

Permit Application for the Wellington Dry-Coal Cleaning Facility

BRC Wellington, LLC
Louisville, Kentucky

October 2013



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CHAPTER 1

LEGAL, FINANCIAL, COMPLIANCE, AND RELATED INFORMATION

1.10 Minimum Requirements

1.1.1 Introduction

This chapter of the Wellington Dry-Coal Cleaning Facility permit application provides information regarding the ownership and control of the permit area. The compliance status of the operator at other locations is also provided herein. The facility covered by this permit application has been in operation since January 2006.

The Wellington Dry-Coal Cleaning Facility (MSHA ID 42-02398 issued 2/10/2005) is used for coal cleaning and is not a coal mine. As a result, some sections of Utah's coal mine permitting rules do not strictly apply to this site. Given that fact, the prior applicant (Covol Engineered Fuels, LC) and the Utah Division of Oil, Gas and Mining held discussions over a period of several months prior to the submittal of this permit application in order to establish the submittal requirements. Correspondence associated with these discussions is provided in Appendix 1-1.

An environmental compliance assessment was conducted of the Wellington operations in 2006. A copy of the opinion report resulting from that assessment is provided in Appendix 1-2. That report includes copies of environmental permits, plans, policies, and procedures that were in place at the time of the assessment.

This document has been arranged in the format of the R645-301 regulations. For example, Section 1.10 corresponds to R645-301-110, Section 1.1.1 corresponds to R645-301-111, Section 1.1.2.2 corresponds to R645-301-112.200, etc.

1.1.2 Identification of Interests

BRC Wellington LLC (hereafter referred to as “BRCW”) is a subsidiary of DB RC Investments II LLC and an affiliate of Bowie Refined Coal LLC and various subsidiaries of Deutsche Bank, as indicated in Figure 1-1. BRCW is the owner of the dry coal cleaning facility located in Carbon County, Utah. Bowie Refined Coal, LLC (“BRC”) is the operator of the facility. Furthermore, BRC is the owner and/or managing member of DB RC Investments I, LLC and DB RC Investments II, LLC. The Deutsche Bank affiliates shown on Figure 1-1 (DB AG Cayman Islands Branch and DBAH Capital) are equity investors only with respect to the BRC companies. The facility is located within Section 14, Township 15 South, Range 10 East, SLBM, approximately 2 miles west of Wellington, Utah.

1.1.2.1 Business Entity

BRCW and BRC are both limited liability companies. The affiliated Deutsche Bank subsidiaries are also limited liability companies.

1.1.2.2 Applicant and Operator

APPLICANT: BRC Wellington LLC
6100 Dutchmans Lane, Suite 900
Louisville, KY 40205
Facility Phone: (435)613-1631
Headquarters Office Phone: (502)584-6022

Payment of abandoned mine land reclamation fees, if any, will be the responsibility of the Managing Member of BRCW. Inquiries regarding the payment of this fee should be directed to this individual at the mailing address and phone number indicated above. The person currently occupying this position is indicated in Section 1.1.2.3.

BRC Wellington LLC
Dry-Coal Cleaning Facility

Permit Application
Revised October 2013

OPERATOR: Bowie Refined Coal, LLC
6100 Dutchmans Lane, Suite 900
Louisville, KY 40205
Facility Phone: (435) 613-1631
Headquarters Office Phone: (502)584-6022

1.1.2.3 Officers and Directors

The directors and officers DB RC Investments I LLC (FEIN 46-1601691), DB RC Investments II LLC (FEIN 46-1613542), and BRCW (FEIN 36-4743889) are:

<u>Name</u>	<u>Title</u>	<u>Date position was assumed</u>
Steve Rickmeier (90% owner)	Managing Member	09/20/2012
James F. Wolff (10% owner)	Chief Financial Officer	09/20/2012
Justin F. Thompson	VP of Operations	02/25/2013

The addresses and phone numbers for the officers and directors of DB RC Investments I, LLC, DB RC Investments II, LLC, and BRC are the same as the applicant.

Written correspondence to BRCW or BRC regarding the operations should be addressed to:

Kyle Edwards, Resident Agent
BRC Wellington LLC
1865 West Ridge Road
Wellington, UT 84654
(435)613-1631

The directors and officers of BRC (FEIN 46-0911657) are:

<u>Name</u>	<u>Title</u>	<u>Date position was assumed</u>
Steve Rickmeier (90% owner)	Managing Member	09/20/2012
James F. Wolff (10% owner)	Chief Financial Officer	09/20/2012
Justin F. Thompson	VP of Operations	02/25/2013

Mr. Rickmeier's ownership of BRC is divided between Rickmeier Advisors, Inc. (FEIN 36-4483193, owning 45% of BRC) and Rickmeier Partners LP (FEIN 35-2202674, owning 45% of BRC). Mr. Wolff's ownership of BRC is held by Wolff Consulting LLC, which is registered under his confidential social security number. These individuals hold the same positions and the same ownership percentages in each of the following companies:

Bowie Refined Management LLC
BRC Chinook LLC
BRC Pinnacle LLC
BRC Rockcrusher LLC
BRC Greenfuels LLC
BRC Alabama No. 3 LLC
BRC Alabama No. 4 LLC
BRC Alabama No. 5 LLC
BRC Alabama No. 7 LLC

These individuals also have partial ownership, through BRC, in DB RC Investments II, LLC, which then owns 100% of BRC Minuteman LLC and BRC Wellington LLC. The organizational structure of BRC is outlined in Figure 1-1.

1.1.2.4 Coal Mining and Reclamation Operation Permit Applications

The following list represents all permits issued to BRC, along with applicable identification numbers of applications or permits:

<u>Permit</u>	<u>Issuing Authority</u>	<u>Status</u>
UPDES Permit (No. UTR000685)	Utah Dept. Environmental Quality, Division of Water Quality	Approved
Approval Order (DAQ# AN2952001-03)	Utah Dept. Environmental Quality, Division of Air Quality	Approved
Certificate of Insurance and Business Authorization	Utah Industrial Development Commission	Approved
Mining and Reclamation Permit (C0070045)	Utah Department of Natural Resources, Division of Oil, Gas and Mining	Approved

The permits and operations held by subsidiary and/or affiliated companies of BRC are indicated in Table 1-1.

Neither Wellington City nor Carbon County required the prior owner of the facility to file development plans prior to construction of the facility. Neither of these local governmental bodies placed reclamation obligations on BRCW or required that BRCW file a reclamation bond. Wellington City issued a Conditional Use Permit to the prior owner to grant a variance for the height of their loadout silo. A copy of the Conditional Use Permit is provided in Appendix 1-4. The prior owner provided Wellington City with a letter of assurance that they would “lend its financial support and cause [the owner] to manage the coal and residual material located at the facility in accordance with applicable laws.” In this letter, the prior owner also indicated that they would “ensure that [the owner] will remove all coal and residual material located on the property (excluding material used for improvements).” A copy of this letter of assurance is provided in Appendix 1-4. BRCW intends to comply with these commitments.

1.1.2.5 Legal or Equitable Owner of the Surface and Mineral Properties to be Mined

Bowie Refined Coal, LLC is the legal and equitable owner of the entire 30-acre surface parcel included within the permit area (see Appendix 1-3). BRC’s right to enter the property and conduct operations thereon is not the subject of current litigation. There will be no mining at this facility. Thus, the mineral properties will not be affected by the operation. A property ownership map of the permit and adjacent areas is presented as Figure 5-2. No area within the lands to be affected by the facility is under a real estate contract.

1.1.2.6 Owners of Record of Property Contiguous to Proposed Permit Area

The following owners of surface lands are contiguous to the permit boundary:

High Country Forest Products
8243 Old Federal Road
Montgomery, Alabama 36117

Price City
185 East Main Street
Price, Utah 84501

State of Utah
203 State Capitol Building
Salt Lake City, Utah 84114

Circle K Ranch
P.O. Box 700
Price, Utah 84501

Denver and Rio Grande Western Railroad
1700 Farnham Street
10th Floor South
Omaha, Nebraska 68102

The locations of these lands relative to the permit area are shown on Figure 5-2A.

1.1.2.7 MSHA Numbers

The MSHA number for the operation is: 42-02398

1.1.2.8 Interest in Contiguous Lands

The applicant neither owns nor controls, directly or indirectly, a legal equitable interest in any lands contiguous to the permit area.

1.1.3 Violation Information

Neither BRCW nor any major stockholder of BRCW having any interest, either legal or equitable, in the Wellington facility have had a State or Federal mining permit suspended or revoked or a security deposited in lieu of bond revoked. No Notices of Non-compliance have been issued within the last 3 years to BRCW or a related entity

1.1.4 Right-of-Entry Information

The facility is located on lands that are entirely owned by the parent company of the operator (see Appendix 1-3). Hence, no other right of entry is required.

1.1.5 Status of Unsuitability Claims

Since there is no mining at this facility, the issue of unsuitability claims is not applicable.

1.1.6 Permit Term

The following information is presented to identify permit term requirements and stipulations. Operations at the facility began in January 2006 using an air-jig method to process coal-bearing materials. Termination of operations will be determined by economic conditions. The timing of this termination is, therefore, unknown. It is anticipated that the Applicant will operate at the site for a period in excess of 5 years.

The anticipated total acreage to be affected during operations is 30 acres. The permit and adjacent areas have been zoned by Wellington City for “light industrial purposes” (Zone M-1). Permitted uses under this zoning include a variety of industrial and manufacturing operations, as indicated in Appendix 1-4. Since the land occupied by the facility has been zoned for general

industrial use and will be used for that purpose following the cessation of BRCW's operations, complete site reclamation will not be required (See chapters 4 and 5).

1.1.7 Insurance and Proof of Publication

A certificate of Insurance issued to BRC is provided in Appendix 8-2. A copy of the newspaper advertisement is provided in Appendix 1-5 indicating that the application has been submitted to DOGM and is available for public comment.

1.1.8 Filing Fee

The permit filing fee was paid upon submittal of the application.

1.20 Permit Application Format and Contents

The permit application contains clear, concise, current information, in the format of the DOGM regulations.

1.30 Reporting of Technical Data

All technical data submitted in the permit application is accompanied by the names of persons or organizations that collected and analyzed the data. The technical data also contains the dates of collection and analysis of the data, and descriptions of the method used to collect and analyze data, as indicated in subsequent sections of this application. Professionals qualified in the subject, planned or directed the technical analyses. These professionals included the following:

- Richard B. White, P.E. – President/Civil and Environmental Engineer, EarthFax Engineering, Inc. (engineering, hydrology, bonding, alluvial valley floors)
- Ari Menitove – Geological Engineer, EarthFax Engineering, Inc. (geology, soils)
- Chris Jensen – Consultant, Canyon Environmental, LLC (cultural resources, biology)

1.40 Maps and Plans

The maps submitted in this permit application correspond to the format required by the regulations. The entire permit area was developed prior to the initial submittal of this permit application on January 15, 2008.

1.50 Completeness

The Applicant believes the information in this application to be complete and correct.

TABLE 1-1
Related-Entity Permits

Entity and State	Permit	Issuing Authority	Status
BRC Alabama No. 7, LLC (Alabama) FEIN 32-0392802	Operator on Mine Permits P3247 (MSHA ID 01-03364 issued 5/24/2007), P3256 (MSHA ID 01-03365 issued 5/24/2007), P3257 (MSHA ID 01-03278 issued 5/1/2006), and P3260 (MSHA ID 01-03362 issued 4/20/2007)	Alabama Surface Mining Commission	Issued
BRC Chinook, LLC (Indiana) FEIN 37-1703437	Permittee on Mine Permit P-00004 (MSHA ID 12-02397 issued 3/23/2007)	Indiana Dept of Natural Resources	Issued
BRC Chinook, LLC (Indiana) FEIN 37-1703437	NPDES Permit No. ING040176 (MSHA ID 12-02397 issued 3/23/2007)	Indiana Dept of Environmental Management	Issued
BRC Chinook, LLC (Indiana) FEIN 37-01703437	SSOA 167-27370-00055 [Air Permit] (MSHA ID 12-02397 issued 3/23/2007)	Indiana Dept of Environmental Management	Issued
Minuteman (Kentucky) FEIN 36-4743728	Permittee on Mine Permit 889-8005 (MSHA ID 15-19205 issued 3/21/2008)	Kentucky Division of Mine Permits	Issued
Minuteman (Kentucky) FEIN 36-4743728	KPDES Permit No. 0107158 (MSHA ID 15-19205 issued 3/21/2008)	Kentucky Division of Water	Issued
Minuteman (Kentucky) FEIN 36-4743728	Air Permits S-07-145 (MSHA ID 15-19205 issued 3/21/2008) and S-08-039 (MSHA ID 15-19071 issued 12/6/2007)	Kentucky Division of Air Quality	Issued
Minuteman (Kentucky) FEIN 36-4743728	UIC Permit KYV0047 (MSHA ID 15-19205 issued 3/21/2008)	USEPA Region 4	Issued
Minuteman (Kentucky) FEIN 36-4743728	UIC Permit KYV0053 (MSHA ID 15-19205 issued 3/21/2008)	USEPA Region 4	Issued
BRC Pinnacle, LLC (West Virginia) FEIN 61-1696678	Operator on Mine Permit No. 0402292 (MSHA ID 46-09146 issued 2/18/2008)	WV Dept of Env. Protection	Issued
BRC Pinnacle, LLC (West Virginia) FEIN 61-1696678	Air Permit G10-C104 (MSHA ID 09146 issued 2/18/2008)	WV Department of Environmental Protection	Issued
BRC Alabama No. 5, LLC (Alabama) FEIN 61-1696887	Operator on Mine Permit P3199 (MSHA ID 01-00563 issued 7/1/2008)	Alabama Surface Mining Commission	Issued

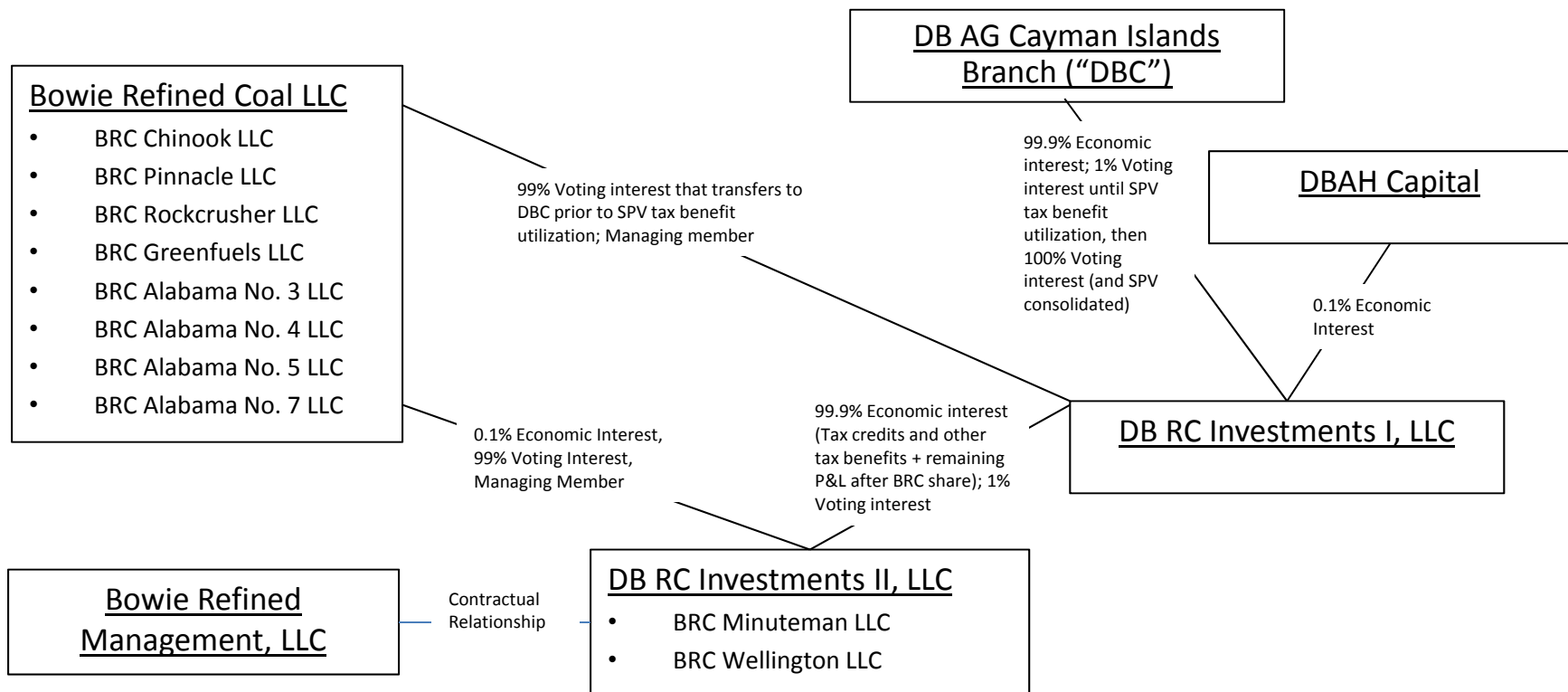


Figure 1-1. Organizational Structure of Companies Associated with Bowie Refined Coal, LLC

BRC Wellington LLC
Dry-Coal Cleaning Facility

Permit Application
Revised October 2013

APPENDIX 1-1

Correspondence Regarding the
Permit Application Submittal



State of Utah

Department of
Natural Resources

ROBERT L. MORGAN
Executive Director

Division of
Oil, Gas & Mining

LOWELL P. BRAXTON
Division Director

OLENE S. WALKER
Governor

GAYLE F. McKEACHNIE
Lieutenant Governor

September 13, 2004

W. Layne Ashton, Corporate Manager
Covol Engineered Fuels, LC
10653 South Riverfront Parkway, Suite 300
South Jordan, Utah 84095

Re: Preliminary Finding of Proposed Coal Beneficiating Air Processing Facility
in Carbon County - Covol Engineered Fuels, LC

Dear Mr. Ashton:

Enclosed please find a memo outlining the Division's preliminary finding Concerning Covol's proposed operation in Carbon County, dated August 5, 2004. In order to finalize the finding, we request further information about the 'tolling fee' agreement with Pacificorp. Covol agreed to provide this information in our meeting of July 13, 2004.

Subject to a determination regarding the above noted information, and also subject to the result of an on site Division inspection, the initial determination is that mining activities will not be taking place at this site. Therefore, it does not appear at this time that this project will be subject to regulation under the Utah Coal Mining Act.

Please supply the needed information, and/or contact me if you have further questions at (801) 538-5306 or maryannwright@utah.gov.

Sincerely,


Mary Ann Wright
Associate Director, Mining

an
Enclosure

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STATE OF UTAH
OFFICE OF THE ATTORNEY GENERAL



MARK L. SHURTLEFF
ATTORNEY GENERAL

RAYMOND HINTZE
CHIEF DEPUTY

Protecting Utah • Protecting You

KIRK TORGENSEN
CHIEF DEPUTY

October 20, 2006

Mr. Craig D. Galli
Holland & Hart, LLP
60 E. South Temple, #2000
Salt Lake City, Utah 84111-1031

Re: Settlement Negotiations Between Covol Engineered Fuels, LC and the
Division of Oil, Gas & Mining

Dear Craig:

Thank you for your hospitality and the use of your offices for taking depositions and the meeting on Monday, October 16, 2006. I also want to thank you for opening the door to possible settlement. I think it is the right thing for both parties and I am very hopeful that this path will be fruitful. Attached is a proposed Stipulation and Joint Motion for Continuance and a proposed Order. Please let me know if they are sufficient and workable.

In an effort to clarify the Division's expectations and understanding of the agreement reached in the October 16 meeting, the following is an outline of the steps that the Division understands will be taken by both parties over the next few months. This is a summary based on my recollection and notes. As we both acknowledged prior to the discussions, these discussions and the steps set forth below are for settlement purposes only and will not be admissible if this matter proceeds to hearing.

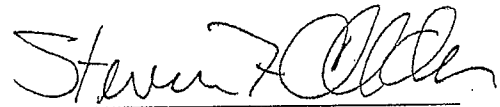
1. Covol will complete an environmental compliance assessment report of the Covol site and share the same with the Division.
2. Covol will also consult with an environmental consultant who will provide a rough outline of an expected permit. As part of the rough outline prepared by Covol's consultant, the Division understands that the Covol site will have an industrial/commercial post-mining land use that would not require Covol to reclaim the parking lot and road, the plan will ensure removal of coal and coal by-products consistent with the post-mining land use, and Covol will provide a surety for the estimated costs of reclamation of the site.

3. The Division agrees to structure a permitting process that will take advantage of the background data already gathered by the environmental compliance assessment, nearby permitted sites, and other publicly available sources.
4. You indicated that Covol could provide a brief outline of a proposed permit application within the next four to six weeks. Once Covol provides the brief outline, the Division will review it to ensure that it will contain the essential elements, keeping in mind Covol's post-mining land use and the background information already available.
6. Once both parties have had an opportunity to review the outline, Covol and the Division expect to be able to enter into a formal settlement agreement and jointly seek dismissal of the case before the Board. If a settlement cannot be agreed upon, the hearing will be rescheduled.

Please let me know if there is something I have missed.

