.

METHODS

Vegetation mapping was accomplished by walking the entire area of the Miller Tract of the Emery Mine site. Aerial photographs were also utilized in the field for the vegetation mapping work. Dominant plant species of each plant community and field notes were recorded during the field work.

RESULTS

The following plant communities were mapped within the Miller Tract of the Emery Mine:

- Shadscale
- Greasewood
- Saltgrass
- Riparian
- Pasture Land
- Sagebrush
- Tamarisk

A brief description about the plant communities follows. A vegetation map of the area has also been included in this report (Figure 1) along with color photographs of each community type (Figures 2-9).

Shadscale

A Shadscale plant community occupied portions of the Miller Tract (Figure 2). As the community name suggests, this community was dominated by shadscale (*Atriplex confertifolia*), but several other species of shrubs, forbs, and grasses were often common in this community such as broom snakeweed (*Gutierrezia sarothrae*), mat saltbush (*Atriplex corrugata*), cryptanth (*Cryptantha* spp.), Indian ricegrass (*Stipa hymenoides*), galleta (*Hilaria jamesii*) and blue grama (*Bouteloua gracilis*). Additionally, there were areas of shadscale that also supported scattered pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*) trees (Figures 1 and 3).

Greasewood

Greasewood communities were common in the study area (Figure 4). This community is known for its relatively low species diversity with the dominant plant species here represented almost exclusively by greasewood (*Sarcobatus vermiculatus*), and to a lesser extent, Torrey's seepweed (*Suaeda torreyana*).

Saltgrass

The lower elevation topography of the study areas were often comprised of Saltgrass plant communities (Figure 5). The water that flows within these areas is often derived from natural groundwater and surface water as well as runoff from irrigated pasture lands located up-gradient. The dominant plant species in these communities was often almost exclusively comprised of saltgrass (*Distichlis spicata*). However, there were other saltgrass areas that contained additional species that were represented as co-dominants such as tamarisk (*Tamarisk chinensis*) and wiregrass (*Juncus arcticus*).

Riparian

There was a riparian community associated with a drainage through the Miller Canyon Tract (Figure 6). Depending on the reach location, dominant plants species included wiregrass,

saltgrass, tamarisk, greasewood, rushes (*Juncus* spp.) and sedges (*Carex* spp.).

Pasture Land

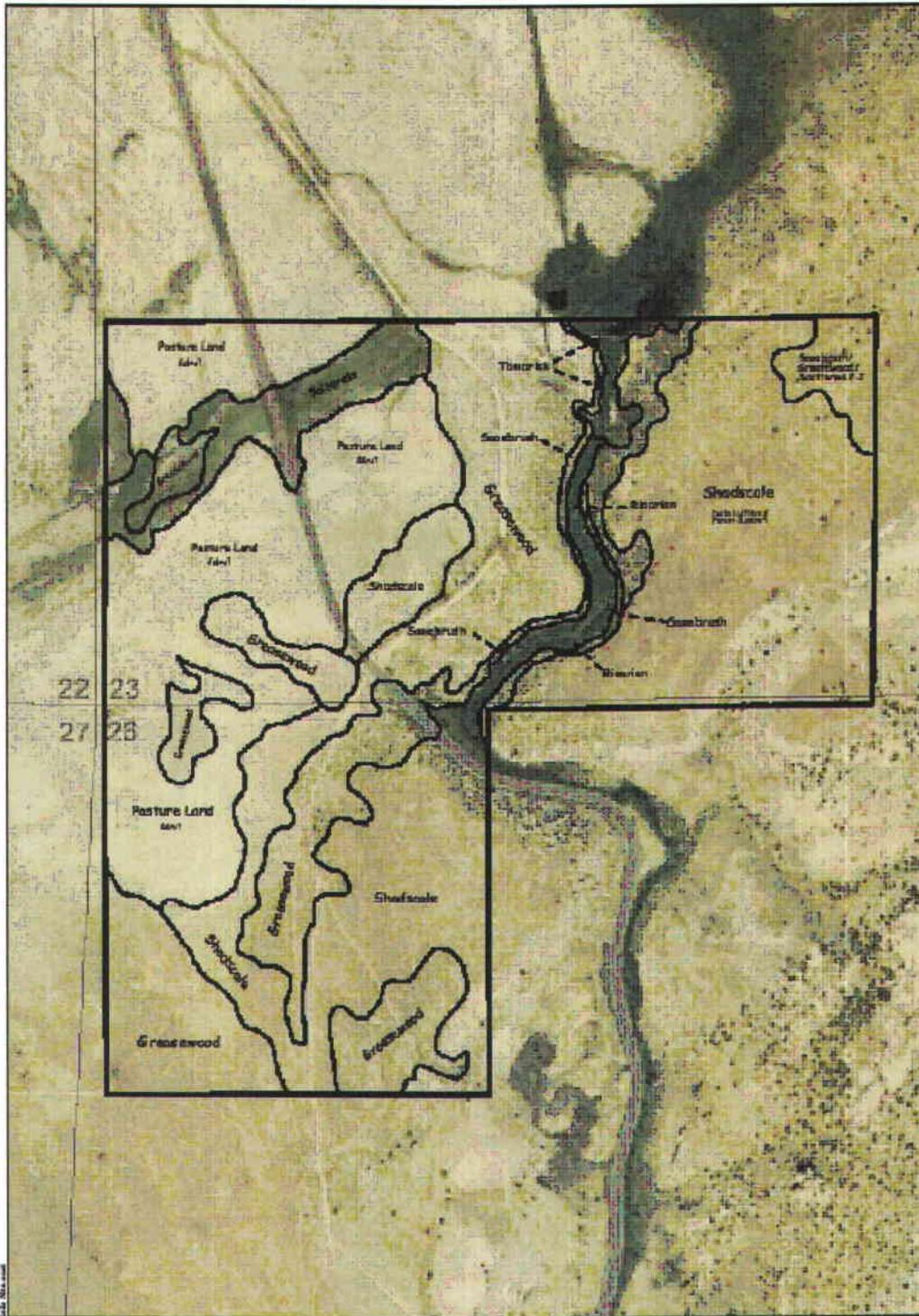
Some of the lower elevation areas have been converted from native plant communities to pasture lands for use by domestic livestock. Some of the pasture lands were once irrigated, but are currently being utilized as unirrigated, dry-land pastures (Figure 7). Native species common in these areas were greasewood, saltgrass and galleta. Due to disturbance by landowners and cattle, some “weedy”, exotic species such as gumweed (*Grindelia squarrosa*), field bindweed (*Convolvulus arvensis*), thistles (*Cirsium* spp.) and houndstongue (*Cynoglossum officinale*) were also common in these areas.