Thank you again,

Steven F. Alder



Attorney for Division of Oil, Gas &
Mining

**PROPOSED OUTLINE AND INFORMATION:
COVOL WELLINGTON DRY-COAL CLEANING FACILITY
DOGM PERMIT APPLICATION PACKAGE**

Section Number and Title	Planned Approach	Anticipated Response
110 MINIMUM REQUIREMENTS FOR LEGAL, FINANCIAL, COMPLIANCE AND RELATED INFORMATION	CHAPTER 1 – GENERAL CONTENTS Gather information from company files and public records.	Required information will be presented in text, tables, maps, etc.
111 Introduction		
112 Identification of Interests		
112.100 Business Entity		
112.200 Applicant and Operator		
112.300 Officers of the Applicant		
112.400 Coal Mining and Reclamation Operation Owned or Controlled		
112.500 Legal or Equitable Owner of the Surface and Mineral Properties		
112.600 Owners of Record of Property Contiguous to Proposed Permit Area		
112.700 MSHA Numbers		
112.800 Interest in Contiguous Lands		
112.900 Certification of Submitted Information		
113 Violation Information		
114 Right-of-Entry Information		
115 Status of Unsuitability Claims		
116 Permit Term		
117 Insurance, Proof of Publication, and Facilities and Structures Used in Common		
118 Filing Fee		

Section Number and Title		Planned Approach	Anticipated Response
120	PERMIT APPLICATION FORMAT AND CONTENTS	Generally follow the outline of the DOGM rules.	Format the document as indicated.
130	REPORTING OF TECHNICAL DATA	Comply with the appropriate rules.	A brief statement will be made committing to complying with the appropriate rules.
140	MAPS AND PLANS		
150	COMPLETENESS		
CHAPTER 2 – SOILS			
210	INTRODUCTION	Gather published information developed by the U.S. Natural Resources Conservation Service.	Pre-disturbance soil resources were very limited in extent and quality. Summarize pre-disturbance soil resources within the permit-area boundary based on information published by the NRCS.
220	ENVIRONMENTAL DESCRIPTION		
	221 Prime Farmland Investigation		
	222 Soil Survey		
	223 Soil Characterization		
	224 Substitute Topsoil		
230	OPERATION PLAN		
	231 General Requirements		
	232 Topsoil and Subsoil Removal		
	233 Topsoil Substitutes and Supplements		
	234 Topsoil Storage		
240	RECLAMATION PLAN		
	241 General Requirements		
	242 Soil Redistribution		
	243 Soil Nutrients and Amendments		
	244 Soil Stabilization		
250	PERFORMANCE STANDARDS		
	251 Topsoil, Subsoil, and Topsoil Supplements Management		
	252 Stockpiled Topsoil and Subsoil		
CHAPTER 3 – BIOLOGY			
310	INTRODUCTION	Gather information from the Utah Division of Wildlife Resources and the permit application package for the adjacent Savage Coal Terminal site.	Only limited biological resources existed on the site prior to disturbance. Briefly summarize pre-disturbance vegetation and wildlife information applicable to the permit area, as obtained from existing sources.
320	ENVIRONMENTAL DESCRIPTION		
	321 Vegetation Information		
	322 Fish and Wildlife Information		

Section Number and Title		Planned Approach	Anticipated Response
323	Maps and Aerial Photographs	Describe methods that have been and will continue to be used to protect biological resources during site operations.	The permit area is fenced, substantially reducing the potential that wildlife will be present near and impacted by the operation. It is not anticipated that threatened or endangered species occur in the permit or adjacent areas. As a fenced industrial area of limited size, measures have been taken to keep wildlife out and avoid the industrial hazards that might endanger such species further.
330	OPERATION PLAN		
331	Measures Taken to Disturb the Smallest Practicable Area		
332	Description of Anticipated Impact of Subsidence		
333	Plan to Minimize Disturbances and Adverse Impacts	Any post-operation plan must be consistent with the post-operation land use.	As a zoned industrial site, the post-operation land use will also be industrial. Significant revegetation is, therefore, not anticipated. The site will be left in a condition appropriate for industrial land use by the new owner/operator.
340	RECLAMATION PLAN		
341	Revegetation		
342	Fish and Wildlife		
350	PERFORMANCE STANDARDS		
351	General Requirements		
352	Contemporaneous Reclamation		
353	Revegetation: General Requirements		
354	Revegetation: Timing		
355	Revegetation: Mulching and Other Soil Stabilizing Practices		
356	Revegetation: Standards for Success	CHAPTER 4 – LAND USE AND AIR QUALITY	Land use in the permit and adjacent areas has been zoned industrial for several years. No cultural or historical resources are known to exist in the permit or adjacent areas. The area will be left in a state consistent with post-operation industrial land use.
357	Revegetation: Extended Responsibility Period		
358	Protection of Fish, Wildlife and Related Environmental Values		
410	LAND USE		
411	Environmental Description	Gather information from the County concerning pre-construction land use at the site. Gather information regarding cultural and historical resources in the permit area from the State Historical Preservation Office.	
412	Reclamation Plan		
413	Performance Standards		
414	Alternative Land Use		

Section Number and Title	Planned Approach	Anticipated Response
420 AIR QUALITY	Review operational permits obtained from the Utah Division of Air Quality.	Commit to complying with the UDAQ operational permits, a copy of which will be provided in an appendix.
421 Air Quality Standards		
422 Compliance Efforts		
423 Monitoring Program		
424 Fugitive Control Plan for Production Rates Less than One Million Tons Per Year		
425 Additional Division Requirements		
CHAPTER 5 – ENGINEERING		
510 INTRODUCTION	Gather maps, plans, and designs as needed to provide an overview of operations at the site.	Present information as needed to provide an overview of operations at the site. MSHA regulations are not currently considered applicable to site operations. Commit to the performance of appropriate inspections by a professional engineer or appropriate specialist. Summarize existing COVOL emergency response procedures.
511 General Requirements		
512 Certification		
513 Compliance with MSHA Regulations and MSHA Approvals		
514 Inspections		
515 Reporting and Emergency Procedures		
520 OPERATION PLAN	Gather information regarding operation plans as needed to provide a description of applicable facilities.	Since mining is not conducted at this site, several sections of these regulations do not apply to this permit application. Roads within the facility area will be classified and methods for handling and disposing of coal, spoil, and waste will be described. Impoundments that have been constructed on site (i.e., sedimentation and detention basins) will also be described. Information will be presented as appropriate in text and drawings.
521 General		
522 Coal Recovery		
523 Mining Methods		
524 Blasting and Explosives		
525 Subsidence		
526 Mine Facilities		
527 Transportation Facilities		
528 Handling and Disposal of Coal, Excess Spoil, and Coal Mine Waste		
529 Management of Mine Openings		
530 OPERATIONAL DESIGN CRITERIA AND PLANS		
531 General		
532 Sediment Control		

Section Number and Title	Planned Approach	Anticipated Response
533 Impoundments		
534 Roads		
535 Spoil		
536 Coal Mine Waste		
537 Regraded Slopes		
540 RECLAMATION PLAN	Gather information regarding the anticipated post-operation land use. Commit to complying with the applicable regulatory standards.	Since the site will not be operated as a conventional mine, several sections of this regulation do not apply. Narrative, maps, and drawings will be used as needed to present applicable information in a logical manner. The removal of necessary structures to meet post-operation land use requirements will be discussed. The estimated costs of reclaiming the site consistent with the post-operation land use will be referenced (presented in Chapter 8 of this application). The intent of the reclamation plan is to remove coal piles and substantial coal residue, other than that associated with roads and parking areas, to the soil level and regrade to a contour that is consistent with the post-operational land use.
541 General		
542 Narratives, Maps, and Plans		
550 RECLAMATION DESIGN CRITERIA AND PLANS		
551 Casing and Sealing of Underground Openings		
552 Permanent Features	CHAPTER 6 - GEOLOGY	Since no coal is being mined and no exploration activities are being conducted in the permit area, most of this section of the regulations does not apply. However, a very brief description of geologic conditions at the site will be provided to address this section of the regulations.
553 Backfilling and Grading		
560 PERFORMANCE STANDARDS		
610 INTRODUCTION		
611 General Requirements	Gather information regarding general geologic conditions within the permit area, using published documents obtained from the U.S. Geological Survey, the Utah Geologic Survey, and other reputable sources.	
612 Certification		
620 ENVIRONMENTAL DESCRIPTION		
621 General Requirements		
622 Cross Sections, Maps and Plans		
623 Geologic Determinations		
624 Geologic Information		
625 Additional Geologic Information		
626 Sampling Waivers		
627 Description of the Overburden Thickness and Lithology		
630 OPERATION PLAN		

Section Number and Title	Planned Approach	Anticipated Response
631 Casing and Sealing of Exploration Holes		
632 Subsidence Monitoring		
640 PERFORMANCE STANDARDS		
641 Exploration and Drill Holes		
642 Monuments and Surface Markers of Subsidence Monitoring Points		
	CHAPTER 7 - HYDROLOGY	
710 INTRODUCTION		
711 General Requirements		
712 Certification		
713 Inspection		
720 ENVIRONMENTAL DESCRIPTION		
721 General Requirements		
722 Cross Sections and Maps		
723 Sampling and Analysis		
724 Baseline Information		
725 Baseline Cumulative Impact Area Information		
726 Modeling		
727 Alternative Water Source Information		
728 Probable Hydrologic Consequences		
729 Cumulative Hydrologic Impact Assessment (CHIA)		
730 OPERATION PLAN		
731 General Requirements		
732 Sediment Control Measures		
733 Improvements		
734 Discharge Structures		
735 Disposal of Excess Spoil		
736 Coal Mine Waste		

Section Number and Title	Planned Approach	Anticipated Response
737 Noncoal Mine Waste		plan. Present this information in text, maps, etc. as necessary. Make note of those sections of the regulations that do not apply to this operation.
738 Temporary Casing and Sealing of Wells		
740 DESIGN CRITERIA AND PLANS		
741 General Requirements		
742 Sediment Control Measures		
743 Impoundments		
744 Discharge Structures		
745 Disposal of Excess Spoil		
746 Coal Mine Waste		
747 Disposal of Noncoal Mine Waste		
748 Casing and Sealing of Wells	Gather information regarding the anticipated post-operation land use.	The site will be left in a condition appropriate for industrial land use by the new owner/operator. Road drainage designs will be reviewed to ensure that they are compatible with long-term industrial use.
750 PERFORMANCE STANDARDS		
751 Water Quality Standards and Effluent Limitations		
752 Sediment Control Measures		
753 Impoundments and Discharge Structures		
754 Disposal of Excess Spoil, Coal Mine Waste and Noncoal Mine Waste		
755 Casing and Sealing of Wells		
760 RECLAMATION		
761 General Requirements		
762 Roads		
763 Siltation Structures	CHAPTER 8- BONDING AND INSURANCE	Post-operation use of the site for industrial purposes will likely involve removal of the coal-processing structures, while leaving
764 Structure Removal		
765 Permanent Casing and Sealing of Wells		
810 BONDING DEFINITIONS AND DIVISION RESPONSIBILITIES		

Section Number and Title	Planned Approach	Anticipated Response
820 REQUIREMENT TO FILE A BOND		
830 DETERMINATION OF BOND AMOUNT		
840 GENERAL TERMS AND CONDITIONS OF THE BOND		
850 BONDING REQUIREMENTS FOR UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES		
860 FORMS OF BONDS		
870 REPLACEMENT OF BONDS		
880 REQUIREMENTS TO RELEASE PERFORMANCE BONDS		
890 TERMS AND CONDITIONS FOR LIABILITY INSURANCE		
CHAPTER 9 - ALLUVIAL VALLEY FLOOR DETERMINATION		
302-321.100 Scope of Investigation	Evaluate information to make an alluvial valley floor determination.	The site is not located within or near an alluvial valley floor.
302-321.200 Summary of Studies Performed		
320-321.300 Extent of Alluvial Valley Floors		



State of Utah

Department of Natural Resources

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas & Mining

JOHN R. BAZA
Division Director

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

March 13, 2007

Mr. Keith Thompson
COVOL Engineered Fuels LC
10653 S. River Front Parkway, Suite 300
South Jordan, Utah 84095
kthompson@headwaters.com

Subject: COVOL Application Outline of Dry-Coal Cleaning Facility/Requirement to Permit and Post Bond

Dear Mr. Thompson:

The Division of Oil, Gas & Mining (Division) has completed a review of the Permit Outline submitted by Covol Engineered Fuels LC (COVOL) in December 2006. In addition, we are responding to telephone requests from you and Mr. Bunderson about Covol accepting coal mine waste for processing, and not just for 'test runs' of 1000 cyds. Based on COVOL's plans to bring coal mine waste from other permitted sites, COVOL needs to firmly agree to proceed with permitting, and therefore to formally drop its appeal to the Board of Oil Gas & Mining. In addition, COVOL needs to post a bond for reclamation of the site in the amount of \$165,000.

The Division reviewed the application along with the environmental audit submitted by COVOL during discovery. The Division appreciates COVOL's efforts and believes the outline is very close to the permit requirements to which the Division previously agreed. The Division would like to ease the permitting process as much as possible and invites COVOL to discuss this matter in person, by phone, or by letter at any time.

While the permit outline is close, there are several items that still need to be addressed. The following comments correlate with the permit outline chapters:

Chapter 1

- 1) Permit and disturbed area map: include a table with acreages - permit area/disturbed area map.
- 2) Include map showing adjacent surface landowners.
- 3) Provide the MSHA Number.
- 4) Provide ownership and control information.

II. Chapter 2

- 1) Provide map showing different soil types.
- 2) Provide surface facilities map showing location of topsoil storage areas.
- 3) Address how topsoil will be stored and protected.
- 4) Address where any toxic or acid-forming materials that will be generated, will be placed and handled on site.

III. Chapter 3

- 1) Address any Threatened and Endangered species (wildlife or vegetation) on or adjacent to the permit area.

IV. Chapter 4

- 1) The application should include a copy of the Wellington City Agreement for reclaiming the site.
- 2) Since the land is an industrial site, the reclamation plan should be a clean-up plan of the site, i.e., removal of coal, wood, metal, non-coal waste material and where it will be disposed.
- 3) Discuss how the buildings will be left.
- 4) Provide the class III cultural survey on undisturbed area and class I cultural survey for the permit area (paper search). These reports must be in a confidential section of the application.
- 5) Provide a copy of the SPCC Plan.

V. Chapter 5

- 1) Provide a surface facility map showing all buildings (permanent structures), refuse piles, coal storage areas, non-coal waste storage areas, P.E stamped.
- 2) Engineering and Hydrology maps need P.E. certifications.
- 3) Provide hydrology map showing locations of sediment ponds, diversion ditches, silt fences etc.
- 4) All temporary and permanent coal mine waste and/or refuse and/or "by-products" pile storage areas need to be addressed. Show on map all refuse storage areas. Explain how is the material handled and disposed?

Page 3
Keith Thompson
March 13, 2007

VI. Chapter 6

N/A

VII. Chapter 7

- 1) Provide a table of water rights for the facility/water replacement plan.
- 2) Separate the disturbed area from the undisturbed area and show how water is controlled on the site. (OGM recommends a sedimentation pond to treat all drainage from the disturbed area). Show how structures are designed and for which design event.
- 3) Include the UPDES permit.
- 4) Identify all water sources on a map (seeps, springs)—quarterly water sampling program.

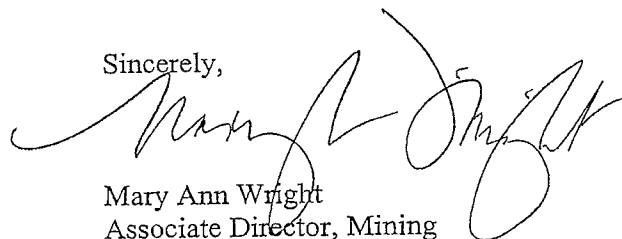
VIII. Chapter 8

- 1) Provide public liability insurance.
- 2) Provide reclamation cost estimate (if different from \$165,000) and post a bond.

Last week, I provided Trace Bunderson of your office with a reclamation cost estimate of \$165,000. This amount is based on an average cost estimate per acre from the mining program of \$5,000/acre. Immediately posting this amount as a bond, whether cash (CD, LOC, Treasury notes) or surety bond, would allow COVOL to process coal waste from existing permitted sites while COVOL completes the permitting process. Submittal of a completed mine permit application should follow within a reasonable time.

Please contact me at (801) 538-5306 to set up a meeting to review this and other permitting issues as soon as possible. Thank you for your patience and cooperation.

Sincerely,



Mary Ann Wright
Associate Director, Mining

UTAH OGM COAL PROGRAM MEETING NOTES

Date: April 2, 2007
Time: 2:00 pm – 3:30 pm
Location: DNR, "A" Conference Room

To: Internal File, COVOL, C/007/0045

From: Pamela Grubaugh-Littig

Attendees: Keith Thompson, Mike Gipson, Trace Bunderson, Mike Edwards (COVOL)
Mary Ann Wright, Steve Alder, Pamela Grubaugh-Littig (Division of Oil, Gas
and Mining [DOGM])

Purpose: Review Bonding Questions with COVOL and Answer Questions about March 13,
2007 Letter (To Keith Thompson, COVOL, from Mary Ann Wright, DOGM)

MEETING SUMMARY:

Mike Edwards stated that the "bonding" is being worked on. COVOL faxed the bond to the Division on April 2, 2007, but did not use the correct bond form (not the one that Pamela Grubaugh-Littig had sent to Trace Bunderson). Mike said that he would have the bond reissued on the correct form.**

Mary Ann Wright gave the go-ahead to move ahead when the bond is accepted.

There are 30 acres "disturbed" area which equals the proposed permit area.

Steve Alder stated that this is a unique situation for "Reclamation recognizing the postmining land use and current disturbance". He also stated that Craig Galli should be included in the loop.

Mike Edwards and Pam and Mary Ann went through each of the chapters outlined in the March 13, 2007 letter. Cultural resources will not be addressed because the area is already disturbed. Priscilla Burton will assist with the soils section and will make a recommendation on planting on the topsoil piles.

ACTION ITEMS: (Include item, timeline, and responsible person.)

Pam promised to notify Gregg Galecki (Skyline Mine), Rusty Netz (Star Point Waste Fuel), and John Gefferth (Emery Deep Mine), when the bond has been accepted by the Division via a letter to COVOL and copied to the above-noted mines.

COVOL will submit the bond for acceptance by the Division so that operations may proceed. A timetable to submit the permit application was not discussed.

ADDITIONAL COMMENTS: (This section is intended to provide attendees the opportunity to contribute additional and significant information concerning the meeting content that may not have been mentioned during the meeting.)

****Mike Edwards called Pamela Grubaugh-Littig on April 3, 2007. He said that COVOL would not be using a surety bond, but was interested in an irrevocable letter of credit. Pamela Grubaugh-Littig e-mailed a sample letter of credit that day to Mike Edwards.**

Pam also advised Mike Edwards that the Public Information Center is open from 8 to 5 workdays if he would like to review that Savage Terminal approved plan. Unfortunately, the Savage plan is not available electronically.

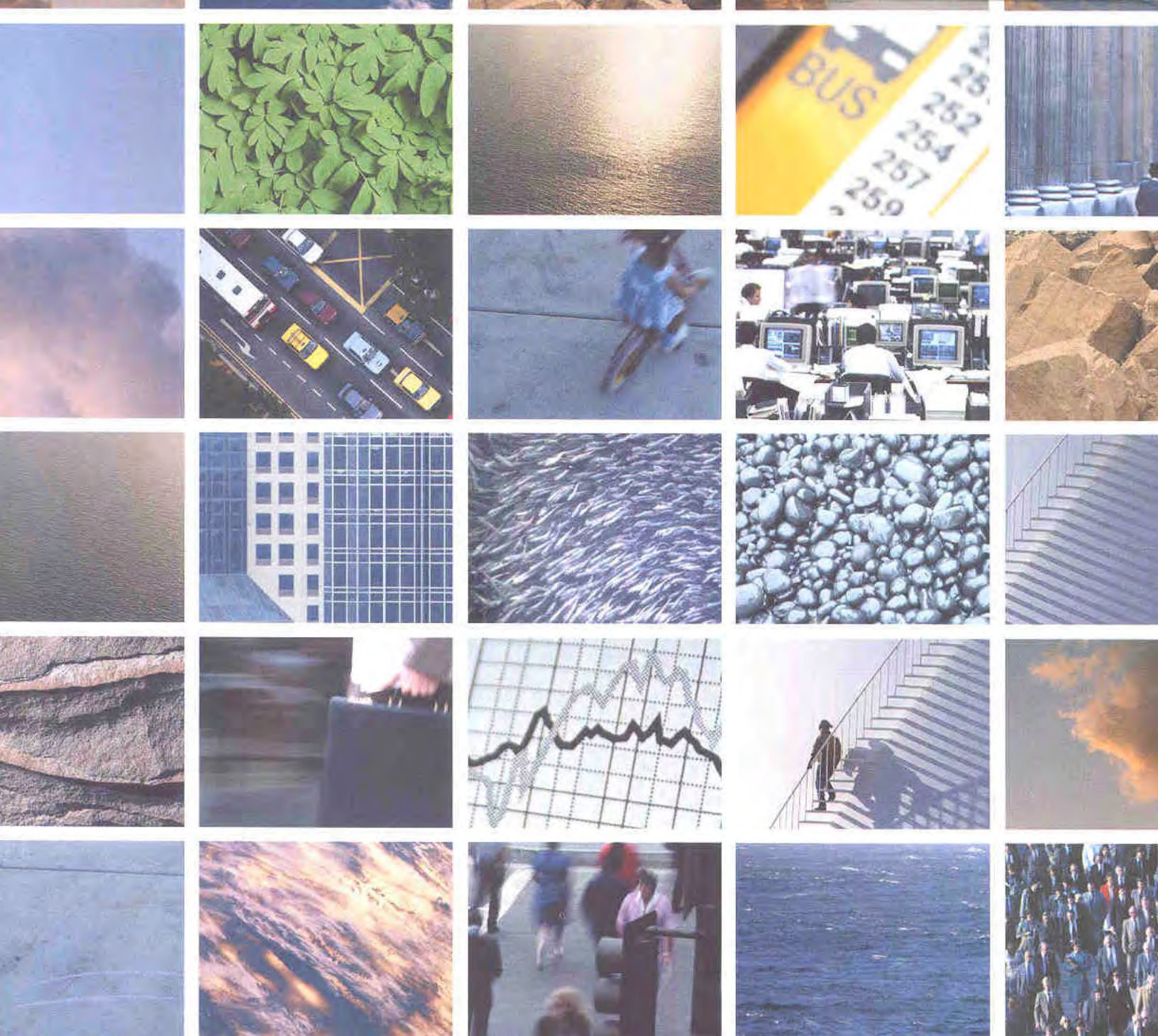
P:\GROUPS\COAL\WP\007045.COV\Meeting Notes April 2 2007.doc

BRC Wellington LLC
Dry-Coal Cleaning Facility

Permit Application
Revised October 2013

APPENDIX 1-2

Environmental Compliance Assessment



Prepared for:
Mr. Craig Galli
Holland and Hart
and
Headwaters Incorporated

OPINION REPORT Environmental Compliance Assessment

**1865 West Ridge Road
Wellington, Utah**

November 9, 2006

Environmental Resources Management
102 West 500 South, Suite 650
Salt Lake City, Utah 84101
(801) 595-8400
www.erm.com

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	OPINIONS TO BE EXPRESSED, WITH BASES AND REASONS.....	2
3.0	DATA AND OTHER INFORMATION CONSIDERED IN FORMING OPINIONS	9
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LIST OF EXHIBITS

Exhibit 1	Drawings of COVOL Facility
Exhibit 2	COVOL Environmental Permits and Plans
Exhibit 3	Photographs of COVOL Facility
Exhibit 4	COVOL Environmental Policies and Procedures and EMS Program Documents
Exhibit 5	David Wilson Resume

Upon request of Mr. Craig Galli of Holland and Hart, I have reviewed available environmental compliance documents pertaining to the coal cleaning facility owned and operated by COVOL Engineered Fuels, LLC (COVOL). This facility is located at 1865 West Ridge Road in Wellington (Carbon County), Utah. I also visited the facility on June 27, 2006, to inspect environmental conditions and assess compliance with federal and state environmental regulations. Attending the site visit were representatives from Headwaters: Mr. Keith Thompson (Vice President); Mr. Jeff Hayden (Director of Operations – Coarse Coal Recovery); and Mr. Mike Gipson (Plant Manager – Wellington Plan). Mr. Galli was also present during the site visit.