Sagebrush

There were some relatively small areas that were dominated by sagebrush (*Artemisia tridentata*). These areas were primarily located on the upland fringes of the riparian community (Figure 8). Other species associated with this community were saltgrass, greasewood, shadscale, broom snakeweed (*Gutierrezia sarothrae*), galleta and rubber rabbitbrush (*Chrysothamnus nauseosus*).

Tamarisk

Tamarisk, or salt cedar, is a non-native plant that has become a problem in Utah because it out-competes and often displaces other native species. A native of Eurasia, it was once cultivated as an ornamental and has become naturalized along seeps, streams, and reservoirs in Utah. Nearly pure stands of tamarisk have become established in some locations of the study area, primarily in the aforementioned drainage channel (Figure 9).



Miller Canyon Tract, Green River, Utah, 2008

Legend
 [] Lowest
 [] Past Boundary

1:3,600
 0 100 200 Feet



MILLER CANYON TRACT MAP 2009 Quarter Quadrant area Green River, UT
 PLIC: Twp 12N, R. 10E, S. 22, 23, 27, 28

EMERY MINE

MT. NEBD SCIENTIFIC, INC.
 Research & Consulting
 November 2008

FIGURE 1

PLANT COMMUNITIES



Figure 2: Shadscale



Figure 3: Shadscale (with scattered Pinyon-Juniper)



Figure 4: Greasewood



Figure 5: Saltgrass

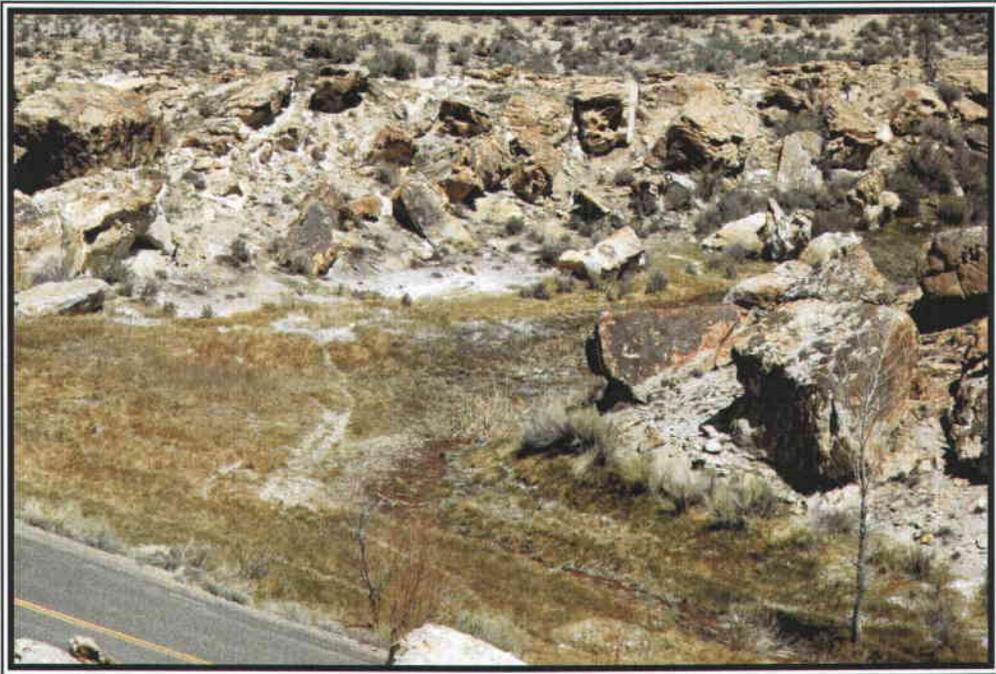


Figure 6: Riparian

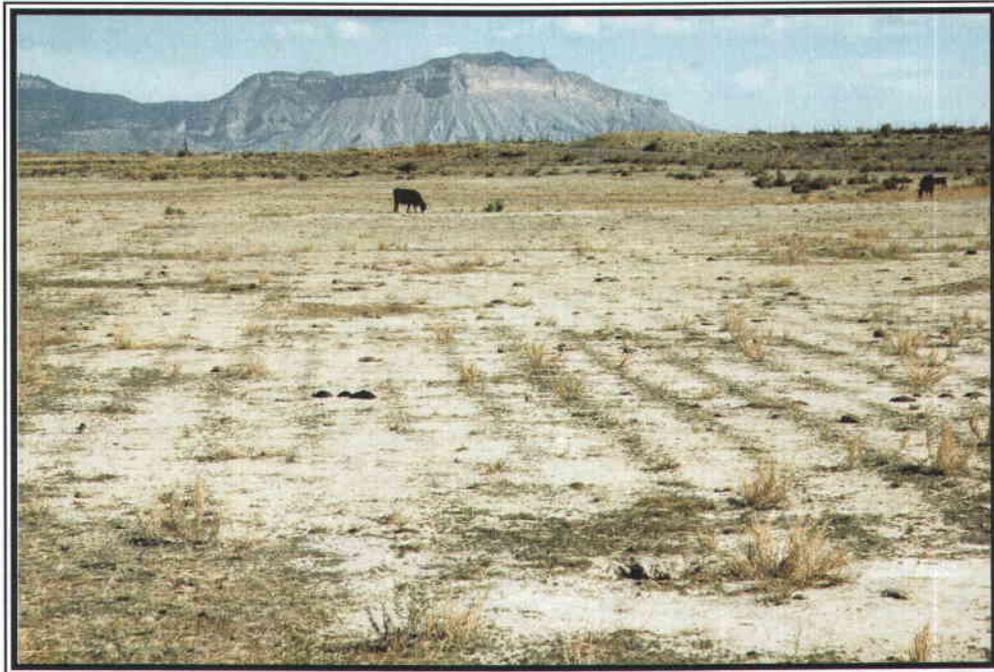


Figure 7: Pasture Land (dry)