A summary of my records review, inspection observations, and opinions regarding the compliance status of the COVOL facility is provided herein. This remainder of this report is organized in the following sections:

- Section 2 – Opinions to be Expressed, with Bases and Reasons
- Section 3 – Data and Other Information Considered in Forming Opinions
- Section 4 – Exhibits to be Used to Support Opinions
- Section 5 – Expert Qualifications
- Section 6 – Compensation Paid for Services
- Section 7 – Certification

This report presents Mr. Wilson's opinions regarding environmental compliance at this COVOL facility, and Headwaters overall approach toward managing its environmental program.

The opinions expressed in this section are based on my review of the environmental compliance documents prepared and provided by others, observations during my facility visit, and my environmental compliance experience working with a variety of industrial companies operating in the State of Utah.

Opinion 1: COVOL has obtained all applicable regulatory permits and operates in a manner consistent with these permits and in accordance with Best Management Practices for its industry.

Bases and Reasons for Opinion

During my inspection of the COVOL facility, I reviewed records, interviewed management personnel, and observed operations at the facility relative to compliance with environmental regulations. Copies of relevant COVOL drawings and environmental permits for the facility are included as Exhibits 1 and 2, respectively, with this report. A selection of photographs taken during my facility visit are included as Exhibit 3.

Air Quality Compliance

COVOL began construction of its Wellington facility in July 2005. The work was begun after submitting a Notice of Intent for air emissions and obtaining an Approval Order (DAQE# AN2952001-05, June 30, 2005) from the Utah Department of Environmental Quality (DEQ), Division of Air Quality (DAQ). This permit identifies the facility as a minor source for emission of fugitive dust, and identifies the approved equipment, air pollution controls, process limitations, and allowable emissions for the facility. Based on my inspection, the facility is operating in accordance with the requirements of its air permit. There is no dust-generating equipment that is not accounted for in the AO, and fugitive dust controls are in place as prescribed in the AO, including a telescoping drop on the primary stacking conveyor, a cover on the shaker screens, and chute controls on some of the smaller stacking conveyers. While not required specifically by the AO, as a best management practice COVOL will install a chute or funnel controls (or equivalent) on the other stackers.

Although COVOL has been operating in trial mode since January 2006, the facility was not fully operational at the time of the visit. However, full-scale operation is expected to occur in Fall 2006. In the interim, COVOL has been operating in full compliance with its AO. The facility

notified the DAQ of its start of construction, and will have completed construction and startup within 18 months of receiving the AO. Furthermore, COVOL has maintained communication with the UDAQ regarding the status of construction and anticipated start of operations. In a letter dated February 16, 2006, COVOL specifically informed the agency that the facility was still under construction, and therefore an emission inventory for 2005 could not be provided. In accordance with the AO (Item 11), COVOL will inform the UDAQ when construction is complete and full-scale operations begin. It is expected that this will occur prior to the 18-month construction period provided in the AO. The inspection observations are based on trial operations, which were occurring at the time of the inspection.

Some visible dust was observed during the visit in the immediate vicinity of some of the conveyor drops, but the opacity limits in the AO appeared to be met for all sources, including process equipment, stacking piles, and haul roads. I observed the baghouse equipment associated with the separation tables, which is required per the AO for emissions control. I also observed the inspection records for the pressure gages used to monitor the drops across the baghouse filters. Other processing equipment also have dust covers, including the single roll crusher, screen, conveyors and radial stackers. The records observed show appropriate inspection intervals and operation of the equipment in accordance with the AO. Photographs taken during the visit are included as Exhibit 3, which show the air quality to be good, even at the equipment processing and drop points, and excellent overall around the facility boundary. Additionally, COVOL has improved the facility roads with a gravel surface and assures adequate water applications to achieve the AO requirements for fugitive dust control. COVOL will pave the road and parking lot in accordance with the AO prior to completing construction.

Storm Water Quality Compliance

COVOL has developed a storm water management program for the facility, which consists of a system for on-site drainage controls, a written Storm Water Pollution Prevention Plan (SWP3), and an employee training program appropriate for its operations. My inspection of the site and the relevant permit documents shows full compliance with the state storm water regulations, and general adherence to best management practices for storm water and erosion control.

The general topography of the site slopes gently from north to south, and storm water is collected from operating areas via excavated drainage channels and culverts. The channels transmit the storm water for

discharge and storage into two large retention ponds located in the southeast and southwest corners of the property. The basins are designed to provide complete retention of storm water for up to a 24-hour, 25-year storm event. Storm runoff from events larger than this design storm would be detained in the ponds and potentially overflow the ponds at their designed overflow points where water would run off via overland flow to the south into the fields beyond the southern perimeter of the property. This water would eventually percolate into the ground or evaporate prior to reaching the Price River and Miller Creek drainage system. Conditions were dry at the time of the site visit, but signs of storm water capture and retention within the channel and pond system were evident (e.g., visible high water marks, limited channel scour and erosion). Additionally, the facility uses straw bales as need to control the potential migration of sediment within the drainage channels, as well as along the facility perimeter fence.

The controls in place are as described in the SWP3 for the facility, which was prepared by EIS Environmental & Engineering Consulting (EIS), December 2004. This SWP3 addresses the erosion prevention and storm water protection requirements applicable to both construction and operational phases of the facility. During the construction and startup phases at the facility, COVOL has performed development activities under a UPDES Construction General Storm Water Permit (No. UTR101180), which was submitted to the Utah DEQ, Division of Water Quality (DWQ). COVOL and its consultant EIS also prepared a Notice of Intent (NOI) for a Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activities for COVOL and will operate under this General Permit (No. UTR000000) upon completion of construction activities. During construction activities, COVOL has maintained correspondence with the DWQ to advise them of the expected schedule for facility completion, and the expected time frame to begin quarterly discharge monitoring and submittal of the Storm Water Discharge Monitoring Reports (SWDMR) required by the permit (COVOL Letter – January 16, 2006). The first SWDMR is expected to be submitted to the DWQ by January 28, 2007.

Spill Prevention Control and Countermeasures

The COVOL facility maintains one above ground storage tank (AST) with a capacity for up to 8,500 gallons of diesel fuel, which is used for on-site vehicle fueling. The facility also stores other hydrocarbon liquids (e.g., lubricating and hydraulic oils) in containers and drums of various sizes, with an estimated total storage volume of 500 gallons. I observed that these petroleum liquids are stored in accordance with applicable local,

state and federal regulations, as well as best management practices to preclude environmental impacts.

A Spill Prevention Control and Countermeasures (SPCC) Plan has been prepared for the facility (December 2005), which appropriately describes the source of petroleum on site, potential sources of releases, and controls/countermeasures to minimize impacts to the environment should a release occur. The diesel storage tank and smaller hydrocarbon containers/drums are stored within concrete holding areas with sufficient secondary containment to contain a release in accordance with applicable regulations (40 CFR 112). Additional controls are provided for the transfer operations from trucks to the storage tanks via the drainage and retention system described above for the storm water system. The facility maintains a spill kit within the covered hydrocarbon storage area in the event that sorbent booms or other materials are needed for minor release cleanups. The SPCC Plan describes the facility training, inspection and reporting programs; and, I observed COVOL's inspection records. In my opinion, the facility has a sound program for identifying potential release risks and remediating them before impacts occur to the environment.

Waste Management

COVOL generates the following types of solid wastes, but does not generate any hazardous wastes:

- General office and industrial waste, which is placed in dumpsters and ultimately transported for disposal at the East Carbon Development Company (ECDC) Landfill;
- Spent florescent light bulbs, which are managed as universal waste and transported for disposal at the ECDC Landfill; and
- Used oil is not stored on site. Used oil from the servicing of vehicles and equipment is removed from the site by Wheeler Machinery Co.

The solid waste containers (i.e., dumpsters) were observed during the inspection to be in good condition with lids to minimize storm water collection in the containers. There is also a roof over the waste oil containment area, which is consistent with best management practices to prevent potential losses from rain water.

No other hazardous or solid waste requirements or best management practices apply to the COVOL Operations, including permitting, manifests, record keeping, RCRA biannual reporting, and TRI reporting.

Opinion 2: COVOL operates under an environmental management system (EMS) that strives for continual improvement in protecting human health and the environment, which extends beyond the general compliance requirements.

Bases and Reasons for Opinion

The COVOL facility, as part of the Headwaters company, operates under the policies and procedures of the parent company. Headwaters has developed a written “Environmental Compliance Policies and Procedures.” A copy of this document and other Environmental Management System (EMS) program developed by Headwaters and COVOL are attached as Exhibit 4.

The Headwaters Environmental Compliance Policies and Procedures (ECP) document was prepared by the company to “advance [its] Vision Statement through the adoption of a strong and thoughtful Environmental Compliance Policy statement. “Headwaters Vision Statement” includes the following:

Headwaters Incorporated creates value through environmentally responsible energy, chemical products and services, and developing innovative value-added opportunities for customers.

The ECP also serves as a guide to the company’s environmental compliance group and facilities’ operations staffs by providing standard procedures and policies to help achieve company environmental standards and regulatory compliance. The content of the ECP incorporates the following major topics:

- I. Introduction
 - Vision Statement
 - Purpose
 - Scope
- II. Environmental Compliance Policy
- III. Organization and Responsibilities
 - Environmental Staff
 - Facility Managers
 - Laboratory Managers

- IV. Corporate Environmental Audit Program
 - Corporate Environmental Audit Program Audits
- V. Information Management
- VI. Planning and Permitting
 - Air Programs and Permits
 - Water Programs – NPDES and Others
 - Solid Waste Management and Disposal Permits
 - SARA Title III – Community Right-to-Know
 - Hazardous Wastes
 - Universal Waste
 - SPCC – Oil Spill Prevention
 - Used Oils
 - Toxic Substances Control Act (TSCA)
- VII. Training
- VIII. Emergency Preparedness and Response
- IX. Communications
 - Internal Communications
 - Corporate-Facility Information Transfer
 - Internal Facility Communication
 - Media Communications
- X. Regulatory Audits/Inspections

Headwaters and COVOL are working to assure the utility and application of the ECPP through a formal audit/inspection program and development of an Environmental Management Information System (EMIS). The audits/inspections are performed at least annually at each Headwaters facility. A full copy of the Headwaters “Operations Review Checklist” used during the inspection is provided in Exhibit 4. The audit program includes assessment of the issues listed below:

1. General Housekeeping
2. Liquid Materials Management
3. Solid Materials and Product Management
4. Vehicle Fueling and Preventive Maintenance
5. Dust Control
6. Waste Management and Reduction
7. Spill Response
8. Container and Equipment Labeling
9. Monitoring, Sampling, and Inspections

10. Recordkeeping
11. Planning and Training
12. Reporting

The EMIS, is used to monitor and track regulatory compliance obligations and requirements for the Headwaters' facilities. The system is being configured to operate within a computer software application called Enverity. Upon completion of the system, this tool will assist the COVOL Plant manager and staff in tracking specific tasks to assure environmental compliance at the Wellington Plant. A draft document titled, "Enverity EMIS Configuration Document," shows the preliminary compliance requirements and data to be input into the COVOL Plant's EMIS. A copy of this document is included in Exhibit 4.

DATA AND OTHER INFORMATION CONSIDERED IN FORMING OPINIONS

I have reviewed the following documents in preparing my opinions, and referenced the following particular documents in this report:

- Covol Engineered Fuels, LLC, date unknown. Personnel Training Presentation: "Construction Storm Water Protection."
- Covol Engineered Fuels, LLC, December 2005. "Spill Prevention Control and Countermeasures Plan."
- DeJulis, Tim, November 9, 2005. Email to Covol from UDEQ: "Paved Roads at Wellington Plan."
- EIS Environmental & Engineering Consulting, December 2004. "Storm Water Pollution Prevention Plan and NOI Storm Water Discharges Associated with Construction Activities and NOI Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated with Industrial Activities."
- Headwaters Incorporated, August 2006. "Draft - Environmental Compliance Policies and Procedures."
- Headwaters Incorporated, August 2006. "Draft - Operations Review Checklist."
- Headwaters Incorporated, August 2006. "Draft - Wellington Facility - Enverity EIMS Configuration Document."
- Thompson, Keith, January 16, 2006. Letter to UDEQ: "Storm Water Discharge Monitoring Reports for Covol Engineered Fuels, LC, UPDEQ MSGP Permit No. UTR000685."
- UDEQ, June 30, 2005. "Approval Order: Modification of Approval Order DAQE# AN2952001-03 by Adding Equipment.:"
- UDEQ, September 18, 2002. "Storm Water General Permit for Construction Activities, Permit No. UTR100000."
- Van Ootegham, Steven, February 16, 2005. Letter to UDEQ: "Annual Emission Inventory, Covol Engineered Fuels, LLC Wellington Utah Coal Cleaning Facility."
- Van Ootegham, Steven, July 8, 2005. Memo to Keith Thompson (Headwaters): "Wellington, Utah Coal Cleaning Plant Air Quality Permitting Requirements."
- Van Ootegham, Steven, August 5, 2005. Letter to UDEQ: "Construction Initiation Notification, Covol Engineered Fuels, LLC: DAQE-AN2952003-05, Wellington, Utah Coal Cleaning Facility."

Reference	Description
Exhibit 1	Drawings of COVOL Facility
Exhibit 2	COVOL Environmental Permits and Plans
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Exhibit 5	David Wilson Resume

David S. Wilson is currently a Principal for ERM-Rocky Mountain, Inc., which is a member company of the Environmental Resources Management (ERM) Group. ERM is a world-wide environmental consulting company with approximately 2,500 employees in more than 120 offices and 30 countries.

Mr. Wilson manages ERM's Salt Lake City, Utah Office and directs most Utah projects, and oversee all administrative and business development activities. Mr. Wilson is a registered Professional Engineer in the State of Utah (License No. 189076-2202), and a registered Professional Geologist in the State of Utah (License No. 189076-2250). He is an UST Certified Consultant in the State of Utah (Certificate No. CC 72). He has a Masters Degree in Civil Engineering from Drexel University in Philadelphia, Pennsylvania (1993), and a Bachelors Degree in Geological Engineering from the University of Utah in Salt Lake City, Utah (1988). A resume for Mr. Wilson is included as Exhibit 3.

Mr. Wilson has more than 18 years experience in environmental and geotechnical engineering, including work in environmental compliance and permitting, site assessments and investigations, conceptual and final engineering design, and construction engineering services. His compliance expertise includes hazardous and solid waste management, wastewater and storm water, and air quality. He has performed environmental numerous environmental compliance audits and regulatory assessments, and developed regulatory permit applications and Notices of Intent (NOIs) for all environmental media. He has managed client programs in waste management, pollution prevention/waste minimization, hazardous materials inventories, and other environmental permitting projects. Compliance work has included U.S. projects required under CERCLA, RCRA, UST/LUST programs, Clean Water Act, Clean Air Act, TSCA, and other federal, state and local regulations, as well as international projects in Latin America.

He has previously testified in deposition and trial as an expert on one occasion for an environmental impacts case.

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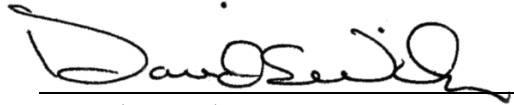
COMPENSATION PAID FOR SERVICES

My rate for this case is \$165 per hour, plus reimbursement of out-of-pocket expenses.

CERTIFICATION

I submit that the opinions rendered herein are my own, and that they are based on my personal review of the available documents and my relevant experience as an environmental consultant.

Respectfully submitted,

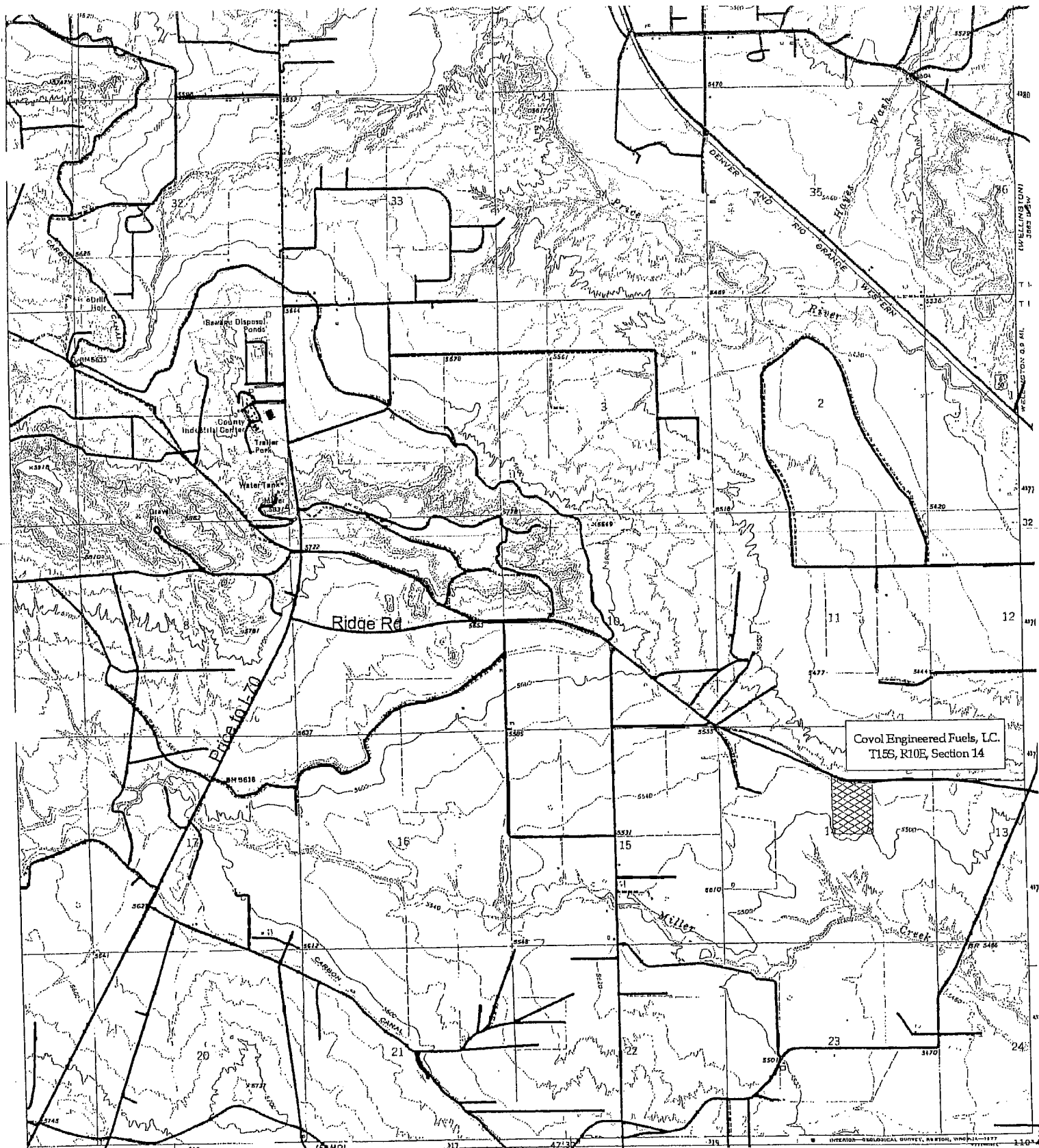
A handwritten signature in black ink, appearing to read "David S. Wilson", written over a horizontal line.

David S. Wilson, P.E., P.G.


Principal

ERM-Rocky Mountain, Inc.