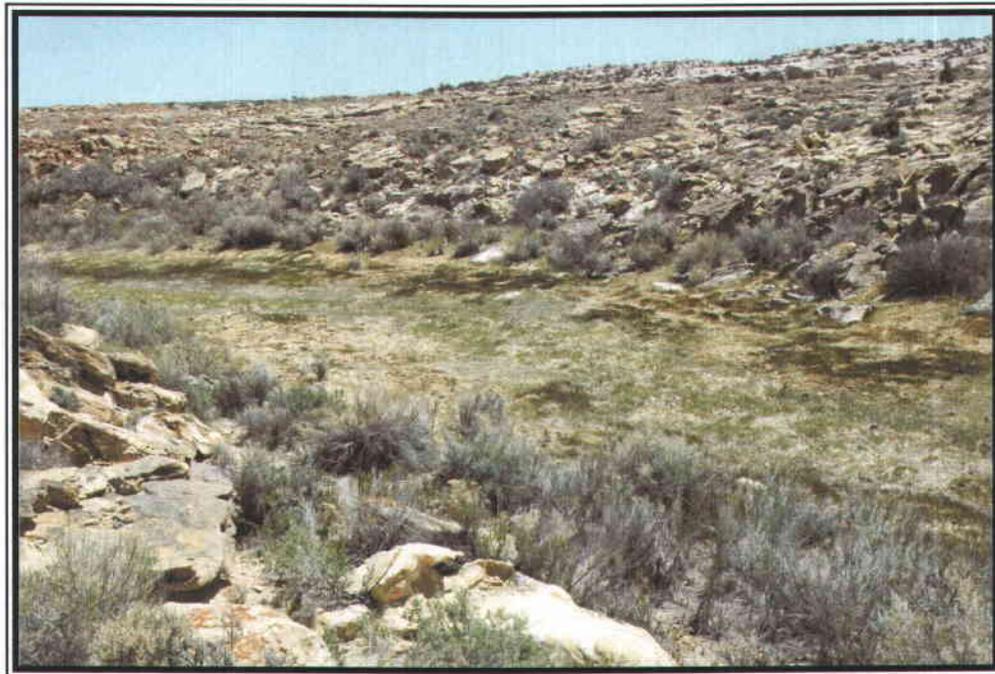


Figure 8: Sagebrush (on upland slopes above channel)



Figure 9: Tamarisk

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November 2008



**THREATENED, ENDANGERED &
SENSITIVE SPECIES SURVEY**

**MILLER TRACT AREA
EMERY MINE
2008**



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November 2008



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INTRODUCTION

The Emery Mine is located in south-central Utah. Expansions of underground coal mining activities have been planned in an area known as the Miller Tract. Elevation of the Miller Tract surface area is approximately 6,100 ft above sea level. The Miller Tract boundary and the plant communities present within it are shown in Figure 1.

In planning future coal mining activities, studies regarding impacts to the land surface above mining have been conducted. This document reports the findings of a survey for threatened and endangered plants and animals, or the potential for these species and their habitats to occur within the Miller Tract study area.

METHODS

Plants Species

To begin the threatened and endangered (T&E) plant studies, a search was conducted in the research files at *Mt. Nebo Scientific, Inc.* for locations including habitat information for the sensitive species that may be present in the study area. Collections and voucher specimens were also reviewed in the herbarium at Brigham Young University (BYU) of the sensitive plant species known to occur in that region of the state.

For the T&E plant surveys, known locations were visited in the field for the target species. Visiting these locations at the time of the survey enabled the investigators to reevaluate the habitat of each species as well as note the current seasonal growth development and phenology of the plants.

Once the literature searches were conducted, herbarium work was accomplished, and known habitats and locations were re-visited, a site-specific field survey was conducted within the boundaries of the Miller Tract of the Emery Mine. This was accomplished by systematically walking the Miller Tract surface area in search of these species and the habitats where they are known to occur. Depending on the target species, the surveys were conducted from mid-April through June 2008.

Wildlife Species

For wildlife studies, state and federal lists were consulted as well as the State of Utah, Division of Wildlife Resources (DWR) database for sensitive and high interest wildlife species. Wildlife habitat information has been compiled previously for the Emery Mine area. Moreover, DWR GIS information databases were consulted.

RESULTS

There are several federally listed plant species known to occur in Emery County, Utah (Table 1). Although somewhat unlikely, it is possible that some of these species may occur in the study area. The most

likely plant

communities for such

occurrences were the

shadscale communities

located in the Miller

Tract (Figure 1).

No federally listed T&E

plant species were

found within the Miller Tract Area.

Table 1: Federally Listed Threatened or Endangered Plant Species in Emery County, Utah		
Scientific Name	Common Name	Status
<i>Cycladenia humilis var. jonesii</i>	Jones Cycladenia	T
<i>Erigeron maguirei</i>	Maguire Daisy	T
<i>Pediocactus despainii</i>	Despain Footcactus	E
<i>Pediocactus winkleri</i>	Winkler Footcactus	T
<i>Schoenocrambe barnebyi</i>	Barneby's schoenocrambe	E
<i>Sclerocactus wrightiae</i>	Wright Fishhook Cactus	E
<i>Townsendia aprica</i>	Last Chance Townsendia	T

E = Endangered
T = Threatened

A wildlife map for the current permit area was prepared previously and has been included in Emery Mine's Mining & Reclamation Plan (MRP). This map is called *Selected Wildlife Information* (Plate 10-1).

Federally listed threatened, endangered and candidate species for Emery County are shown on Table 2. Of these species, little or no habitat is present within the mine's permit area.

Table 2 also briefly describes the habitat for each of these species and the potential impacts, if any, as a result of the underground coal mining planned in the Miller Tract.

Although federally listed threatened, endangered and candidate wildlife species are probably not present within the permit boundaries of the Emery Mine (see Table 2 Comments), two sensitive species may be present including the burrowing owl (*Athene cunicularia*) and white-tailed prairie-dog (*Cynomys leucurus*). Habitats for these species were surveyed in the Miller Tract. Consequently, active prairie-dog burrows were found in the study area resulting in additional field surveys for prairie-dogs and burrowing owls. Results from the followup surveys can be found in two separate reports prepared by *Mt. Nebo Scientific* called: 1) BURROWING OWL SURVEY, MILLER TRACT AREA, EMERY MINE SITE (2008) and 2) PRAIRIE-DOG SURVEY, MILLER TRACT AREA, EMERY MINE SITE (2008).

Table 2: Federally Listed Threatened, Endangered and Candidate Wildlife Species in Emery County, Utah

Scientific Name	Common Name	Status	Comments
<i>Coccyzus americanus occidentalis</i>	Western Yellow-billed Cuckoo	C	<p>DWR database information states that historically, cuckoos were probably common to uncommon summer residents in Utah and across the Great Basin. The current distribution of yellow-billed cuckoos in Utah is poorly understood, though they appear to be an extremely rare breeder in lowland riparian habitats statewide. DWR information also states that currently, the range of the cuckoo is limited to disjunct fragments of riparian habitats from northern Utah, western Colorado, southwestern Wyoming, and southeastern Idaho southward into northwestern Mexico and westward into southern Nevada and California.</p> <p>Although the possibility exists that historically this species could be seen in Emery County, it is highly unlikely that it occurs within the Emery Mine permit area due to the limited habitat for this species.</p> <p>There should be no impacts to this species as a result of mining in the Miller Tract, especially if no impact to the riparian community in the study area occurs.</p>

**Table 2: Federally Listed Threatened, Endangered and Candidate Wildlife Species
in Emery County, Utah**

Scientific Name	Common Name	Status	Comments
<i>Empidonax traillii extimus</i>	Southwestern Willow Flycatcher	E	<p>This species breeds in southwestern U.S. and winters in southern Mexico and Central America. It is a rare visitor of southern Utah. Its habitat is primarily riparian and the bird most frequently occurs in dense willow stands.</p> <p>There are very few dense willow stands in the Emery Mine permit area.</p> <p>There should be no impacts to this species as a result of mining in the Miller Tract, especially if no impact to the riparian community in the study area occurs.</p>
<i>Gila cypha</i>	Humpback Chub	E	<p>Humpback chub in Utah are now confined to a few white-water areas in the Colorado, Green, and White Rivers. These rivers do not occur in the Emery Mine permit area. Other than some subsidence from underground mining, no surface disturbances that could impact downstream drainage to the Colorado River system have been planned in Miller Tract.</p> <p>There should be no impacts to this species as a result of mining in the Miller Tract, especially if no impact to the surface and groundwater systems in the study area occurs.</p>
<i>Gilia elegans</i>	Bonytail	E	<p>The bonytail is a very rare minnow originally native to the Colorado River system. These rivers do not occur in the Emery Mine permit area. Other than some subsidence from underground mining, no surface disturbances that could impact downstream drainage to the Colorado River system have been planned.</p> <p>There should be no impacts to this species as a result of mining in the Miller Tract, especially if no impact to the surface and groundwater systems in the study area occurs.</p>
<i>Lynx canadensis</i>	Canada Lynx	T	<p>Lynx usually occur in mature forests having dense undergrowth. They can also be found in more open forests, rocky areas or tundra.</p> <p>This habitat is not found within the Emery Mine permit area.</p> <p>There should be no impacts to this species as a result of mining in the Miller Tract.</p>
<i>Mustela nigripes</i>	Black-footed Ferret	Ex	<p>Black-footed ferret habitat is primarily prairie grasslands. The ferret has a diet consisting of almost 90% prairie-dogs. Although prairie-dog habitat does occur in the permit area, it is not prairie grassland. DWR information suggested that this species has been "extirpated" from Emery County.</p> <p>No ferrets have been reported during prairie-dog surveys within the permit area.</p> <p>There should be no impacts to this species as a result of mining in the Miller Tract.</p>