Exhibit 1
Drawings of COVOL Facility

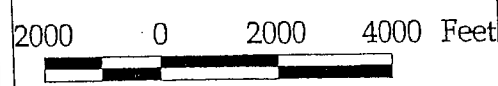


Legend

-  Roads
-  Covol

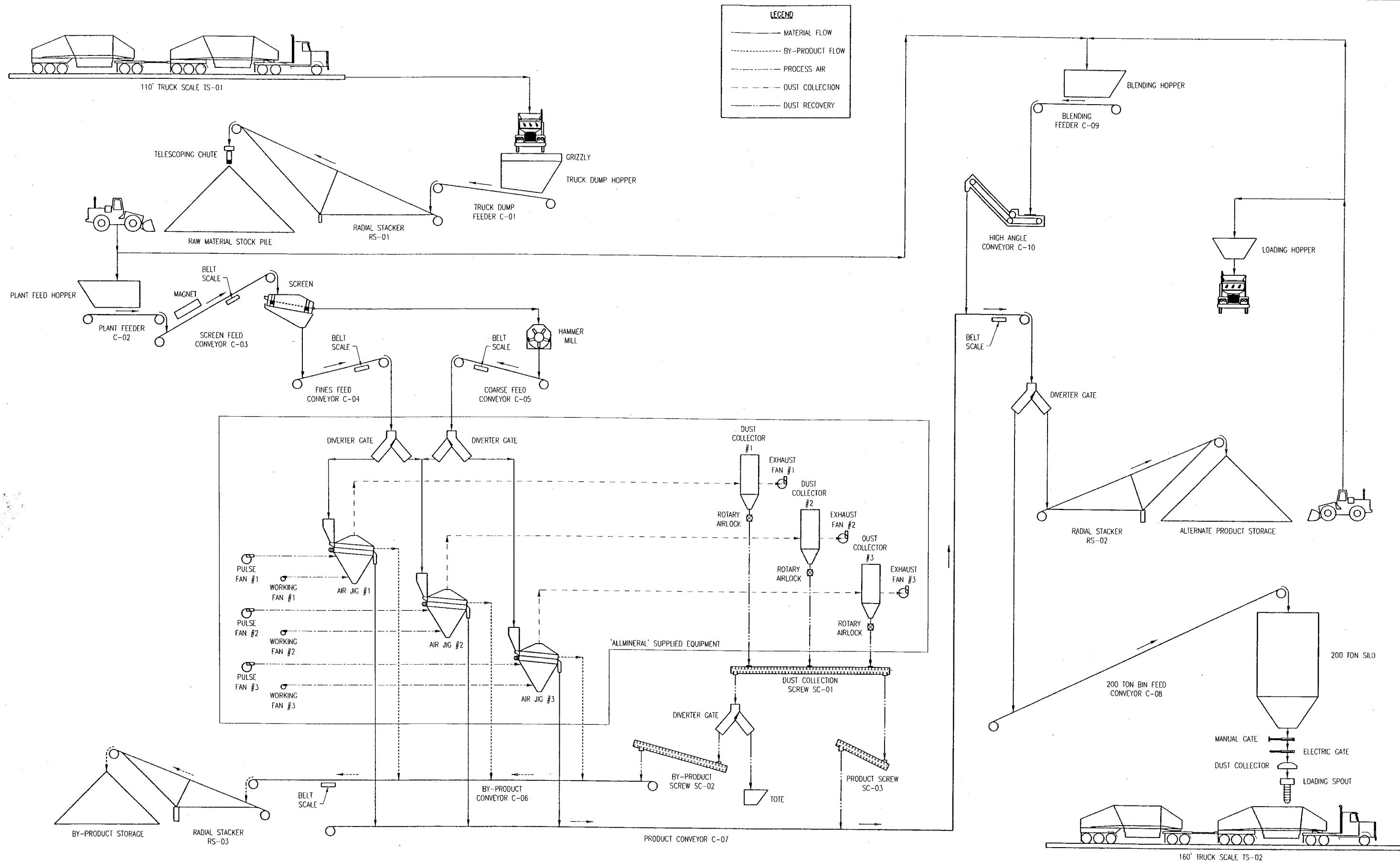


Location Map



Drawn By: K. Nash
Designed By: J.T. Paluso

EIS Environmental &
Engineering Consulting
31 North Main Street
Helper, Utah 84526



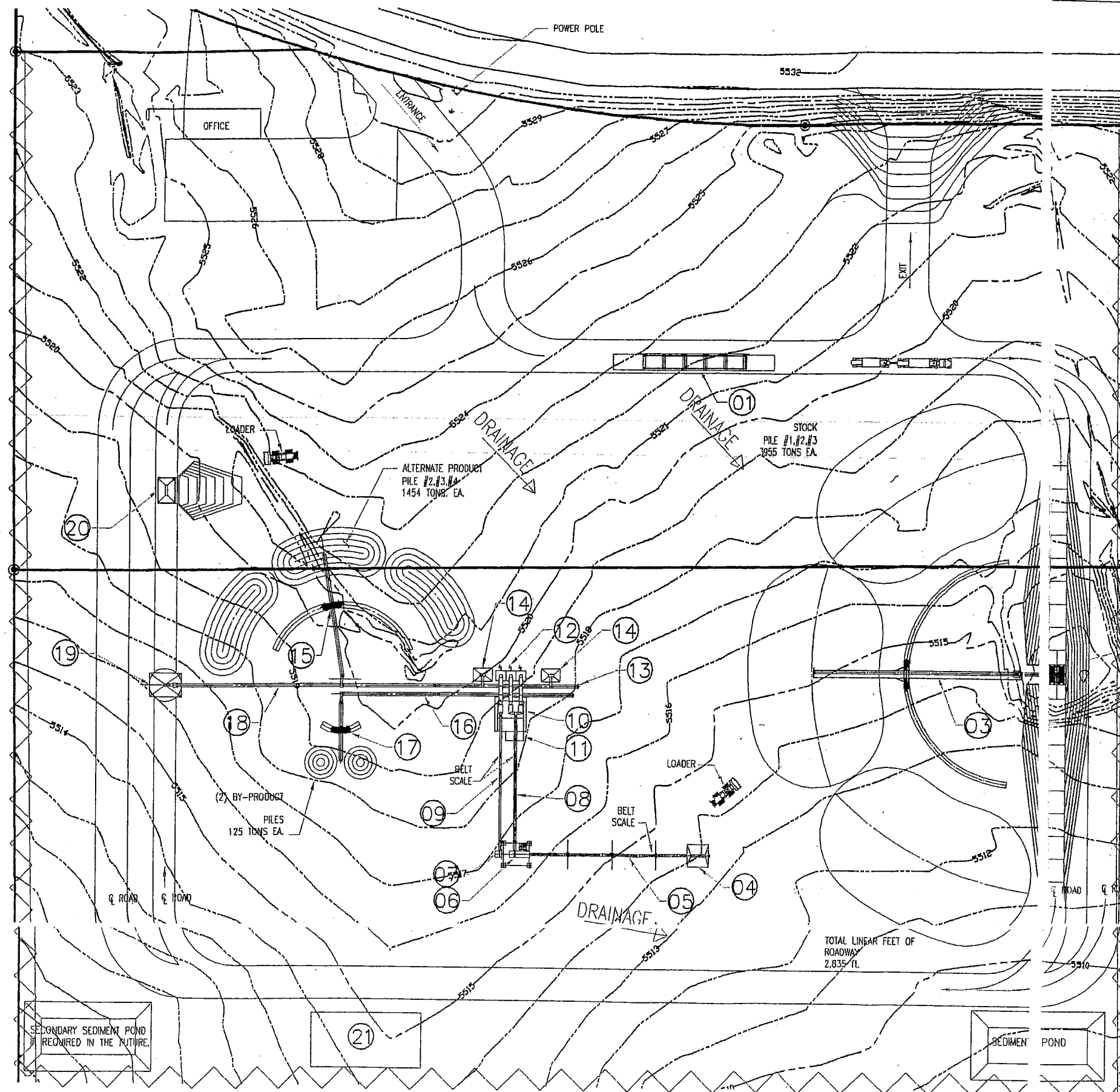
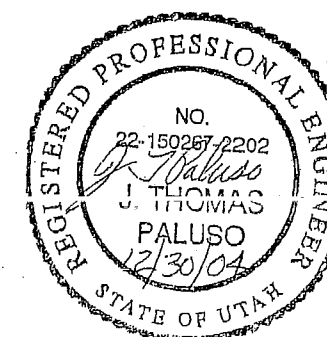
C	TGM	-	06.13.05	ADDED FLOW FROM RAW MATERIAL TO BLENDING HOPPER																											
3	TGM	-	05.25.05	REVISED PER CLIENT REVIEW																											
A	TGM	-	05.24.05	ISSUED FOR REVIEW																											
BY	CH'D	DATE		REVISIONS				No	BY	CH'D	DATE	REVISIONS																			
								APPROVED FOR CONSTRUCTION				DRAWN BY: TGM				05.23.05															
								BY:				DESIGNED BY: TGM				05.23.05															
								DATE:				CHECKED BY:																			
												APPROVED:																			
												APPROVED:																			

EQUIPMENT LIST		
ITEM NO.	QTY.	ITEM DESCRIPTION
01	1	TRUCK SCALE 100'-0"
02	1	TRUCK DUMP HOPPER WITH BELT FEEDER
03	1	STOCK PILE RADIAL STACKER 100' R. @ 18' x 53'-0" Hl.
04	1	PLANT FEED HOPPER WITH 4x8 GRATE
05	1	FEED CONV. W/BELT SCALE @ 10' x 175'-0" x 30'-0" Hl.
06	1	SCREEN XXXX
07	1	CRUSHER XXXX
08	1	FINES CONV. W/BELT SCALE @ 18' x 128'-6" x 44'-0" Hl.
09	1	COURSE CONV. W/BELT SCALE @ 18' x 128'-6" x 44'-0" Hl.
10	1	ALLAIR JKG 3x(4x8)
11	1	MMC CONTROL ROOM
12	1	3 COMPARTMENT BAGHOUSE WITH 3 FANS, 3 STACKS
13	1	PRODUCT CONV. #1
14	2	BLENDING HOPPER
15	1	ALT. RADIAL STACKER @ 18' x 100'-0" x 30'-0" Hl.
16	1	BY PRODUCT CONV. #1
17	1	BY PRODUCT RADIAL STACKER @ 18' x 85'-0" x 20'-0" Hl.
18	1	PRODUCT CONV. #2
19	1	PRODUCT SILO 200 TONS
20	1	ALT. TRUCK LOAD HOPPER
21	1	TERRA TEST UNIT

NOTES:

SURFACE CONTOUR IN SW CORNER
MAY BE MODIFIED DURING CONSTRUCTION
TO DIRECT RUNOFF TOWARDS SE CORNER.

EARTHEN BERMS WILL BE CONSTRUCTED AROUND
SITE TO DIRECT SURFACE RUNOFF WATER
TO SEDIMENT POND.



SIT 7m as



REV	BY	CH	REVDATE	REVDDESCRIPTION
R6	BY	CH	REVDATE	REVDDESCRIPTION
R5	BY	CH	REVDATE	REVDDESCRIPTION
D	KN	TP	12/23/04	INSERTED BERMS, DRAINAGE, SED. PONDS
C	RP	TM	07/12/04	ADDED PRODUCT VOL. & ISSUED FOR REVIEW
B	RP	TM	06/24/04	REVISED PER COVOL ENGINEERED FUELS
A	RP	TM	05/26/04	ISSUED FOR REVIEW

REV	BY	CH	REVDATE	REVDDESCRIPTION
R12	BY	CH	REVDATE	REVDDESCRIPTION
R11	BY	CH	REVDATE	REVDDESCRIPTION
R10	BY	CH	REVDATE	REVDDESCRIPTION
R9	BY	CH	REVDATE	REVDDESCRIPTION
R8	BY	CH	REVDATE	REVDDESCRIPTION
R7	BY	CH	REVDATE	REVDDESCRIPTION

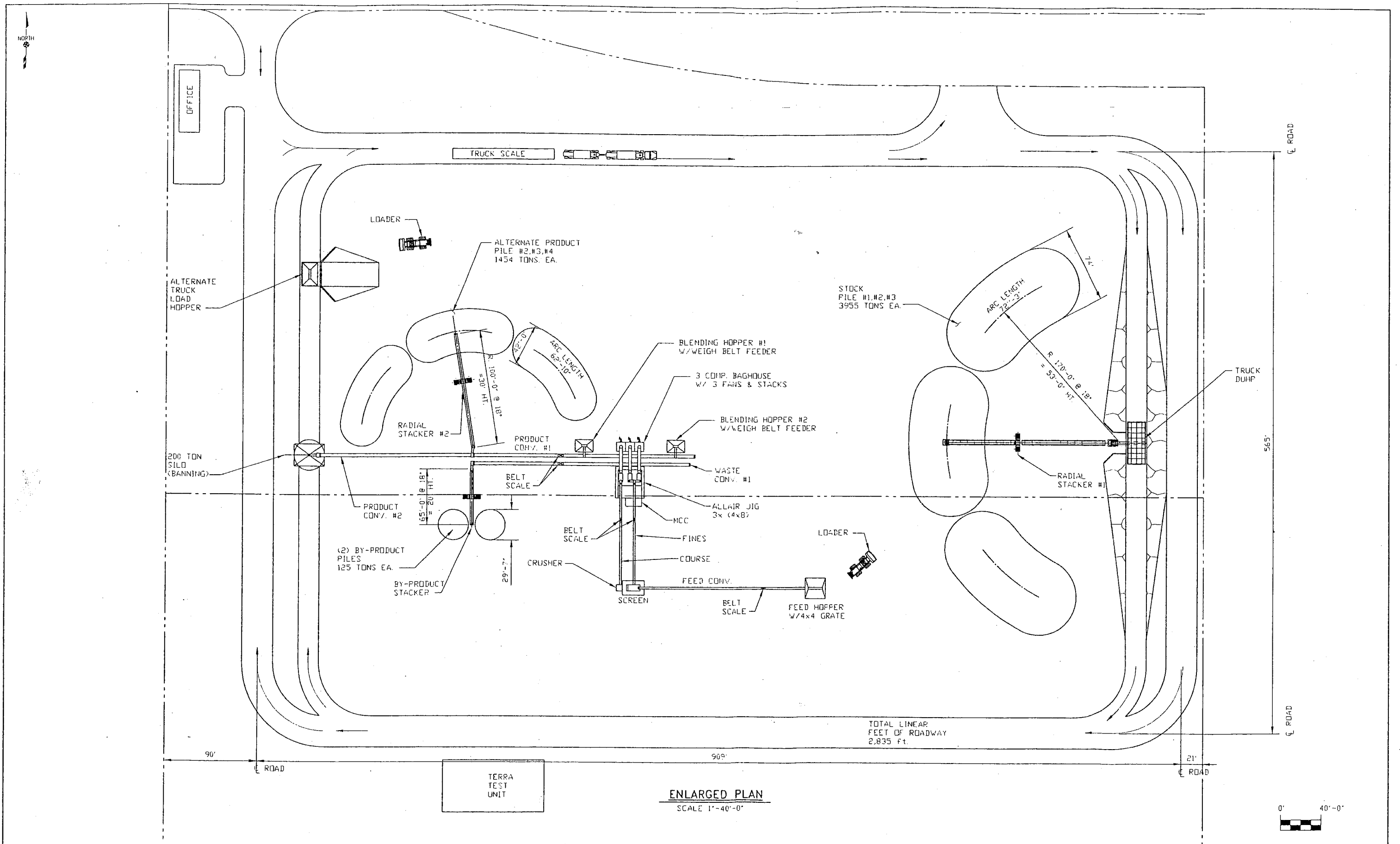
Environmental
Industrial
Services
31 North Main Street
Hatch, Utah 84043
Phone: 437-2141
Fax: 437-2142
No. of copies: 100

DRAWN BY:	KJH	12/23/04
DESIGNED BY:	JTP	12/23/04
CHECKED BY:	CHECKER	DATE
APPROVED:	APPROVER#1	DATE
APPROVED:	APPROVER#2	DATE

COVOL ENGINEERED FUELS, LC
A DIVISION OF FADWATERS INC.
EIS Environmental & Engineering Consulting
Hatch, Utah

COVOL ENGINEERED FUELS, LC
WELLINGTON PLANT SITE
SITE PLAN

SCALE:	REV.
PROJECT NO: 04007	D
CADFILE: SITEPLAN_01_KN	
DRAWING NO:	
OPT-01-02	



C	RP	TM	07.12.04	ADDED PRODUCT VOL. & ISSUED FOR REVIEW																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

Exhibit 2

COVOL Environmental Permits and Plans

- 1. DAQ Approval Order for COVOL*
- 2. COVOL Letter to DAQ – August 5, 2005*
- 3. COVOL Letter to DAQ – February 16, 2006*
- 4. Storm Water Pollution Prevention Plan and NOIs for
Construction and Industrial Activities*
- 5. COVOL Letter re: Storm Water Permit – January 16, 2006*
- 6. Spill Prevention Control and Countermeasure Plan*



State of Utah

Department of
Environmental Quality

Dianne R. Nielson, Ph.D.
Executive Director

DIVISION OF AIR QUALITY
Richard W. Sprott
Director

JON M. HUNTSMAN, JR.
Governor

GARY HERBERT
Lieutenant Governor

DAQE-AN2952003-05

June 30, 2005

Keith Thompson
COVOL Engineered Fuels LLC
10653 South Riverfront Parkway, Suite 300
Sandy, Utah 84095

Dear Mr. Thompson:

Re: Approval Order: Modification of Approval Order DAQE# AN2952001-03, by Adding
Equipment and Increasing Blended Coal Production, Carbon County – CDS B ATT; NSPS;
TITLE V Minor Project Code: N2952-003

The attached document is the Approval Order (AO) for the above-referenced project.

Future correspondence on this Approval Order should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. Please direct any technical questions you may have on this project to Mr. Tim De Julis. He may be reached at (801) 536-4012.

Sincerely,

Richard W. Sprott, Executive Secretary
Utah Air Quality Board

RWS:TD:re

cc: Southeastern Utah District Health Department
Mike Owens, EPA Region VIII

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

**APPROVAL ORDER: Modification of Approval Order
DAQE# AN 2952001-03 by Adding Equipment**

Prepared By: Tim De Julis, Engineer
(801) 536-4012
tdejulis@utah.gov

APPROVAL ORDER NUMBER

DAQE-AN2952003-05

Date: June 30, 2005

COVOL Engineered Fuels LLC

Source Contact
Keith Thompson
(801) 984-9400

Richard W. Sprott
Executive Secretary
Utah Air Quality Board

Abstract

Covol Engineered Fuels, LC (CEF), proposes to modify the existing, blended coal preparation plant in Wellington, Carbon County, by adding equipment items, and increasing annual production. The plant will process as much as 1,500,000 tons of coal per year, utilizing crushers, screens, and air tables to create three different quality, blended coal products. Carbon County is an attainment area of the National Ambient Air Quality Standards (NAAQS) for all pollutants. New Source Performance Standards (NSPS) apply to this source (40 CFR 60 Subpart A, and Subpart Y). National Emission Standards for Hazardous Air Pollutants (NESHAP) and Maximum Available Control Technology (MACT) regulations do not apply to this source. Title V of the 1990 Clean Air Act applies to this minor source. This source does not require a Title V operating permit.

The emissions, in tons per year, will change as follows: PM_{10} (+ 7.12).

The changes in emissions will result in the following, in tons per year, potential to emit totals: PM_{10} = 7.91

The project has been evaluated and found to be consistent with the requirements of the Utah Administrative Code Rule 307 (UAC R307). A public comment period was held in accordance with UAC R307-401-4 and no comments were received. This air quality Approval Order (AO) authorizes the project with the following conditions, and failure to comply with any of the conditions may constitute a violation of this order.

General Conditions:

1. This Approval Order (AO) applies to the following company:

Corporate Office Location

Covol Engineered Fuels, LC
10653 South Riverfront Parkway, Suite 300
Sandy, Utah 84095

Phone Number (801) 984-9400
Fax Number (801) 984-9460

The equipment listed in this AO shall be operated at the following location:

1865 West Ridge Road, Wellington, Carbon County

Universal Transverse Mercator (UTM) Coordinate System: UTM Datum NAD27
4,374.55 kilometers Northing, 520.27 kilometers Easting, Zone 12

2. All definitions, terms, abbreviations, and references used in this AO conform to those used in the Utah Administrative Code (UAC) Rule 307 (R307), and Title 40 of the Code of Federal Regulations (40 CFR). Unless noted otherwise, references cited in these AO conditions refer to those rules.
3. The limits set forth in this AO shall not be exceeded without prior approval in accordance with R307-401.

4. Modifications to the equipment, or processes approved by this AO that could affect the emissions covered by this AO must be reviewed, and approved in accordance with R307-401-1.
5. All records referenced in this AO, or in applicable NSPS, which are required to be kept by the owner/operator, shall be made available to the Executive Secretary or Executive Secretary's representative upon request, and the records shall include the two-year period prior to the date of the request. Records shall be kept for the following minimum periods:
 - A. Emission inventories Five years from the due date of each emission statement or until the next inventory is due, whichever is longer.
 - B. All other records Two years
6. CEF shall install the various coal preparation equipment items listed in condition 8, and shall conduct its operations of the coal preparation plant in accordance with the terms, and conditions of this AO, which was written pursuant to CEF's Notice of Intent submitted to the Division of Air Quality (DAQ) on February 9, 2005, and additional information submitted to the DAQ on February 17, 2005, March 4, 2005, March 7, 2005, March 9, 2005, March 11, 2005, March 15, 2005, April 8, 2005, April 13, 2005, April 15, 2005, and April 19, 2005.
7. This AO shall replace the AO (DAQE-AN2952001-03) dated December 18, 2003.
8. The approved installations shall consist of the following equipment (or equivalent*):
 - A. Coal handling/ Preparation Equipment 40 CFR 60 Subpart Y
 One (1) Crusher
 One (1) Screen
 Two (2) Feed Hoppers
 Three (3) Air Tables
 Various Conveyor Belts, or Radial Stacking Devices
 - B. Three (3) Fabric Filter Baghouses
 - C. One (1) Material Storage Silo
 Capacity: 200 tons
 - D. Various Off-highway Equipment items **
 Front-end Loaders

* Equivalency shall be determined by the Executive Secretary.

** This equipment is listed for informational purposes only.

9. The three baghouses shall control process streams from the air cleaning tables. All exhaust air from the air cleaning tables shall be routed through one of the three baghouses before being vented to the atmosphere. All filtered material collected within each

baghouse shall discharge to an enclosed conveyance device. The fabric filters installed in each baghouse shall have porosity of 0.5 micrometers, or use equivalent technology as determined by the Executive Secretary.

10. A manometer or magnehelic pressure gauge shall be installed to measure the differential pressure across the fabric filters in each baghouse. Static pressure differential across the fabric filter shall be between 1.5 to 6.0 inches of water column. The pressure gauge shall be located such that an inspector /operator can safely read the indicator at any time. The reading shall be accurate to within plus or minus 1.0 inches water column. The instrument shall be calibrated according to the manufactures instructions at least once every 12 months. Intermittent recording of the reading is required on a once per operational day basis.
11. CEF shall notify the Executive Secretary in writing when the installation of the equipment listed in Condition #8 has been completed and is operational, as an initial compliance inspection is required. To insure proper credit when notifying the Executive Secretary, send your correspondence to the Executive Secretary, attn: Compliance Section.