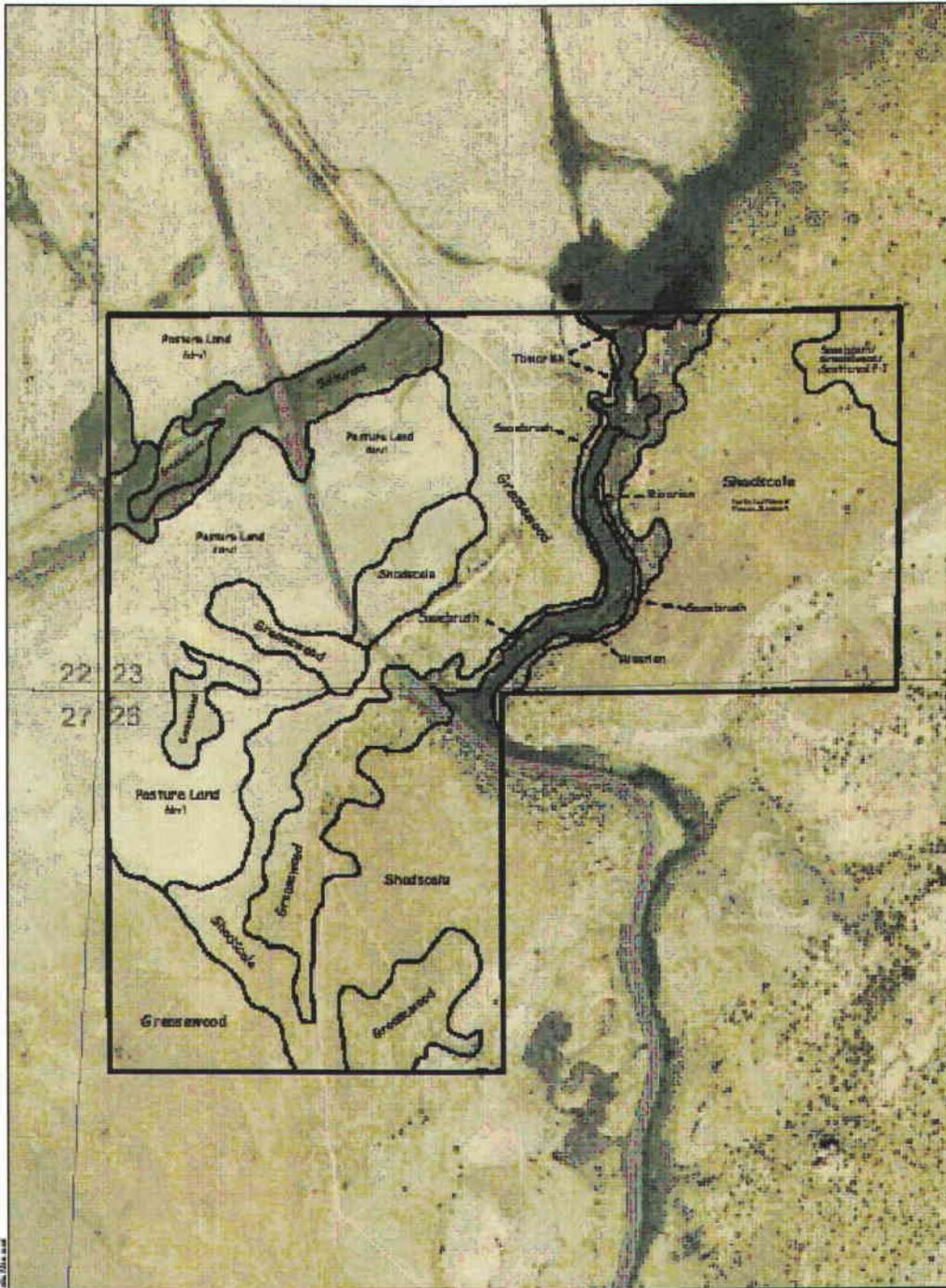
**Table 2: Federally Listed Threatened, Endangered and Candidate Wildlife Species
in Emery County, Utah**