If construction and/or installation has not been completed within eighteen months from the date of this AO, the Executive Secretary shall be notified in writing on the status of the construction and/or installation. At that time, the Executive Secretary shall require documentation of the continuous construction and/or installation of the operation and may revoke the AO in accordance with R307-401-11.

Limitations and Tests Procedures

12. Visible emissions from the following emission points shall not exceed the following values:
 - A. All crushers - 15% opacity
 - B. All screens - 10% opacity
 - C. All conveyor transfer points - 10% opacity
 - D. All baghouse exhaust stacks - 10% opacity
 - E. All other points - 20% opacity

Opacity observations of emissions from stationary sources shall be conducted according to 40 CFR 60, Appendix A, Method 9.

For sources that are subject to NSPS, opacity shall be determined by conducting observations in accordance with 40 CFR 60.11(b) and 40 CFR 60, Appendix A, Method 9.

13. The following limit shall not be exceeded:

1,500,000 tons of coal processed per rolling 12-month period

To determine compliance with a rolling 12-month total the owner/operator shall calculate a new 12-month total by the twentieth day of each month using data from the previous 12

months. Records of production shall be kept for all periods when the plant is in operation. Coal production shall be determined by examination of CEF billing records, and/or weight receipts. The records of coal production shall be kept on a daily basis.

Roads, and Fugitive Dust

14. The facility shall abide by all applicable requirements of R307-205 for Fugitive Emission and Fugitive Dust sources.
15. Visible fugitive dust emissions from haul-road traffic and mobile equipment in operational areas shall not exceed 20% opacity. Visible emissions determinations for traffic sources shall use procedures similar to Method 9. The normal requirement for observations to be made at 15-second intervals over a six-minute period, however, shall not apply. Six points, distributed along the length of the haul road or in the operational area, shall be chosen by the Executive Secretary, or the Executive Secretary's representative. An opacity reading shall be made at each point when a vehicle passes the selected points. Opacity readings shall be made 1/2 vehicle length, or greater behind the vehicle, and at approximately 1/2 the height of the vehicle, or greater. The accumulated six readings shall be averaged for the compliance value.
16. All unpaved operational areas that are used by mobile equipment shall be water sprayed, and/or chemically treated to control fugitive dust. An application of water, or chemical treatment shall be used. Treatment shall be of sufficient frequency, intensity, and duration to maintain the surface material in a damp/moist condition unless it is below freezing. The opacity shall not exceed 20% during all times the areas are in use. If chemical treatment is to be used, the plan must be approved by the Executive Secretary. Records of water, and/or chemical treatment shall be kept for all periods when the plant is in operation. The records shall include the following items:
 - A. Date
 - B. Number of treatments made, dilution ratio, and quantity
 - C. Rainfall received, if any, and approximate amount
 - D. Time of day treatments were made
 - E. Records of temperature if the temperature is below freezing.
17. The in-plant haul roads shall be paved, and shall be periodically swept, or sprayed clean as dry conditions warrant, or as determined necessary by the Executive Secretary. Records of cleaning paved roads shall be kept for periods the plant is in operation. The records shall include the following items:
 - A. Date of cleaning(s)
 - B. Time of day cleaning(s) were performed
18. The haul road shall not exceed 0.69 miles in combined length, and the vehicle speed along the haul road shall not exceed 10 miles per hour.

19. The storage piles shall be watered to minimize generation of fugitive dusts, as dry conditions warrant, or as determined necessary by the Executive Secretary. Records of water, and/or chemical treatment shall be kept for all periods when the plant is in operation.
20. All conveyors, and radial stacking devices shall be covered, or enclosed along their length. The radial stacker conveyor drop, the truck loading chutes at the product storage silo, and the alternate product loading hopper shall be equipped with telescoping discharge tubes.

Federal Limitations and Requirements

21. In addition to the requirements of this AO, all applicable provisions of 40 CFR 60, New Source Performance Standards (NSPS) Subpart A, 40 CFR 60.1 to 60.18, and Subpart Y, 40 CFR 60.250 to 60.254 (Standards of Performance for Coal Preparation Plants) apply to this installation.

Records & Miscellaneous

22. At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this Approval Order including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Executive Secretary which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded.
23. The owner/operator shall comply with R307-150 Series. Inventories, Testing and Monitoring.
24. The owner/operator shall comply with R307-107. General Requirements: Unavoidable Breakdowns.

The Executive Secretary shall be notified in writing if the company is sold or changes its name.

This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including R307.

A copy of the rules, regulations and/or attachments addressed in this AO may be obtained by contacting the Division of Air Quality. The Utah Administrative Code R307 rules used by DAQ, the Notice of Intent (NOI) guide, and other air quality documents and forms may also be obtained on the Internet at the following web site:

<http://www.airquality.utah.gov/>

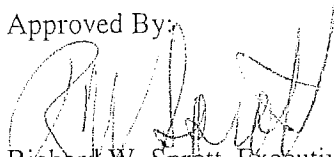
The annual emissions estimations below include point source, fugitive dust, and road dust emissions, and do not include fugitive emissions, tail pipe emissions, or grandfathered emissions. These emissions are for the purpose of determining the applicability of Prevention of Significant Deterioration, non-attainment

area, maintenance area, and Title V source requirements of the R307. They are not to be used for determining compliance.

The Potential To Emit (PTE) emissions for CEF's Wellington coal preparation plant are currently calculated at the following values:

<u>Pollutant</u>	<u>Tons/yr</u>
PM ₁₀	7.91

Approved By:



Richard W. Spratt, Executive Secretary
Utah Air Quality Board



Adding Value to Energy™

August 5, 2005

Richard W. Sprott, Director
Division of Air Quality
150 North 1950 West
P. O. Box 144820
Salt Lake City, Utah 84114-4820

Re: Construction Initiation Notification
Covol Engineered Fuels, LLC; DAQE-AN2952003-05
Wellington, Utah Coal Cleaning Facility

Dear Mr. Sprott:

On June 30, 2005 Covol Engineered Fuels, LLC received Approval Order (AO) number DAQE-AN2952003-05 for its coal cleaning facility to be located in Wellington, Utah near Price. The applicable requirements in the AO include 40 CFR Part 60, Subparts A and Y, General Provisions and Standards of Performance for Coal Preparation Plants, respectively.

40 CFR 60.7(a)(1) requires that once construction on an affected facility has been initiated, notification must be provided within 30 days. This letter fulfills this requirement for the coal cleaning facility in Wellington, Utah. On July 18, 2005 construction was initiated on the facility.

Once construction has been completed and initial startup takes place, the required initial startup notification will be made in a timely manner. In the mean time, if there are any questions please call me at (801) 984-3777.

Sincerely,

A handwritten signature in black ink, reading "Steven P. Van Ootegham". The signature is fluid and cursive, with a long horizontal line extending from the end.

Steven P. Van Ootegham
Regional Environmental Manager

cc: Keith Thompson/Covol Engineered Fuels, LLC
Ron Sherbak/Covol Engineered Fuels, LLC



February 16, 2005/6

Ms. Deborah McMurtrie
Utah Department of Environmental Quality
Division of Air Quality
150 North 1950 West
PO Box 144820
Salt Lake City, Utah 84114-4820

VIA FACSIMILE

RE: Annual Emission Inventory
Covol Engineered Fuels, LLC Wellington Utah Coal Cleaning Facility

Dear Ms. McMurtrie:

Thank you for taking the time with me this morning to discuss the annual emission inventory for the above mentioned facility. As we discussed, an annual emission inventory for 2005 is not required because this facility is still under construction and not yet in production. We will make the appropriate written notification(s) when production begins, as required by 40 CFR 60.7(a)(3).

As you suggested, I spoke with our permit writer, Tim DeJulius about the designation of the facility as a Part 70 source and, therefore subject to Title V fees. As I suspected, this is the case because of the applicability of the NSPS for Coal Preparation Plants (Subpart Y). The Form A that we received is correct with respect to the regulatory status of the facility.

For future reference and to ensure that mailings arrive timely, please send correspondence directly to the facility or to me at the same South Jordan address. If there are any questions or concerns, please call me at (801) 984-3777.

Sincerely,

Steven P. Van Ootegham
Regional Environmental Manager

cc: Tim DeJulius/UDAQ (by FAX)
Keith Thompson/Headwaters Energy Services
Ron Sherbak/Headwaters Energy Services
Mike Gipson/Wellington Plant

STORM WATER POLLUTION PREVENTION PLAN

and

NOI Storm Water Discharges Associated with Construction Activities

and

**NOI Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated
with Industrial Activities**

COVOL ENGINEERED FUELS, LC

PREPARED BY:

EIS Environmental & Engineering Consulting

DECEMBER 2004

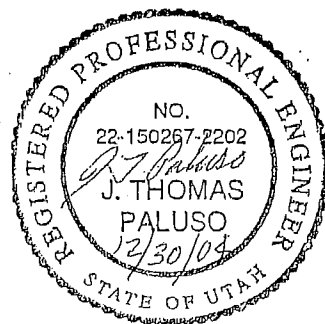


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Appendix E - NOT-Notice of Termination for Storm Water Discharges Associated with Construction
Activity Under the UPDES General Permit

Section 1.0 General Site Information

COVOL Engineered Fuels, LC (COVOL) is planning to construct and operate a new coal cleaning facility in Carbon County, Utah. The new facility will be located in Section 14, Township 15 South, Range 10 East, Salt Lake Base & Meridian. This facility will be located approximately five miles south of Price, Utah. Refer to the attached Location Map in Appendix A. The facility lies in an undeveloped, rural area on a 30 acre site. Approximately 15 acres will be used for this new operation. The adjacent land on the east, west, and south remains undeveloped. Across the road to the west are coal transfer facilities where coal is stored, loaded, and unloaded for shipment. Across the road and to the north is Carbon County Lumber Company.

The site slopes to the southeast and the surrounding ground consists of native soil with sparse vegetation. The soil is classified as Persayo-Badland Association Soils, which consist of gently sloping and rolling hills, well drained, moderately fine textured and medium textured soils over shale. The area receives approximately 9.5-inches of precipitation annually. The regional groundwater flow is east toward the Price River which lies approximately two miles northeast of the facility. Refer to the Location Map in Appendix A.

This site was previously permitted by Terra Systems Incorporated (TSI). In compliance with the provisions of the Utah Water Quality Act, Title 19, Chapter 5, Utah Code Annotated 1953, TSI was issued a General Storm Water UPDES Permit UTR101090 on August 20, 2003, for this Wellington Plant Site. COVOL has purchased this site from TSI and will use different processing techniques. COVOL will receive coal from various sources around the Carbon/Emery area. COVOL will take this coal with varying qualities and by using air jigs will improve the final quality. The cleaning facility will be divided into three areas: feedstock material handling and storage systems, coal cleaning equipment, and finished product material handling and storage system. It is anticipated that this facility will process approximately 1,000,000 ton per year.

Feedstock Handling

Incoming coal trucks will be weighed at the truck scale and dump their loads at the truck dump hopper. Refer to the Site Plan in Appendix A. This high ash coal will be moved via conveyors and dumped in the inventory pile with a radial stacker. The radial stacker will be positioned to segregate and pile multiple sources/qualities of coal.

Coal Cleaning

High ash coal will be fed into the feed hopper via a rubber-tired front end loader. This material will be transported by conveyor to a screen for separation. Coarse or oversized material can be processed through the crusher to be sized to 2" minus. The feed streams (coarse and fine) are then fed into an air jig separation unit where the coal is separated from the rock and ash using air and vibration to perform the separation. The air jig is covered by a hood connected to a bag house (one bag house for each air jig) to prevent any fugitive dust particles from escaping into the atmosphere. Finished product is transferred to an inventory pile or silo via one set of conveyors and the byproduct is transferred to a pile via another set of conveyors. The bag house dust can be combined either with

the byproduct stream or the finished product stream depending on the required specifications.

Finished Product Handling

The finished product may be stored in the silo which is situated over the site haul road. A designated amount of product stored in the silo will be charged into trucks to be shipped to its final destination. Alternately, finished material from a segregated finished product pile may be fed into the product silo via the feed/blending hoppers or be loaded directly into trucks, for transportation, via the truck ramp and hopper.

Storm Water Pollution Prevention Plan

It has been determined that the permittee has a regulated storm water discharge as per UAC R317.8. Therefore, conditions governing storm water discharges apply. The permittee shall develop a storm water pollution plan. The receiving water for this facility is the Price River. Refer to Appendix D for Guidelines Associated with Storm Water Discharge from Construction Activities.

Section 2.0 Content of Plan

Section 2.1.1 Pollution Prevention Team

The facility will be operated two shifts per day. Each shift will have three employees, a shift foreman and two operators. During each shift the pollution prevention team at the facility will be comprised of these three individuals.

The shift foreman will be responsible to coordinate a spill response, oversee good housekeeping and best management practices. His responsibilities will also include monitoring, if required, and ensuring compliance with aforementioned permit. The on shift operators will be required to inspect and maintain all diversion and appurtenant structures to ensure proper control and treatment of storm water runoff prior to leaving the site.

All employees will be properly trained in their various areas and will be given the proper notification numbers and contact personnel to comply with the requirements of the permit. Refer to Section 2.4.1 Employee Training.

Section 2.2.1 Site Map

Included in Appendix A is a Site Map showing the proposed surface facilities. Additional features on the map include storm water flow directions, berm, and sediment pond locations. Final engineering on this facility is presently being completed. Surface contours will be modified to direct all surface flows towards the sediment pond located in the southeast corner of the project. If this is not practical, an additional sediment pond may be constructed in the southwest corner of the project. An earthen berm will be constructed to contain all runoff from the site. All surface structures will be located inside the berm. This will prevent any potential contamination from leaving

the site.

Section 2.2.2 Material Inventory

Description of Potential Pollutant Sources

The potential sources which may reasonably be expected to add pollutants to storm water discharges from the site are those disturbed areas which facilitate the operation. The surface facilities are shown on the Site Plan drawing. The Potential Pollution Sources are listed in the following table.

Potential Pollution Source	Potential Pollutants	Likelihood of Contact
Truck Dump	Coal Fines, Equipment Fuels and Fluids	Low potential, No known spill or leak
Coal Storage Area	Coal Fines, Equipment Fuels and Fluids	Low potential, No known spill or leak
Front End Loader	Equipment Fuels and Fluids	Low potential, No known spill or leak
Conveyor Belt	Coal Fines, Lubricant	Low potential, No known spill or leak
Silo	Coal Fines, Lubricant	Low potential, No known spill or leak

All runoff will be contained by the berm surrounding the site. This runoff will report to the sediment pond. Coal fines in the storage areas are very fine-grained, therefore some storm events could potentially cause enough surface flow to transport the fines to the sediment pond.

Drainage

The Site Plan drawing provides the drainage direction and the location of the proposed sediment pond and berms. Existing contours, in the southwest corner, would be modified to direct runoff towards the sediment pond or an additional sediment pond may be constructed in the southwest corner of the project. Berms will be constructed to prevent storm water from leaving the site. Runoff from Ridge Road (County Road) will be diverted around the property. The sediment pond will remove pollutants from storm water runoff and will discharge to the south, if necessary. After construction both the berms and sediment pond will be inspected on a quarterly basis to insure that they are operating correctly.

Section 2.3.1 Best Management Identifications (BMP)

BMPs	Brief Description of Activities	Implementation of BMP
Good Housekeeping	Pick-up Trash, Use of absorbent materials to clean up minor spills. Training of staff in cleanup procedures.	Training of staff during annual training or as needed.
Preventative Maintenance	Maintain sediment control measures. Maintain equipment and machinery. Maintain fuel stations, coal pile and surface drainage..	Inspect and Maintain contours to drain to sediment controls
Inspections	Quarterly inspection of runoff control measures.	Quarterly Inspections or as needed after storm events.
Spill Prevention Response	Fuel tanks will be contained. Absorbent materials available for spill clean up.	Clean up or maintain as needed.
Sediment and Erosion Control	Inspection of pond and berms, at least quarterly or after/during storm event greater than .5 inches.	Sample pond during runoff event. Clean pond when necessary.
Management of Runoff	Off site runoff diverted around disturbed and storage areas. Disturbed and storage areas treated by sediment pond or berm.	Inspect, maintain and repair as needed.

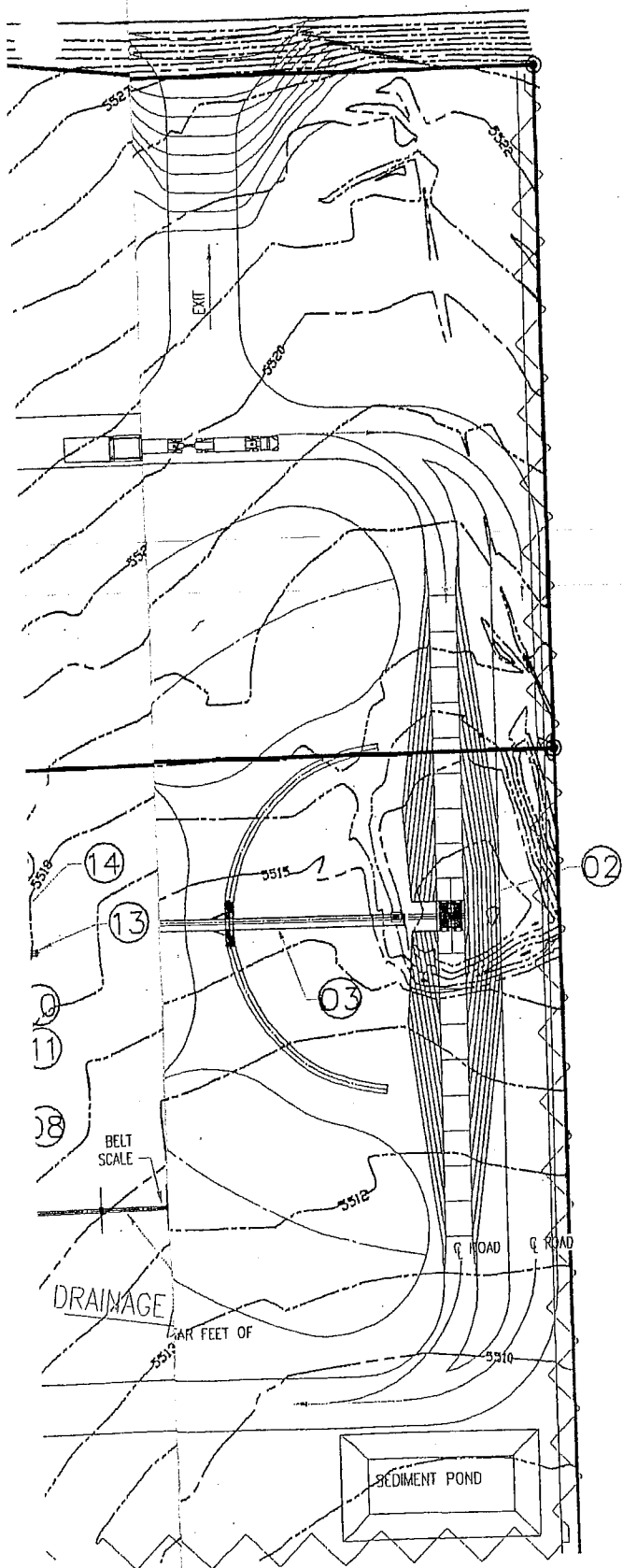
Section 2.4.1 Employee Training

Training topics will include, but not be limited to Spill Prevention and Response, Spill Reporting Procedures, Good Housekeeping, Material Management Practices, and Storm Water Sampling Procedures.

Employees will be provided training regarding the prevention and control of spillage of fuels and oils associated with machinery and equipment. Employees will be advised to not overfill fuel tanks while fueling equipment or vehicles. Employees will assist fuel vendors to watch tankgauges and not overfill bulk tanks.

APPENDIX A

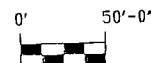
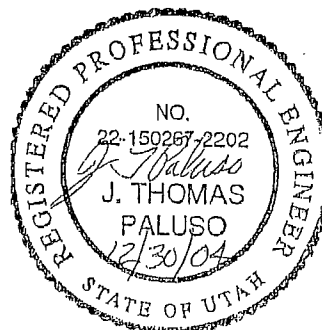
DRAWINGS

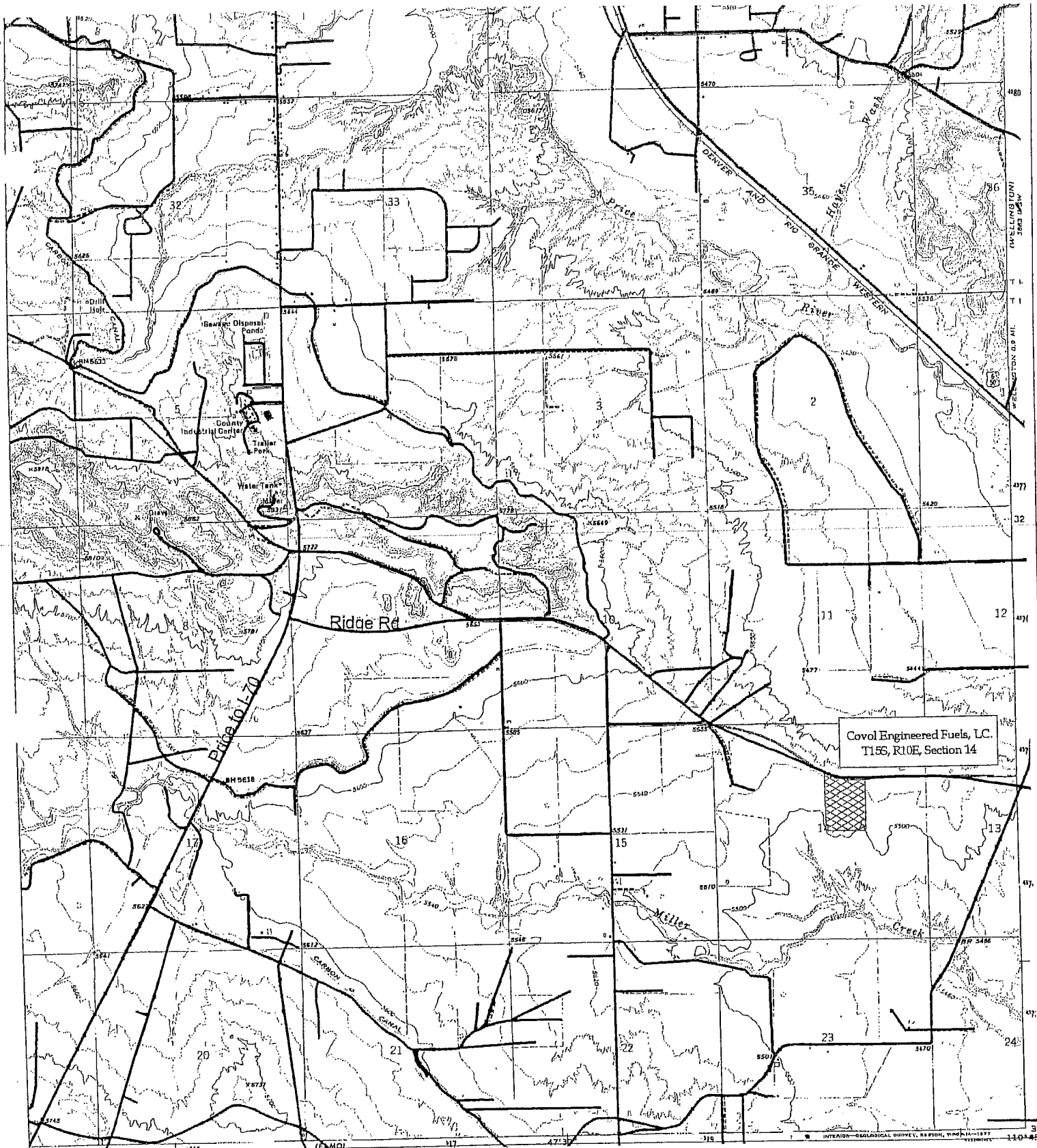


EQUIPMENT LIST		
ITEM NO.	QTY.	ITEM DESCRIPTION
01	1	TRUCK SCALE 100'-0"
02	1	TRUCK DUMP HOPPER WITH BELT FEEDER
03	1	STOCK PILE RADIAL STACKER 100' R. @ 18'x 53'-0" hl.
04	1	PLANT FEED HOPPER WITH 4x8 GRATE
05	1	FEED CONV. W/BELT SCALE @ 10' x 175'-0" x 30'-0" hl.
06	1	SCREEN XXXX
07	1	CRUSHER XXXX
08	1	FINES CONV. W/BELT SCALE @ 18' x128'-6" x 44'-0" hl.
09	1	COURSE CONV. W/BELT SCALE @ 18' x128'-6" x 44'-0" hl.
10	1	ALLAIR JIG 3x(4x8)
11	1	MMC CONTROL ROOM
12	1	3 COMPARTMENT BAGHOUSE WITH 3 FANS, 3 STACKS
13	1	PRODUCT CONV. #1
14	2	BLENDING HOPPER
15	1	ALT. RADIAL STACKER @ 18' x100'-0" x 30'-0" hl.
16	1	BY PRODUCT CONV. #1
17	1	BY PRODUCT RADIAL STACKER @ 18' x 65'-0"x20'-0" hl.
18	1	PRODUCT CONV. #2
19	1	PRODUCT SILO 200 TONS
20	1	ALT. TRUCK LOAD HOPPER
21	1	TERRA TEST UNIT


NOTES:
SURFACE CONTOUR IN SW CORNER
MAY BE MODIFIED DURING CONSTRUCTION
TO DIRECT RUNOFF TOWARDS SE CORNER.

EARTHEN BERMS WILL BE CONSTRUCTED AROUND
SITE TO DIRECT SURFACE RUNOFF WATER
TO SEDIMENT POND.





Legend

 Roads

 Covol



Location Map

2000 0 2000 4000 Feet



Drawn By: K. Nash

Designed By: J.T. Paluso

EIS Environmental &
Engineering Consulting
31 North Main Street
Helper, Utah 84526

APPENDIX B

**NOI-STORM WATER DISCHARGES ASSOCIATED
WITH CONSTRUCTION ACTIVITIES**

STATE OF UTAH, DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER QUALITY
288 North 1460 West, P.O. Box 144870, Salt Lake City, Utah 84114-4870 (801)538-6146

NOI

Notice of Intent (NOI) for Storm Water Discharges Associated with Construction Activity Under the UPDES General Permit
No. UTR100000. SEE REVERSE FOR INSTRUCTIONS

Submission of this Notice of Intent constitutes notice that the party(s) identified in Section I of this form intends to be authorized by UPDES General Permit No. UTR100000 issued for storm water discharges associated with construction activity in the State of Utah. Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit. ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM.

I. OPERATOR INFORMATION

Name (Main operator): COVOL ENGINEERED FUELS, LC

Phone: 801-984-9400

Address: 10653 S. RIVERFRONT PARKWAY

Status of Owner/Operator: P

City: SOUTH JORDAN State: UT Zip: 84095

Contact Person: KEITH THOMPSON

Phone: 801-984-9400

Name (1st Co-permittee): _____

Phone: _____

Address: _____

Status of Owner/Operator: _____

City: _____ State: _____ Zip: _____

Contact Person: _____

Phone: _____

Name (2nd Co-permittee): _____

Phone: _____

Address: _____

Status of Owner/Operator: _____

City: _____ State: _____ Zip: _____

Contact Person: _____

Phone: _____

Name (3rd Co-permittee): COVOL ENGINEERED FUELS, LC

Phone: _____

Address: _____

Status of Owner/Operator: _____

City: _____ State: _____ Zip: _____

Contact Person: _____

Phone: _____

Please copy this form if you have more co-permittees than what is allowed on this form.

II. FACILITY SITE / LOCATION INFORMATION

Name: COVOL ENGINEERED FUELS, LC

Project No. (if any): _____

Is the facility located
on Indian Lands?

(Y or N) N

Address: 1865 WEST RIDGE ROAD County: CARBON

City: WELLINGTON State: UT Zip: 84542

Latitude: 39 31 27 Longitude: 110 45 58

III. SITE ACTIVITY INFORMATION

Municipal Separate Storm Sewer System (MS4) Operator Name: _____

Receiving Water Body: PRICE RIVER

How far to the nearest water body? 2 MILES

List the Number of any other UPDES permits at the site: _____

IV. TYPE OF CONSTRUCTION (Check all that apply)

1. ☐ Residential Landscaping 2. ☐ Commercial 3. ☒ Industrial 4. ☐ Road 5. ☐ Bridge 6. ☐ Utility 7. ☐ Contouring,

8. ☐ Other (Please list) _____

V. BEST MANAGEMENT PRACTICES

Identify proposed Best Management Practices (BMPs) to reduce pollutants in storm water discharges: (Check all that apply)

1. ☐ Silt Fences 2. ☒ Sediment Pond 3. ☐ Seeding/Preservation of Vegetation 4. ☐ Mulching/Geotextiles 5. ☐ Check Dams 6. ☒ Structural Controls (Berms, Ditches, etc.)

7. ☐ Other (Please list) _____

VI. ADDITIONAL INFORMATION REQUIRED

prepared for this site and is to the best of my knowledge in Compliance with State

Project Start Date: 01/01/05 Completion Date: 08/01/05 Estimated Area to be Disturbed: 1.5 (in Acres): _____ and/or Local Sediment and Erosion Plans and Requirements. (Y or N) Y (A pollution prevention plan is required to be on hand before submittal of the NOI)

VII. CERTIFICATION: I certify under penalty of law that I have read and understand the Part I.B. eligibility requirements for coverage under the general permit for storm water discharges from construction activities. I further certify that to the best of my knowledge, all discharges and BMPs that have been scheduled and detailed in a pollution prevention plan will satisfy requirements of Part I.B., and Part III. of this permit. I understand that continued coverage under this storm water general permit is contingent upon maintaining eligibility as provided for in Part I.B. I also certify under penalty of law that this document and all attachments were prepared under the direction or supervision of those who have placed their signature below, in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name (of responsible person for the main operator from first page):

Date:

KEITH THOMPSON - V.P. COVOL ENGINEERED FUELS, LC

Signature: _____

Print Name (of responsible person for the 1st co-permittee from first page):

Date:

Signature: _____

Print Name (of responsible person for the 2nd co-permittee from first page):

Date:

Signature: _____

Print Name (of responsible person for 3rd co-permittee from first page):

Date:

Signature: _____

Amount of Permit Fee Enclosed: \$100.00

APPENDIX C

**NOI-MULTI-SECTOR GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES**

STATE OF UTAH, DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER QUALITY
288 North 1460 West, P.O. Box 144870, Salt Lake City, Utah 84114-4870 (801)538-6146

NOI

Notice of Intent (NOI) for Coverage Under the UPDES General Multi-Sector Storm Water Permit for Discharges Associated with Industrial Activity, Permit No. UTR000000.
INSTRUCTIONS ON BACK PAGE

Submission of this Notice of Intent constitutes notice that the party identified in Section I of this form intends to be authorized by a UPDES permit issued for storm water discharges associated with industrial activity in the State of Utah. Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit. ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM. A different NOI form is provided for construction activities disturbing over 5 acres.

I. FACILITY OPERATOR INFORMATION

Name: COVOL ENGINEERED FUELS, LC

Phone: 801-984-9400

Address: 10653 S. RIVERFRONT PARKWAY

Status of Owner/Operator: P

City: SOUTH JORDAN State: UT Zip: 84095

Facility Contact Person: KEITH THOMPSON

Phone: 801-984-9400

Facility Contact Person Title: VP COVOL ENGINEERED FUELS, LC

II. FACILITY SITE/LOCATION INFORMATION

Is the facility located
on Indian Lands?
(Y or N) N

Name: COVOL ENGINEERED FUELS, LC

Address: 1865 WEST RIDGE ROAD County: CARBON

City: WELLINGTON State: UT Zip: 84542

Latitude: 39.3127 Longitude: 110.4558 Quarter: SE
Section: 14 Township: 155 Range: 10E

Site Contact Person: KEITH THOMPSON

Phone: 801-984-9400

Site Contact Person Title: C E O

III. SITE ACTIVITY INFORMATION

Name of Municipality which Operates the Storm Sewer System: _____

Receiving Water Body: PRICE RIVER

NO

Is there existing quantitative storm water discharge data?
S

Is the facility required to do analytical monitoring? (See permit conditions Part V. and Sector monitoring requirements.)

Yes

Is the facility required to do visual monitoring? (See permit conditions near the end of applicable Sector(s); Appendix A to AD)

Yes

Is the facility required to submit monitoring data or retain it on site?

(Submit) ☒ (Retain on site) ☒

Is This a New Facility, or is it an Existing Facility?

(New) ☒ (Existing) ☐

If This is an Existing Facility, and the Start-up Date was After Oct. 1992, Please Fill in the Start-up Month: Month (Jan, Feb., etc.): _____ Year: _____

SIC or Designated Activity Code: Primary: 12 2nd: _____ 3rd: _____ 4th: _____

If You Have Other Existing UPDES Permits, Enter Permit #'s: _____

IV. SECTOR IDENTIFICATION: The General Multi-Sector Permit covers all industrial activity that is required by law to be covered by a storm water permit. On the following pages the sectors are listed with a description of the industrial activity that is covered by that sector. Please check each sector that covers industrial activities which occur at your site. The sector covered in Appendix AD is the catch-all sector and should only be used if positively no other sector covers your industrial activity. If you should select AD, please call the Storm Water Coordinator at DWQ to discuss the need for choosing Sector AD (Non-Classified Facilities).

IV. SECTOR IDENTIFICATION: The General Multi-Sector Permit covers all industrial activity that is required by law to be covered by a storm water permit. On the following pages the sectors are listed with a description of the industrial activity that is covered by that sector. Please check each sector that covers industrial activities which occur at your site. The sector covered in Appendix AD is the catch-all sector and should only be used if positively no other sector covers your industrial activity. If you should select AD, please call the Storm Water Coordinator at DWQ to discuss the need for choosing Sector AD (Non-Classified Facilities).

☐ **A. Timber Products Facilities** -- establishments [generally classified under Standard Industrial Classification (SIC) Major Group 24] that are engaged in cutting timber and pulpwood, merchant sawmills, lath mills, shingle mills, cooperage stock mills, planing mills, and plywood and veneer mills engaged in producing lumber and wood basic materials; and establishments engaged in wood preserving or in manufacturing finished articles made entirely of wood or related materials, except for wood kitchen cabinet manufacturers (SIC Code 2434), which are addressed under sector W.

☐ **B. Paper and Allied Products Manufacturing Facilities** -- facilities engaged in the manufacture of pulps from wood and other cellulose fibers and from rags; the manufacture of paper and paperboard into converted products, such as paper coated off the paper machine, paper bags, paper boxes and envelopes; and establishments primarily engaged in manufacturing bags of plastic film and sheet. These facilities are commonly identified by Standard Industrial Classification (SIC) Major Group 26.

☐ **C. Chemical and Allied Products Manufacturing Facilities** -- 1) Basic industrial inorganic chemicals (including SIC 281), 2) Plastic materials and synthetic resins, synthetic rubbers, and cellulosic and other humanmade fibers, except glass (including SIC 282), 3) Soap and other detergents and in producing glycerin from vegetable and animal fats and oils; specialty cleaning, polishing, and sanitation preparations; surface active preparations used as emulsifiers, wetting agents, and finishing agents, including sulfonated oils; and perfumes, cosmetics, and other toilet preparations (including SIC 284), 4) Paints (in paste and ready-mixed form); varnishes; lacquers; enamels and shellac; putties, wood fillers, and sealers; paint and varnish removers; paint brush cleaners; and allied paint products (including SIC 285), 5) Industrial organic chemicals (including SIC 286), 6) Nitrogenous and phosphatic basic fertilizers, mixed fertilizer, pesticides, and other agricultural chemicals (including SIC 287), 7) Industrial and household adhesives, glues, caulking compounds, sealants, and linoleum, tile, and rubber cements from vegetable, animal, or synthetic plastics materials; explosives; printing ink, including gravure ink, screen process ink, and lithographic; miscellaneous chemical preparations, such as fatty acids, essential oils, gelatin (except vegetable), sizes, bluing, laundry soaps, writing and stamp pad ink, industrial compounds, such as boiler and heat insulating compounds, metal, oil, and water treatment compounds, waterproofing compounds, and chemical supplies for foundries (including facilities with SIC 289), 8) Ink and paints, including china painting enamels, india ink, drawing ink, platinum paints for burnt wood or leather work, paints for china painting, artists' paints and artists' water colors (SIC 3952, limited to those listed; for others see sector Y.), 9) Medicinal chemicals and pharmaceutical products, including the grading grinding and milling of botanicals (including SIC 283).

☐ **D. Asphalt Paving, Roofing Materials, and Lubricant Manufacturing Facilities** -- 1) facilities engaged in manufacturing asphalt paving and roofing materials, including those facilities commonly identified by Standard Industrial Classification (SIC) codes 2951 and 2952, 2) portable asphalt plant facilities (also commonly identified by SIC code 2951), 3) facilities engaged in manufacturing lubricating oils and greases, including those facilities classified as SIC code 2992. Not covered are: 1) petroleum refining facilities, including those that manufacture asphalt or asphalt products and that are classified as SIC code 2911 (see sector I.), 2) oil recycling facilities (see sector N.), and 3) fats and oils rendering (see sector U.).

☐ **E. Glass, Clay, Cement, Concrete, and Gypsum Product Manufacturing Facilities** -- manufacturing flat, pressed, or blown glass or glass containers; manufacturing hydraulic cement; manufacturing clay products including tile and brick; manufacturing of pottery and porcelain electrical supplies; manufacturing concrete products; manufacturing gypsum products; nonclay refractories; and grinding or otherwise treating minerals and earths. This section generally includes the following types of manufacturing operations: flat glass, (SIC code 3211); glass containers, (SIC code 3221); pressed and blown glass, not elsewhere classified, (SIC code 3229); glass products made of purchased glass (SIC code 3231) where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products or industrial machinery are exposed to storm water; hydraulic cement, (SIC code 3241); brick and structural clay tile, (SIC code 3251); ceramic wall and floor tile, (SIC code 3253); clay refractories, (SIC code 3255); structural clay products not elsewhere classified (SIC code 3259); vitreous china plumbing fixtures, and china and earthen ware settings and bathroom accessories, (SIC code 3261); vitreous china table and kitchen articles (SIC code 3262); fine earthenware table and kitchen articles (SIC code 3263); porcelain electrical supplies (SIC code 3264); pottery products, (SIC code 3269); concrete block and brick, (SIC code 3271); concrete products, except block and brick (SIC code 3272); ready-mix concrete, (SIC code 3273); lime (SIC code 3274); gypsum products, (SIC code 3275); cut stone and stone products (SIC code 3281); abrasive products (SIC code 3291); asbestos products (SIC code 3292); minerals and earths, ground or otherwise treated, (SIC code 3295); mineral wool (SIC code 3296); nonclay refractories, (SIC code 3297); and nonmetallic mineral products not elsewhere classified (SIC code 3299).

☐ **F. Primary Metals Facilities** -- coking operations, sintering plants, blast furnaces, smelting operations, rolling mills, casting operations, heat treating, extruding, drawing, or forging of all types of ferrous and nonferrous metals, scrap, and ore. Coverage includes the following types of facilities: 1) Steel works, blast furnaces, and rolling and finishing mills including: steel wire drawing and steel nails and spikes; cold-rolled steel sheet, strip, and bars; and steel pipes and tubes (SIC code 331), 2) Iron and steel foundries, including: gray and ductile iron, malleable iron, steel investment, and steel foundries not elsewhere classified (SIC code 332), 3) Primary smelting and refining of nonferrous metals, including: primary smelting and refining of copper, and primary production of aluminum (SIC code 333), 4) Secondary smelting and refining of nonferrous metals (SIC code 334), 5) Rolling, drawing, and extruding of nonferrous metals, including: rolling, drawing, and extruding of copper; rolling, drawing, and extruding of nonferrous metals, except copper and aluminum; and drawing and insulating of nonferrous wire (SIC code 335), 6) Nonferrous foundries (castings), including: aluminum die-castings, nonferrous die-castings, except aluminum, aluminum foundries, copper foundries, and nonferrous foundries, except copper and aluminum (SIC code 336), 7) Miscellaneous primary metal products, not elsewhere classified, including: metal heat treating, and primary metal products, not elsewhere classified (SIC code 339).

☐ **G. Metal Mines (Ore Mining and Dressing)** -- active and inactive metal mining and ore dressing facilities [Standard Industrial Classification (SIC) Major Group 10] if the storm water has come into contact with, or is contaminated by, any overburden, raw material, intermediate product, finished product, byproduct, or waste product located on the site of the operation. SIC Major Group 10 includes establishments primarily engaged in mining, developing mines, or exploring for metallic minerals (ores) and also includes all ore dressing and beneficiating operations, whether performed at mills operated in conjunction with the mines served or at mills, such as custom mills, operated separately. For the purposes of this part of the permit, the term "metal mining" includes all ore mining and/or dressing and beneficiating operations, whether performed at mills operated in conjunction with the mines served or at mills, such as custom mills, operated separately. All storm water discharges from inactive metal mining facilities and the storm water discharges from the following areas of active, and temporarily inactive, metal mining facilities are the only discharges covered by this section of the permit: topsoil piles; offsite haul/access roads if off active area; onsite haul roads if not constructed of waste rock or if spent ore and mine water is not used for dust control; runoff from tailings dams/dikes when not constructed of waste rock/tailings and no process fluids are present; concentration building, if no contact with material piles; mill site, if no contact with material piles; chemical storage area; docking facility, if no excessive contact with waste product; explosive storage; reclaimed areas released from reclamation bonds prior to December 17, 1990; and partially/inadequately reclaimed areas or areas not released from reclamation bonds. Not covered are: 1) active metal mining facilities that are subject to the effluent limitation guidelines for the Ore Mining and Dressing Point Source Category (40 CFR Part 440). Coverage under this permit does not include adit drainage or contaminated springs or seeps at active facilities, temporarily inactive facilities, or inactive facilities. Also see permit conditions, Limitations on Coverage, Part I.B.3. 2) Storm water discharges associated with an industrial activity that the Executive Secretary has determined to be, or may reasonably be expected to be, contributing to a violation of a water quality standard, 3) Storm water discharges associated with industrial activity from inactive mining operations occurring on Federal lands where an operator cannot be identified.

☐ **H. Coal Mines and Coal Mine-Related Facilities** -- coal mining-related areas (SIC Major Group 12) if they are not subject to effluent limitations guidelines under 40 CFR Part 434. Not covered are: inactive mining activities occurring on Federal lands where an operator cannot be identified.

☐ **I. Oil and Gas Extraction Facilities** -- oil and gas facilities listed under Standard Industrial Classification (SIC) Major Group 13 which are required to be permitted under UAC R317-8-3.8(2)(a)3. These include oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with any overburden raw material, intermediate products, finished products, by-products or waste products located

on the site of such operations." Industries in SIC Major Group 13 include the extraction and production of crude oil, natural gas, oil sands and shale; the production of hydrocarbon liquids and natural gas from coal; and associated oil field service, supply and repair industries. This section also covers petroleum refineries listed under SIC code 2911. Contaminated storm water discharges from petroleum refining or drilling operations that are subject to nationally established BAT or BPT guidelines found at 40 CFR 419 and 435 respectively are not included. [Note that areas eligible for coverage at petroleum refineries will be very limited because the term "contaminated runoff," as defined under 40 CFR 419.11, includes "... runoff which comes into contact with any raw material, intermediate product, finished product, by-product or waste product located on petroleum refinery property." Areas at petroleum refineries which may be eligible for permit coverage, provided discharges from these areas are not co-mingled with "contaminated runoff," include: vehicle and equipment storage, maintenance and refueling areas. Most areas refineries will not be eligible for coverage including: raw material, intermediate product, by-product, waste material, chemical, and material storage areas; loading and unloading areas; transmission pipelines, and, processing areas.] Not covered are: inactive oil and gas operations occurring on Federal lands where an operator cannot be identified are not covered by this permit.