Scientific Name	Common Name	Status	Comments
<i>Ptychocheilus lucius</i>	Colorado Pike minnow	E	<p>The Colorado pikeminnow is a fish that prefers medium to large rivers. With the loss of habitat they are now restricted to the upper Colorado River system. These rivers do not occur in the Emery Mine permit area. Other than some subsidence from underground mining, no surface disturbances that could impact downstream drainage to the Colorado River system have been planned in the Miller Tract.</p> <p>There should be no impacts to this species as a result of mining in the Miller Tract, especially if no impact to the surface and groundwater systems in the study area occurs.</p>
<i>Strix occidentalis lucida</i>	Mexican Spotted Owl	T	<p>In Utah the Mexican spotted owl is rare, but when it occurs it is sometimes in various forest types, but more commonly in steep rocky canyons, nesting in caves or cliffs of steep walled canyons. This habitat does not exist in the mine area with the possible exception of the adjacent Miller Canyon sandstone outcrop areas. DWR distribution maps do not show the owl in the mine area.</p> <p>There should be no impacts to this species as a result of mining in the Miller Tract.</p>
<i>Xyrauchen texanus</i>	Razorback Sucker	E	<p>This species prefers slow backwater habitats and impoundments in the Colorado River system. Utah Division of Wildlife Resources distribution maps of this species for Carbon County shows to occur near the Green River in extreme eastern portion of the county. These rivers do not occur in the Emery Mine permit area. Other than some subsidence from underground mining, no surface disturbances that could impact downstream drainage to the Colorado River system have been planned in the Miller Tract.</p> <p>There should be no impacts to this species as a result of mining in the Miller Tract, especially if no impact to the surface and groundwater systems in the study area occurs.</p>
<p><i>E = Endangered</i> <i>T = Threatened</i> <i>C = Candidate</i> <i>Ex = Extirpated</i></p>			

SUMMARY

Surveys for threatened and endangered plant species have been conducted on the surface of the Miller Tract of the Emery Mine. No threatened, endangered or otherwise sensitive plants were found in the study area.

State and federal lists were consulted for the potential of threatened, endangered and sensitive wildlife species and the habitats in which they occur. There is a very low likelihood that any federally listed T&E wildlife species occur in the Miller Tract study area. However, field surveys conducted revealed that two sensitive species, the burrowing owl and white-tailed prairie-dog do occur within Miller Tract boundaries. Results from these surveys have been reported in separate documents.



Legend
 Lake and Pond
 Pasture Land

13,600
 Feet



MILLER CANYON TRACT
EMERY MINE
 MT. NEBO SCIENTIFIC INC.
 Research & Consulting
 November 2008

MNF 2010 Chapter 05 at the scene Emery Mine, NV
 PLE C. East Lake Nevada, Township 22 South, Range 1 East

FIGURE 1

PLANT COMMUNITIES

CHAPTER IX

WILDLIFE

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	See: Chapter XIII, Appendix XIII-2, Vegetation and Wildlife Report for Federal Lease Area (160 ac) A current T&E species list for the permit area can be found at Chapter XIII, Appendix XIII-2, page 6 and 7.

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Revised 10/02
Revised 05/07
Revised 10/09

CHAPTER IX

APPENDIX IX-3

**Zero Zero North LBA UTU 86038
Wildlife Protection and Enhancement Plan**

CH IX APP IX-3

Zero Zero North LBA UTU-86036

Wildlife Protection and Enhancement Plan

Burrowing Owl

During the Environmental Assessment phase of this project a burrowing owl was noted using an active prairie dog colony. Refer to Burrowing Owl Survey in Chapter VIII Appendix VIII-6 titled Biological Resources of the Zero Zero North LBA UTU-86038, Mt. Nebo Scientific, Nov 2008.

Per consultation with DOGM, Utah Division of Wildlife Resources, and US Fish and Wildlife Service, Consol plans to implement a protection and enhancement plan for the burrowing owl prior to March 1, 2010. The prairie dog colony, as depicted in the above mentioned appendix at page 6 Figure 1, resides on private surface owned in fee by Consol that has been tilled in the past.

One recommendation from the USFWS that may be implemented is for Consol to work with DOGM to locate a remote area to add burrowing owl nesting dens provided by DWR. This enhancement project will be complete prior to the March 1, 2010 burrowing owl nesting period.

Consol will work with DOGM to prepare and submit a protection and enhancement plan prior to March 1, 2010.

Inserted 10/09

CHAPTER X

PART A: CULTURAL RESOURCES

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- 5-5 ARCHEOLOGICAL EVALUATION - MONTGOMERY ARCHAEOLOGICAL CONSULTANTS, 4th EAST PORTAL SITE, MAY 2002 SEE CONFIDENTIAL BINDER
- 5-6 ARCHEOLOGICAL EVALUATION - MONTGOMERY ARCHAEOLOGICAL CONSULTANTS, 4th EAST POWERLINE, AUGUST 2002 SEE CONFIDENTIAL BINDER
- 5-7 ARCHEOLOGICAL EVALUATION - MONTGOMERY ARCHAEOLOGICAL CONSULTANTS, 4th EAST EXTENSION AREA, MARCH 2003 SEE CONFIDENTIAL BINDER