☐ J. Mineral Mining and Processing Facilities – active and inactive mineral mining and processing facilities (generally identified by Standard Industrial Classification (SIC) Major Group 14). Not covered are: 1) facilities associated with industrial activity which are subject to an existing effluent limitation guideline (40 CFR Part 436), 2) inactive mineral mining activities occurring on Federal lands where an operator cannot be identified are not eligible for coverage under this permit.

☐ K. Hazardous Waste Treatment Storage or Disposal Facilities – facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under subtitle C of RCRA. [Disposal facilities that have been properly closed and capped, and have no significant materials exposed to storm water, are considered inactive and do not require permits (UAC R317-8-3.8(6)(c)).]

☐ L. Landfills and Land Application Sites – waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes. Open dumps are solid waste disposal units that are not in compliance with State/Federal criteria established under RCRA Subtitle D. Not covered are: inactive landfills, land application sites, and open dumps occurring on Federal lands where an operator cannot be identified.

☐ M. Automobile Salvage Yards – facilities engaged in dismantling or wrecking used motor vehicles for parts recycling or resale and for scrap (SIC Code 5015).

☐ N. Scrap Recycling and Waste Recycling Facilities – facilities that are engaged in the processing, reclaiming and wholesale distribution of scrap and waste materials such as ferrous and nonferrous metals, paper, plastic, cardboard, glass, animal hides (these types of activities are typically identified as SIC code 5093). Facilities that are engaged in reclaiming and recycling liquid wastes such as used oil, antifreeze, mineral spirits, and industrial solvents (also identified as SIC code 5093) are also covered under this section. Separate permit requirements have been established for recycling facilities that only receive source-separated recyclable materials primarily from non-industrial and residential sources (also identified as SIC 5093) (e.g., common consumer products including paper, newspaper, glass, cardboard, plastic containers, aluminum and tin cans). This includes recycling facilities commonly referred to as material recovery facilities (MRF).

☐ O. Steam Electric Power Generating Facilities – steam electric power generating facilities, including coal handling areas. Non-storm water discharges subject to effluent limitations guidelines are not covered by this permit. Storm water discharges from coal pile runoff subject to numeric limitations are eligible for coverage under this permit, but are subject to the limitations established by 40 CFR 423. Not covered are: ancillary facilities such as fleet centers, gas turbine stations, and substations that are not contiguous to a steam electric power generating facility are not covered by this permit. Heat capture co-generation facilities are not covered by this permit; however, dual fuel co-generation facilities are included.

☐ P. Vehicle Maintenance or Equipment Cleaning areas at Motor Freight Transportation Facilities, Passenger Transportation Facilities, Petroleum Bulk Oil Stations and Terminals, the United States Postal Service, or Railroad Transportation Facilities – ground transportation facilities and rail transportation facilities (generally identified by Standard Industrial Classification (SIC) codes 40, 41, 42, 43, and 5171), that have vehicle and equipment maintenance shops (vehicle and equipment rehabilitation, mechanical repairs, painting, fueling and lubrication) and/or equipment cleaning operations are eligible for coverage under this section. Also covered under this section are facilities found under SIC code 4221-4225 (public warehousing and storage) that do not have vehicle and equipment maintenance shops and/or equipment cleaning operations but have areas (exclusive of access roads and rail lines) where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products or industrial machinery are exposed to storm water.

☐ Q. Vehicle Maintenance Areas and Equipment Cleaning Areas of Water Transportation Facilities – water transportation facilities that have vehicle (vessel) maintenance shops and/or equipment cleaning operations. The water transportation industry includes facilities engaged in foreign or domestic transport of freight or passengers in deep sea or inland waters; marine cargo handling operations; ferry operations; towing and tugboat services; and marinas (facilities commonly identified by SIC code Major Group 44).

☐ R. Ship or Boat Building and Repair Yards – facilities engaged in ship building and repairing and boat building and repairing (SIC code 373).

☐ S. Vehicle Maintenance Areas, Equipment Cleaning Areas or Airport Deicing Operations located at Air Transportation Facilities – establishments and/or facilities including airports, air terminals, air carriers, flying fields, and establishments engaged in servicing or maintaining airports and/or aircraft (generally classified under Standard Industrial Classification (SIC) code 45) which have vehicle maintenance shops, material handling facilities, equipment cleaning operations or airport and/or aircraft deicing/anti-icing operations. For the purpose of this permit, the term "deicing" is defined as the process to remove frost, snow, or ice and "anti-icing" is the process which prevents the accumulation of frost, snow, or ice. Only those portions of the facility or establishment that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, or deicing/anti-icing operations are addressed under this section.

☐ T. Wastewater Treatment Works – treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including lands dedicated to the disposal of sewage sludge that are located within the confines of the facility with a design flow of 1.0 MGD or more, or required to have an approved pretreatment program under 40 CFR Part 403.

☐ U. Food and Kindred Products Facilities – food and kindred products processing facilities (commonly identified by Standard Industrial Classification (SIC) code 20), including: meat products; dairy products; canned, frozen and preserved fruits, vegetables, and food specialties; grain mill products; bakery products; sugar and confectionery products; fats and oils; beverages; and miscellaneous food preparations and kindred products and tobacco products manufacturing (SIC Code 21), except for storm water discharges identified under paragraph L.B.3. where industrial plant yards; material handling sites; refuse sites; sites used for application or disposal of process wastewaters; sites used for storage and maintenance of material handling equipment; sites used for residential treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; and storage areas for raw material and intermediate and finished products are exposed to storm water and areas where industrial activity has taken place in the past and significant materials remain. For the purposes of this paragraph, material handling activities include the storage, loading, and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product, or waste product.

- ☐ **V. Textile Mills, Apparel and other Fabric Product Manufacturing Facilities** -- Textile Mill Products, of and regarding facilities and establishments engaged in the preparation of fiber and subsequent manufacturing of yarn, thread, braids, twine, and cordage, the manufacturing of broad woven fabrics, narrow woven fabrics, knit fabrics, and carpets and rugs from yarn; processes involved in the dyeing and finishing of fibers, yarn fabrics, and knit apparel; the integrated manufacturing of knit apparel and other finished articles of yarn; the manufacturing of felt goods (wool), lace goods, nonwoven fabrics; miscellaneous textiles, and other apparel products (generally described by SIC codes 22 and 23). This section also covers facilities engaged in manufacturing finished leather and artificial leather products (SIC 31, except 3111).
- ☐ **W. Furniture and Fixture Manufacturing Facilities** -- facilities involved in the manufacturing of: wood kitchen cabinets (generally described by SIC code 2434); household furniture (generally described by SIC code 251); office furniture (generally described by SIC code 252); public buildings and related furniture (generally described by SIC code 253); partitions, shelving, lockers, and office and store fixtures (generally described by SIC code 254); and miscellaneous furniture and fixtures (generally described by SIC code 259).
- ☐ **X. Printing and Publishing Facilities** -- newspaper, periodical, and book publishing or publishing and printing (SIC Codes 2711-2731); book printing (SIC Code 2732); miscellaneous publishing (SIC Code 2741); commercial printing, lithographic (SIC Code 2752); commercial printing, gravure (SIC Code 2754); commercial printing, not elsewhere classified (SIC Code 2759); manifold business forms, greeting cards, bankbooks, looseleaf binders and devices, bookbinding and related work, and typesetting (SIC Codes 2761-2791); and, plate making and related services (SIC Code 2796).
- ☐ **Y. Rubber and Miscellaneous Plastic Product Manufacturing Facilities** -- rubber and miscellaneous plastic products manufacturing facilities (SIC major group 30) and miscellaneous manufacturing industries, except jewelry, silverware, and plated ware (SIC major group 39, except 391).
- ☐ **Z. Leather Tanning and Finishing Facilities** -- leather tanning, currying and finishing (commonly identified by Standard Industrial Classification (SIC) code 3111). Discharges from facilities that make fertilizer solely from leather scraps and leather dust are also covered under this section.
- ☐ **AA. Facilities That Manufacture Metal Products including Jewelry, Silverware and Plated Ware** -- fabricated metals industry listed below, except for electrical related industries: fabricated metal products, except machinery and transportation equipment, SIC 34, and jewelry, silverware, and plated ware (SIC Code 391).
- ☐ **AB. Facilities That Manufacture Transportation Equipment, Industrial or Commercial Machinery** -- transportation equipment, industrial or commercial machinery manufacturing facilities (commonly described by SIC Major Group 35 except SIC 357, and SIC Major Group 37, except SIC 373). Common activities include: industrial plant yards; material handling sites; refuse sites; sites used for application or disposal of process wastewaters; sites used for storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas for raw material and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water.
- ☐ **AC. Facilities That Manufacture Electronic and Electrical Equipment and Components, Photographic and Optical Goods** -- facilities that manufacture: electronic and other electrical equipment and components, except computer equipment (SIC major group 36); measuring, analyzing, and controlling instruments; photographic, medical and optical goods; watches and clocks (SIC major group 38) and computer and office equipment (SIC code 357).
- ☐ **AD. Non-Classified Facilities** -- facilities that meet the definition of storm water associated with industrial activity (UAC R317-8-3.8(6)(c) & (d), except for construction activities as defined under UAC R317-8-3.8(6)(d)10.) but, can not be classified in another industrial sector (i.e., sectors A to AC), and are not excluded from permit coverage elsewhere in this permit, or, the Executive Secretary has designated as needing a storm water permit under UAC R317-8-3.8(1)(a)5. Should conditions at a facility covered by this section change and industrial activities in another section(s) contained in sectors A to AC apply, the facility shall comply with any and all applicable monitoring and pollution prevention plan requirements of the other section(s) in addition to those contained in this section. The monitoring and pollution prevention plan terms and conditions of this permit are additive for industrial activities being conducted at the same industrial facility (co-located industrial activities). The operator of the facility shall determine which monitoring and pollution prevention plan section(s) of this permit (if any) are applicable to the facility.

V. CERTIFICATION: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name: KEITH THOMPSON

Date:

Signature:

Amount of Permit Fee Enclosed: \$ 200.00

APPENDIX D

GUIDELINES ASSOCIATED WITH STORM WATER DISCHARGES

Guidelines Associated with Storm Water Discharge from Construction Activities

Prevent a mixture of non storm water discharge with construction storm water discharge.

All discharges under this permit must be made up entirely of storm water, unless the mixed discharge meets UPDES standards which include TDS, TSS, pH, Total Iron. Water discharges may not contain detergents, oils, greases, toxic or hazardous materials, or solvents.

If storm water containing any of the following components is released from the site, the plant manager or foreman must be **notified immediately**.

Detergents
Oils
Greases
Toxic or hazardous materials, or
Solvents
Concrete
Asphalt

The plant manager must immediately notify the Division of Water Quality of the release, if the release is **in excess of established reportable quantities**.

(801) 538-6146 OR (801) 536-4123 (24 Hour Number)

Erosion and Sediment Controls

Erosion and Sediment Controls must be constructed and maintained during construction activities.

Sediment will be removed at a sufficient frequency to minimize offsite impacts.

Sediment will be removed from berms and ponds when the designed capacity has been reduced by 50%.

Stabilization Practices

Preserve existing vegetation.

Incorporate seeding, mulching, geotextiles, and other appropriate measures to stabilize disturbed soils.

Divert flows from exposed soils with silt fences, earth dikes, swales, sediment traps or basins.

Inspections

Qualified personnel will inspect disturbed areas of the construction site at least once every fourteen days (14), before anticipated storm events and within 24 hours of a storm event that is 0.5 inches or greater. Unless site is in an **arid period**, then inspections shall be conducted at least **once every month**.

Inspections shall include:

~~Drainage Systems~~

~~Sediment Control Measures~~

~~Erosion~~

~~Offsite Sediment Tracking by Vehicles~~

Inspection Reports will include:

Inspectors Name, Date of Inspection, Major Observations,
Actions Taken to Repair Sediment Structures, Incidents of Non
Compliance

Reports will be retained for three years (3) after the completion of the construction project.

APPENDIX E

**NOT-NOTICE OF TERMINATION FOR STORM WATER DISCHARGES
ASSOCIATED WITH CONSTRUCTION ACTIVITY**

STATE OF UTAH, DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER QUALITY
288 North 1460 West, P.O. Box 144870, Salt Lake City, Utah 84114-4870

NOT

Notice of Termination (NOT) for Storm Water Discharges Associated with Construction Activity
Under the UPDES General Permit No. UTR100000. SEE REVERSE FOR INSTRUCTIONS

Submission of this Notice of Termination constitutes notice that the operator identified in Section II of this form is no longer authorized to discharge storm water associated with industrial activity under the UPDES program. ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM.

I. Permit Information

UPDES Storm Water General Permit Number: UTR101090

Check Here if You are No Longer the Operator of the Facility: ☒ Check Here if the Storm Water Discharge is Being Terminated:

II. Facility Operator Information

Name: TERRA SYSTEMS INC

Phone: 435-637-2470

Address: P. O. BOX 1673

City: PRICE State: UT Zip: 84501

III. Facility Site/Location Information

Name: TERRA SYSTEMS INC

Address: 1865 WEST RIDGE ROAD County: CARBON

City: WELLINGTON State: UT Zip: 84542

Latitude: 39 31 27 Longitude: 110 45 58

IV. Certification: I certify under penalty of law that either: a) all storm water discharges associated with construction activity from the portion of the identified facility where I was an operator have ceased or have been eliminated; or b) I am no longer an operator at the construction site and a new operator has assumed operational control for those portions of the construction site where I previously had operational control. I understand that by submitting this notice of termination, I am no longer authorized to discharge storm water associated with construction activity under this general permit, and that discharging pollutants in storm water associated with construction activity to waters of the State is unlawful under the State of Utah Water Quality Act where the discharge is not authorized by a UPDES permit. I also understand that the submittal of this notice of termination does not release an operator from liability for any violations of this permit or the Water Quality Act.

Print Name:

CLAYTON TIMOTHY

Signature:

For Terra Systems, Inc.
Clayton Timothy

Date:

12/30/04



January 16, 2006

Utah Department of Environmental Quality
Division of Water Quality
PO Box 144870
Salt Lake City, Utah 84114-4870

RE: Storm Water Discharge Monitoring Reports for Covol Engineered Fuels, LC
UPDES MSGP Permit No. UTR000685

To Whom It May Concern:

The above referenced permit for the Covol Engineered Fuels, LC facility in Wellington, Utah requires the following:

- Submittal of a Storm water Discharge Monitoring Report (SWDMR) for coal pile runoff by January 28, 2006
- Submittal of a SWDMR for quarterly discharge monitoring during the second and fourth year of the permit by March 31.

During calendar year 2005, the CEF facility was under construction and construction is presently continuing, with completion scheduled in the first or second quarter of this year. As such, this facility is still covered by the UPDES General Construction Storm Water Permit and no SWDMR is required.

Since the CEF facility is still covered by UPDES Construction General Permit No. UTR101180, no industrial storm water discharge samples were taken during the fourth year of the MSGP (2005)¹. There is a coal pile onsite, but because the facility is still under construction, the coal pile runoff sampling requirements from the MSGP do not yet apply. Further, there was no storm water runoff from this pile during 2005. Therefore, the SWDMR for coal pile runoff is not required and is not being submitted (it would be void of substantive information).

In 2006, once construction has been completed and industrial activity commenced at the facility, the requisite coal pile runoff monitoring requirements will be fulfilled if there is any discharge. The corresponding SWDMR will be submitted by January 28, 2007. If there are any questions or concerns, please call Steve Van Ootegham, Regional Environmental Manager, at (801) 984-3777.

Sincerely,

A handwritten signature in black ink, appearing to read 'Keith Thompson', written over a horizontal line.

Keith Thompson
Vice President, Covol Engineered Fuels, LC

cc: Mike Gipson/CEF
Steve Van Ootegham/Headwaters Incorporated

¹ Permit No. UTR101180 is valid through March 3, 2006.

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN

**COVOL ENGINEERED FUELS, LC
1865 WEST RIDGE ROAD
WELLINGTON, UT 84542**

ORIGINAL DATE OF PLAN/P.E. CERTIFICATION: December 2005

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FIGURE 3-1 Facility Site Map

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1. FACILITY OWNER AND OPERATOR

A. Corporate Headquarters, Address, and Telephone:

Headwaters Incorporated
10653 So. River Front Parkway, Suite 300
Salt Lake City, Utah 84095
(801) 984-9400

B. Facility Operator, Address, and Telephone:

Covol Engineered Fuels, LC
1865 West Ridge Road
Wellington, UT 84542
Telephone: (435) 613-1631

2. FACILITY CONTACT(S):

<u>Name</u>	<u>Title</u>	<u>Telephone</u>
Mike Gipson	Plant Manager	(435) 613-1631

3. FACILITY CONFORMANCE [112.7(a)]:

A. Conformance [112.7 (a)(1)]

The facility intends to comply with the requirements of this Section. Details regarding the compliance with the requirements of Section 112.7 (a) are contained in this SPCC Plan.

The facility is new as of November 2005 and has not experienced any leaks or spill events. Should the facility experience spills they will be documented, reported according to applicable regulations and discussed in future updates of this plan.

B. Deviation from Requirements [112.7 (a)(2)]

The Facility does not plan to deviate from the requirements of Section 112.7 (a); therefore no variance is being requested.

C. Facility Description [112.7 (a)(3)]

Covol Engineered Fuels, LC operates a coal cleaning facility at 1865 West Ridge Road, Wellington, Utah. The facility produces coal-related products for commercial sale.

The facility has an area for feedstock handling and storage, an area containing coal cleaning equipment and an area for finished product storage. The facility is fenced with locked gate access.

In order to facilitate processing operations an aboveground storage tank within a secondary containment structure has been installed at a centralized location. Equipment maintenance needs will be taken care of offsite. Used oil will not be accumulated on site. There are no

underground oil storage tanks (UST) at this facility. The overall facility layout is shown in Figure 3-1, Facility Site Map, including the petroleum product storage area.

Facility Product Storage Inventory (Typical Volumes) [112.7(a)(3)(i)]:

ABOVEGROUND STORAGE

<u>Tank ID No.</u>	<u>Contents</u>	<u>Volume (gallons)</u>
Tank No. 1	Diesel Fuel	8,500
Drums/Containers (number varies)	Oil and Grease	5 to 55 per drum/container
Total Fixed Storage Volume:		8,500 gallons
Variable Storage Volume:		Up to 500 gallons
Total Storage Volume:		9,000 gallons

Discharge Prevention Measures [112.7(a)(3)(ii)]

A secondary containment has been constructed for the single diesel storage tank and another for the storage of various sized drums and containers, to prevent any spilled petroleum products in storage from reaching water of the United States. In addition, berms, culverts, ditches and detention ponds constructed to control stormwater runoff would also prevent oil from leaving the site. See Section 13 for loading and unloading procedures.

Discharge and Drainage Controls [112.7(a)(3)(iii)]

The nearest water body is the Price River, approximately two miles east of the Facility.

Berms, drainage ditches, and culverts direct operational area drainage into detention ponds. These detention ponds have the potential to receive and hold operational drainage and an unexpected release of oil from equipment or the oil storage areas. Figure 3-1 shows the facility layout and surface drainage direction of flow.

The Facility has been designed whereby drainage from undisturbed watershed areas is diverted away from the operational area with the use of berms, culverts, and diversion ditches.

Countermeasures [112.7(a)(3)(iv)]

Ideally, spill prevention measures would prevent a spill from occurring at the facility. However, a spill may still occur. Using the procedures listed below minor spills that are confined to small areas will be cleaned up as part of the ordinary operating procedure

Procedures to follow in the event of a spill:

- Terminate source of flow - plugging and/or closing valve(s).
- Confine spill - berming, and trenching.
- Prevent from entering waterway.
- Notify Plant Manager or Plant Supervisor.
- Clean up - Absorb liquid with absorptive material before removing contaminated soil and other media.

- Disposal - Dispose of absorbent material and contaminated media only after conferring with the Plant Manager.
- Report – Complete the facility Spill Reporting Form (Appendix E), report clean-up activities identify cause and determine remedial action. Evaluate whether or not the spill must be reported to EPA Region 8 (for two or more spills in excess of 42 gallons each within a 12 month period or a single spill in excess of 1,000 gallons).

Direct Countermeasures

Direct countermeasures outlined below have been designed to mitigate the possibility of oil reaching a waterway. Employees will undertake these countermeasures immediately and especially when there is danger of oil entering a waterway or in case of a spill of significant size. Countermeasures include the necessary action to terminate the source of the flow of oil.

Dig a trench or dike, build a berm, use appropriate oil-absorbent materials or do whatever else is necessary to confine the area or to stop oil from entering a waterway. After this is accomplished, immediately initiate the reporting procedure. After the countermeasures and reporting functions have been accomplished, cleanup will begin as detailed below:

Who to Contact for Cleanup

In the case of small spill less than 10 gallons and confined to the facility area, the cleanup operation will be conducted by Plant employees under the direction of the Plant Manager.

In the case of a spill over 10 gallons, the Plant Manager and the Regional Environmental Manager must be notified. If the Plant Manager decides outside help is required the Plant Manager can contact one of the following contactors.

Nielson Construction
750 East Ridge Road
Price, Utah 84501
(435) 636-8514

Rocky Mountain Excavation
6065 East North Coal Creek Road
Wellington, Utah 84542
(435) 637-9322

Cleanup Materials and Equipment

Spill control equipment at the facility includes absorbent pads and booms, granular absorbent material, shovels, and various earth moving equipment. A spill kit containing absorbent materials will be placed adjacent to the containment area.

Clean-up Procedures

For a spill on gravel or soil, it may be possible to absorb some of the liquid with absorptive material before removing the gravel or soil. All contaminated gravel or soil must be removed and discarded properly.

A spill on solid surfaces may be collected with absorptive materials and then cleaned thoroughly with rags. Sufficient quantities of absorbent material will be maintained adjacent to the containment area and other cleanup equipment will be available at the facility to accomplish cleanup.

Disposal of Contaminated Materials [112.7(a)(3)(v)]

When cleaning up diesel or oil, all spent cleanup material such as rags, absorbents, blankets, booms, and etc., must be disposed of in accordance with company's approved procedures.