See: Chapter XII, Appendix XII-3, Cultural Resource Report (MOAC Report No. 05-177, May 23, 2005), for 1st North IBC Archeology SEE CONFIDENTIAL BINDER

See: Chapter XIII, Appendix XIII-3, Class 3 Cultural Resource Report (MOAC Report 07-33, February 13, 2007) for First Federal Lease IBC Archeology. SEE CONFIDENTIAL BINDER

- 5-8 ARCHEOLOGICAL EVALUATION- MONTGOMERY ARCHAEOLOGY CONSULTANTS, Zero North and Zero Zero North (MOAC 07-323) SEE CONFIDENTIAL BINDER

5-9 ARCHEOLOGICAL EVALUATION- MONTGOMERY ARCHAEOLOGY CONSULTANTS, Life of Mine Panels (MOAC 08-135) spring 2008, site treatment plan. The treatment plan for eligible site 42Em3924 will be completed at least 6 months prior to subsidence, with a follow up visit only to the site within 12 months after subsidence. SEE CONFIDENTIAL BINDER

5-10 ARCHEOLOGICAL EVALUATION- MONTGOMERY ARCHAEOLOGY CONSULTANTS, Zero Zero North 120 acre parcel LBA UTU-86038 (MOAC 08-096) Per Management Recommendations on page 19, a qualified archaeologist will periodically monitor the sites (post subsidence) for subsidence impacts. The results will be reported in the Annual report. If mitigation is necessary, a mitigation plan will be submitted to BLM. SEE CONFIDENTIAL BINDER

FIGURES

- X-1 1st SOUTH FULL EXTRACTION ARCHEOLOGY SITES SEE CONFIDENTIAL BINDER

PLATES

- X.A-1 PERMIT AREA CULTURAL RESOURCES SEE CONFIDENTIAL BINDER

X.A CULTURAL RESOURCES

This part presents the archeological, historical, and paleontological information in and adjacent to the permit and adjacent area. This information is contained in four (4) survey reports which are appended to this part.

The first, referred to herein as "Chapter 5.0", was prepared by AERC in October of 1980. The second, referred to herein as "Appendix 5-1", was prepared by AERC in July of 1981. The third, referred to herein as "Appendix 5-2", was prepared by Michael S. Berry, Utah Division of State History, in March of 1975. The fourth survey report, Appendix 5-3, was completed by AERC in October, 1988. The site forms are attached in a fifth section, referred to as "Appendix 5-4". The fifth survey report, Appendix 5-5, was completed by Montgomery Archaeological Consultants in May of 2002. This report covers 40 acres surrounding and including the 4th East Portal Site. The sixth referenced survey report, Appendix 5-6, covers the 4th East Powerline Corridor and was completed by Montgomery Archaeological Consultants in August of 2002. One site identified as historically significant was marked in the field and will be avoided as recommended by Montgomery. The seventh survey, referred to as "Appendix 5-7" was conducted by Montgomery Archaeological Consultants in March 2003. This survey was conducted to extend the inventoried areas of the 4th East Portal site. The survey covered an additional 40 acres to the east of "Appendix 5-5" original survey area. This extended area identified one new archaeological site "42Em2961". This new site will be avoided and a fence has been erected by the consultant along the site boundary. Chapter XII covers the 1st North IBC area and Chapter XIII covers the 1st North Federal Lease IBC area. Appendix 5-8 covers Zero North and Zero Zero North panel. Appendix 5-9 covers the Life of Mine planned subsidence area and contains a site treatment plan for eligible site 42Em3924. Appendix 5-10 covers the Zero Zero North LBA area (Miller Canyon Lease). Per management recommendations on page 19 (MOAC-08-095) the five eligible sites (42Em3964, 42Em3965, 42Em3966, 42Em3969, and 42Em3974) will be monitored, post subsidence, for impacts by a qualified archeologist and detailed in the annual report. If mitigation is necessary, a mitigation plan will be submitted to BLM.

These survey reports have not been edited or revised for this repermit application; they were originally prepared for the March 23, 1981 permit application (approved as ACT/015/015 on January 7, 1986) and subsequent revisions and are included herein in their entirety.

UMC 783.12(b)

The attached investigations describe all of the known archeological sites in the permit area. No cultural and historic resources listed on the National Register of Historic Places occur in the permit area. A compendium is included which consolidates information on all of the sites.

Revised 10/2003
Revised 5/09
Revised 10/09

CHAPTER X

**APPENDIX 5-10
Archeology report**

**Zero Zero North LBA UTU 86038
MOAC 08-096**