Contact List and Phone Numbers [112.7(a)(3)(vi)]

When a petroleum spill in excess of 10 gallons is detected the following company personnel will be notified:

- Plant Manager, (435) 613-1631
- Plant Supervisor, (435) 613-1631
- Steven Van Ootegham, Regional Environmental Manager,
(801) 984-3777

Reportable Spill Under 110 or 112

According to SPCC rule Section 112.4 (a) facilities that store, transfer, use or consume oil and oil productions (112.1(b) are accountable to report spills or releases of oil that enters into or upon the navigable water of the United States or adjoining shorelines in harmful quantities.

A spill becomes reportable to the appropriate regulatory agency whenever a SPCC regulated facility has a:

(1) discharge of more than 1,000 U.S. gallons of oil in a single discharge as described in 112.1(b)

or

(2) discharge of more than 42 gallons of oil as described in 112.1(b) in each of 2 discharges within any 12-month period.

The following agencies will be verbally notified in the event of a spill of oil that may be harmful as defined in 40 CFR 110 and 112. Verbal notification to the agencies must be made within 24 hours of a legally reportable spill. In Utah, legally reportable spills are reported to:

U.S. Environmental Protection Agency
Denver Place, Suite 1300
999 18th Street
Denver, CO 80202-2413
Permits and Technical Support Branch
(800) 227-8917

Utah Division of Environmental Quality
Division of Environmental Response and Remediation
168 North 1950 West
P.O. Box 144840
Salt Lake City, UT 84114-4840
(801) 536-4123

These agencies may require follow-up written reports depending on the magnitude and quantity of the spill. The Regional Environmental Manager will be responsible for coordinating agency(s) notification and correspondence with regulatory agency(s) following an incident.

The National Response Center requires notification if a discharge of oil causes a discoloration or "sheen" on the surface of water, violates water quality standards or causes a sludge or emulsion to be deposited beneath the surface or on the adjoining shorelines.

National Response Center (800) 424-8802 or (202)267-2675

A spill is defined as a discharge of oil in harmful quantities into navigable water of the United States or adjoining shorelines. (40CFR 112.2) Harmful Quantity means any discharge of oil into or upon waters of the United States that may be harmful to the public health or welfare of the United State, including discharges of oil that violate applicable water quality standards or cause a film or sheen upon or discoloration of the surface of the water or adjoining shoreline or cause sludges or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines. (40 CFR 110.3).

Not Reportable Under 110 or 112

Small spills not reportable under 40 CFR 110 and 112 will be cleaned up as noted above.

D. Reporting Procedure [112.7 (a)(4)]

A spill becomes reportable to the appropriate regulatory agency whenever a SPCC regulated facility has a:

- (1) discharge of more than 1,000 U.S. gallons of oil in a single discharge as described in 112.1(b)
or
- (2) discharge of more than 42 gallons of oil as described in 112.1(b) in each of 2 discharges within any 12-month period.

When reporting discharges, the following information should be provided to the agencies:

The Company name, address and phone number.
Responsible company/person, including their address and telephone number.
Date, time, and type of incident (e.g., discharge or fire).
Quantity and type of material discharged.

Address of facility.
Waterways affected, if any, including amount of hazardous substance reaching water.
Description of circumstances causing discharge.
Description of methods used to stop and contain spill.
Describe actions used to remove and mitigate the effects of the discharge.
Description and estimate of any third party damages.
If applicable, any injuries associated with spill.
Procedures, methods, and precautions instituted to prevent a recurrence.
And the estimated quantity and disposition of recovered materials, if any.
Other pertinent information specific to the discharge.

A copy of the reporting form is provided in Appendix E.

E. Response Plan [112.7 (a)(5)]

The procedures to be used when responding to a spill are contained in Section 3 and Appendix E.

4. POTENTIAL SPILL PREDICTIONS, VOLUMES, RATES, AND CONTROL [112.7 (b)]

The potential for a spill or releases to leave the property is slight due to the redundant controls and the size of the facility relative to the volumes stored on site and the porous nature of the soils at the site. The initial control for Tank #1 is the tank's secondary containment. The initial control for the various oil containers stored at the facility is the secondary containment. Backup containment exists in the berms, diversion/drainage ditches, and detention ponds at the facility. The location and layout of facility's prevention measures are shown on Figure 3-1.

POTENTIAL SPILL PREDICTIONS, VOLUMES, RATES AND CONTROL [112.7(b)]

Source	#1 Diesel Tank	#2 Various Containers (5 to 55 gallons)
Type of Failure	Rupture, Hose, Valve Failure	Rupture/puncture
Volume (Gallons)	8,500	55
Rate (Gallons/hour)	Variable – event dependent	Variable – event dependent
Direction of Flow	Containment or Southwest	Containment or Southwest
Net Secondary Containment (Gallons)	9,084	67.3

5. DRAINAGE CONTROL DIVERSION STRUCTURES AND CONTAINMENT [112.7 (c)]

The diesel storage tank and other oil containers are enclosed within a steel secondary containment structure. The containment structures are capable of holding the volume of the largest oil container within each structure, plus the 25-year, 24-hour storm precipitation event for uncovered containment areas (approximately 2.2 inches of precipitation). The containment structures will have drains with locking valves.

6. DRAINAGE CONTROL [112.8(b)]

A. Facility Drainage Systems and Equipment

The initial control for the diesel tank is its secondary containment. Backup containment exists in the berms, diversion/drainage ditches, and detention ponds for the facilities. The tank containment has no connections to a sewer system.

To maintain containment capacity, when no oil sheen is present, the operator will manually drain or pump water from the secondary containment to one of the detention ponds. The required information associated with each drainage event will be recorded. When oil sheen is present the content of the containment structure will be collected by a licensed recycling or disposal company.

Surface water drainage reports to one of the two detention ponds, which provides control and treatment prior to release from the site. When oil is present, it will be collected with absorbent materials (pads, booms, etc.) or skimmed off for disposal or recycling at a licensed facility.

B. Final Discharge of Drainage

Prior to discharge, runoff from the facility reports to one of the detention ponds. The ponds are equipped with a spillway, which acts as an outlet control structure to provide detention time prior to final discharge. Drainage features are shown on Figure 3-1.

The detention ponds are checked periodically during normal operations and during storm events. If present, oil is removed with absorbent booms or pads or skimmed off for disposal or recycling at a licensed facility.

7. BULK STORAGE TANKS AND SECONDARY CONTAINMENT [112.8(c)]

A. Tank Compatibility

The storage tank is constructed of carbon steel with painted exterior and is compatible with the material stored inside. The tank conforms to all applicable building and fire codes.

B. Containment Volume for Storage Tanks

The containment structure is capable of containing the volume in the largest tank/container within the containment area plus the 25-year, 24-hour storm precipitation event. The net volume for secondary containment structures is shown in Table 4-1. Calculation sheets for the net volume of the secondary containment are contained in Appendix A.

Secondary containment protection for service trucks, equipment, fueling facilities, loading/unloading areas are provided by berms, drainage/diversion ditches, and detention ponds.

C. Containment Area Inspection and Drainage of Stormwater

When required prior to manually draining or pumping accumulated water from the secondary containment, the operator will perform a careful visual examination of accumulated water for oil or oil sheen. Further requirements for draining of secondary containment areas by the operators are contained on the Drainage Discharge Report Form in Appendix B. Record keeping requirements for these forms are discussed in Section 6, Part E.

The ponds are all constructed and operated as described above. The ponds are inspected periodically and during storm events. If oil is present, it is removed with the use of absorbent materials (pads, booms, etc.) or skimmed off for off-site disposal.

D. Corrosion Protection of Buried Metallic Storage Tanks

Not applicable - No underground storage tanks or buried oil conveyance piping.

E. Corrosion Protection of Partially Buried Metallic Storage Tanks

Not applicable - No partially buried storage tanks.

F. Aboveground Tank Periodic Inspection

Users/operators visually observe tanks, supports, and foundations for signs of deterioration and/or leaks which might cause a release or accumulation of hydrocarbons within the tank's secondary containment. Concerns are reported to the Plant Manager or Plant Supervisor. Visible leaks from tank seams, rivets, or bolts that may lead to accumulation of oil within the secondary containment are repaired.

Fifty-five gallon drums and five-gallon cans on-site are observed for excessive external corrosion on a regular basis. Formal inspection of drums includes moving the drum so that all exterior surfaces can be observed. Any drum with rust blisters or flakes of rust is replaced.

Fixed storage tanks and secondary containment structures are inspected annually following the Facility Inspection Checklist contained in Appendix C. Record keeping requirements for these forms are discussed in Section 10.

G. Control of Leakage Through Internal Heating Coils

Not applicable.

H. Good Engineering Practices

Each container to be filled is inspected manually to ensure sufficient volume prior to the start of the filling process. The supplier and/or facility personnel will monitor the tank and gauges during the entire filling process of bulk storage containers to ensure it is not over filled (40CFR112.8(c)(8)(iv)).

I. Observation of Disposal Facilities for Effluent Discharge

Secondary containment structures are routinely observed during operation and are inspected annually. Any oil present is removed prior to manual draining or pumping by using absorbent materials (pads, booms, etc.) or skimmed for off-site disposal.

System failure will require shut down by supplier or facility operator until the problem can be corrected. A release during loading/unloading or from a service truck will drain to the detention ponds where it will be collected and removed as discussed in Section 6, Part A.

J. Visible Oil Leak Corrections from Tank Seams and Gaskets

Visible oil leaks from tank seams, rivets, or bolts that may lead to accumulation of oil within the secondary containment is reported to the Plant Manager or Plant Supervisor and repaired by plant personnel. If repairs cannot be made immediately, temporary repairs are performed until permanent repairs are made. Plant personnel will clean up oil released following completion of the repairs.

K. Appropriate Positions of Mobile Oil Storage Tanks

Not Applicable.

8. FACILITY TRANSFER OPERATIONS [112.8(d)]

Not Applicable. No buried or aboveground pipeline.

A. Buried Piping Installation Protection and Examination

Not Applicable.

B. Not-In-Service and Standby Service Terminal Connections

Loading and unloading terminal connections to storage tanks are capped when not in use. There are no out of service lines at this facility.

C. Pipe Supports Design

Steel pipe supports, where required, are anchored to the localized secondary containment floors and walls. Pipelines are short and contained within the containment structure. This eliminates the need for expansion loops.

D. Aboveground Valve and Pipeline Examination

Users/operators visually observe piping and valves for signs of deterioration and/or leaks when in use. Any sign of deterioration or leakage that might cause a release or accumulation of oil inside a containment area is reported to the Plant Manager or Plant Supervisor. Visible leaks at flanges, valves, or fittings, which may lead to accumulation of oil in the secondary containment, are promptly repaired.

Valves are inspected annually by following the Facility Inspection Checklist contained in Appendix C. Record keeping requirements for these forms are discussed in Section 10.

E. Vehicle Traffic

The tank is aboveground, anchored, and contained within a secondary containment structure. The tank location and containment assist in protecting the tank from vehicular traffic.

9. PRACTICALITY OF INSTALLATION OF REQUIRED STRUCTURES [112.7(d)]

Secondary containment is practical and currently in use for all storage tanks and oil containers at this facility.

10. INSPECTIONS, TESTS AND RECORDS [112.7(e)]

In addition to annual inspections, the storage tanks and corresponding secondary containment systems containing petroleum product are inspected by an engineer every five years in conjunction with the review and re-certification of this SPCC plan. Inspection of the loading/unloading facilities and security features are also included. These inspections are documented and signed by the inspector on the Facility Inspection Checklist. Blank checklists are contained in Appendix C and completed checklists are maintained for three years in Appendix F.

11. PERSONNEL TRAINING AND SPILL PREVENTION PROCEDURES [112.7(f)]

A. Personnel instructions [112.7(f)(1)]

All new employees are trained in spill prevention and are made familiar with the SPCC Plan as part of their initial training. Regular refresher safety training also addresses spill prevention and response. Training records for personnel are maintained at the facility.

B. Designated Person Accountable for Spill Prevention [112.7(f)(2)]

The Plant Manager is the designated responsible person accountable for spill prevention.

C. Spill Prevention Briefings [112.7(f)(3)]

Spill prevention issues are regular topics at safety meetings, thus fulfilling the requirement of annual spill prevention briefings. In the event of a spill, spill prevention policies would be reviewed following the spill response. The spill response process will be reviewed and suggestions for improvement discussed.

12. SITE SECURITY [112.7(g)]

A. Fencing [112.7(g)(1)]

The Facility is fenced and gated. The gate to the facility remains open during operating hours and shut and locked when the facility is not in operation.

B. Flow Valves Locked [112.7(g)(2)]

All drain valves permitting an outward flow of fuel from storage tanks and local secondary containment drains have on-off type valves that remain securely locked in the closed position when not in use.

C. Starter Controls Locked [112.7(g)(3)]

The facility has a fixed tank storage area with a fueling station for equipment. The fueling station has manual locks to control fueling.

D. Pipeline Loading/Unloading Connections Securely Capped [112.7(g)(4)]

All loading and unloading connections on storage tanks are capped with threaded or cam type caps. These caps are removed only during filling or draining operations and are replaced at the end of the operation.

E. Lighting Adequate to Detect Spills [112.7(g)(5)]

The facility has yard lights sufficient to illuminate storage, maintenance, and fueling areas. These yard lights are sufficient to observe any release, vandalism, or equipment problems during nighttime operations.

13. FACILITY LOADING/UNLOADING OPERATIONS [112.7(h)]

Loading/unloading procedures for supplier tank trucks meet or exceed the minimum requirements and regulations of the Department of Transportation as set forth in 40 CFR 112.7. No rail tank cars are used at this facility.

Though the loading/unloading area does not have localized secondary containment the area is provided secondary containment by the berms, drainage/diversion ditches, and detention ponds that protect the operational facility as previously discussed in Sections 3 and 6.

A. Secondary Containment for Vehicles Adequate [112.7(h)(1)]

The tank truck loading/unloading areas are unpaved. These areas do not have localized secondary containment features. However, all areas drain to a detention pond. This pond has sufficient volume to store the entire contents of the largest single compartment of a tanker truck servicing the facility (approximately 10,000 gallons) or piece of equipment being fueled (approximately 175 gallons) except in the event of a 25-year storm event. In the event of a 25-year 24-hour storm, absorbent booms will be deployed at the pond overflow spillway to provide capture and additional storage for oil products.

B. Warning System for Vehicles [112.7(h)(2)]

Warning and instructions for loading/unloading are posted on all tank truck, including instructions for disconnecting all flexible transfer lines. Supplier personnel are present during all loading/unloading of storage tanks. Operating personnel are present during all fueling

operations for equipment. These personnel assure all lines are properly connected and disconnected as necessary.

**C. Vehicles Examined for Lowermost Drainage Outlets Before Leaving
[112.7(h)(3)]**

Prior to the departure of any tank truck from the loading/unloading areas, the lower most drain and all outlets of the tank truck will be checked for leakage. If necessary, valves and fittings will be tightened, adjusted, or replaced to prevent leakage during transit. Supplier personnel present during the loading/unloading operation will ensure these procedures are followed.

14. BRITTLE FRACTURE EVALUATION [112.7(i)]

If a tank at the facility is repaired, modified, experiences a change in service or fails, the tank will be evaluated for the risk of brittle fracture or other means of failure. If a risk of failure exists appropriate action will be taken.

15. ADDITIONAL REQUIREMENTS FROM STATE RULES AND REGULATIONS [112.7(j)]

The State of Utah does not have any additional regulations related to oil spill prevention beyond that which are currently found in the Federal Regulations. This SPCC Plan has been prepared based on the Federal Regulations and as such it addresses all pertinent Utah Regulations.

Professional Engineer Certification:

I hereby certify:

I am familiar with the requirements of 40 CFR Part 112:

- I have visited and examined the facility;
- The plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of part 40 CFR 112;
- Procedures for required inspections and testing have been established; and the plan is adequate for the facility.

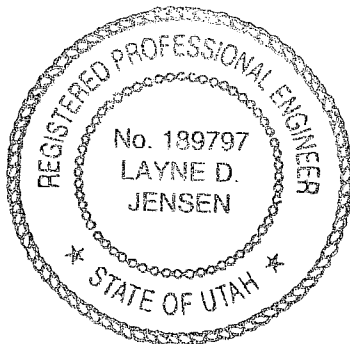
Layne Jensen
Printed Name of Registered
Professional Engineer

Layne Jensen
Signature of Registered
Professional Engineer

12-16-05
Date

189797
Registration Number

(Seal)



**SPILL PREVENTION CONTROL AND COUNTERMEASURE COMPLIANCE
PLAN REVIEW RECORD**

In accordance with 40 CFR 112.5(b), a review and evaluation of this SPCC Plan is conducted at least once every five years. As a result of this review and evaluation, Covol Engineered Fuels, LC will amend the SPCC Plan within six months of the review if the plan is ineffective. Any amendment to the SPCC Plan shall be certified by a Professional Engineer within six months after a change in the facility design, construction, operation, or maintenance occurs which materially affects the facility's potential for the discharge of oil into or upon the navigable water of the United States or adjoining shorelines.

Review Dates

Signature

1. No later than:
December 2010*

2. No later than:
December 2015*

3. No later than:
December 2020*

4. No later than:
December 2025*

- SPCC Plan reviewed, amended and certified by a Registered Professional Engineer per 40 CFR 112.3 (d).

CERTIFICATION

Facility:

Covol Engineered Fuels, LC
1865 West Ridge Road
Wellington, UT 84542
Telephone: (435) 613-1631

Owner:


Headwaters Incorporated
10653 So. River Front Parkway
South Jordan, UT 84095
Telephone: (801) 984-9400

Management Approval:

This Spill Prevention Control and Countermeasure Plan (SPCC) was prepared to satisfy the requirements of 40 CFR Part 112. I approve of this plan and have the authority to commit the necessary resources to fully implement this Plan, which will be put into practice as described. Covol Engineered Fuels, LC is committed to the prevention of discharges of oil to navigable waters and the environment, and maintains the highest standards for spill prevention control and countermeasures through regular review, updating, and implementation of this Spill Prevention Control and Countermeasure Plan.

R. Keith Thompson
Printed Name

Vice President
Title


Signature

19 Dec 05
Date

FIGURES

APPENDIX A

SECONDARY CONTAINMENT VOLUME CALCULATIONS

TANK #1
SECONDARY CONTAINMENT CALCULATIONS

The tank is mounted on skids and set inside the secondary containment.

Tank Dimensions: Length = 25 feet 8.5 inches
 Diameter = 7 feet 6 inches
Tank Volume: 8,500 gallons = 1136.3 cubic feet

The secondary containment for this tank is a pre-fabricated rectangular steel tank. The top of the tank is open allowing storm water to accumulate. A 2" gate valve can be used to drain rain water from the secondary containment.

Interior Secondary Containment Dimensions: Length = 35'-0"
 Width = 10'-0"
 Height = 3'-8" feet

Total Secondary Containment Volume = 35' x 10' x 3.67' = 1280.5 cubic feet

Items Reducing Secondary Containment Capacity

Tank Skid and Support Volume:

The tank is mounted on two 6" channels 31' long with 4" channel laterally every 5' with a length of 2.5'. A 2.5' long section of 6" channel is also on both ends of the skids.

Area of 6" channel = 0.0266 square feet
Area of 4" channel = 0.0148 square feet
Length of 6" channel = (2)31' + (2)2.5' = 67'
Length of 4" channel = (5)2.5' = 12.5'
Volume of skid = 67' * 0.0266 ft² + 12.5' * 0.0148 ft² = 1.97 cubic feet

Rainfall Volume: 25-year 24-hour storm event = 2.2 inches

$2.2'' / (12 \text{ inches/ft}) \times 35' \times 10' = 64.17 \text{ cubic feet}$

Net Secondary Containment

Net Secondary Containment = 1280.5 – 1.97 – 64.17 = 1214.36 cubic feet = 9084 gal.

9,084 gal. > 8,500 gal.

Excess Secondary Containment = 1214.36 ft³ – 1136.30 ft³ = 78.06 ft³ = 584 gal.

Therefore, the available secondary containment volume can contain the entire contents of the tank and the stormwater from a 25-year 24-hour storm event of 2.2 inches.

DRUM STORAGE AREA SECONDARY CONTAINMENT CALCULATIONS

The Drum Storage Area may hold up to 500 gallons in a variety of 55-gallon drums or smaller containers. The minimum dimensions of the secondary containment will be calculated based on the assumption that up to (10) 55-gallon drums will be stored within the secondary containment.

Maximum Spill Volume = 55 gallons = 7.4 cubic feet

Assume 6.25 square feet of storage space needed for each 24-inch diameter drum.

Total area needed = 10 x 6.25 square feet = 62.5 square feet

Containment Dimensions: 7.5 feet x 8.5 feet x 7 inches

Containment volume = 7.5' x 8.5' x 0.583' = 37.2 cubic feet

Rainfall volume = 2.2"/(12 inches/feet) x 7.5 x 8.5 = 11.7 cubic feet

Area of drum = (3.14159)(1 ft)² = 3.14159 square feet

Drum volume below top of containment = (9 drums)(3.14 ft²)(0.583') = 16.5 cubic feet

Note: 9 drums are used in this calculation because it is assumed that one of the 10 drums has failed and is the source of the spilled oil.

Drum volume = 55 gallons = 7.4 cubic feet

Total containment required = 7.4 ft³ + 16.5 ft³ + 11.7 ft³ = 35.6 cubic feet

37.2 cubic feet > 35.6 cubic feet

Net Secondary Containment = 37.2 ft³ - 16.5 ft³ - 11.7 ft³ = 9.0 cubic feet
= 67.3 gallons

Therefore, adequate secondary containment capacity exists to hold the 25-year 24-hour storm event and the spill of a 55 gallon drums while the maximum number of barrels are being stored in the containment structure.

CONTAINMENT CALCULATIONS FOR POTENTIAL SPILL DURING LOADING/UNLOADING

The largest tanker truck to be used to deliver fuel to the site has a capacity of 10,000 gallons (1,337 cubic feet). As shown on figure 3-1 the site drains to one of two sediment ponds depending on location.

SW Pond Capacity = 31,000 cubic feet

SE Pond Capacity = 52,000 cubic feet

Either of the above ponds have the capacity to easily contain the maximum spill from loading/unloading operations.

APPENDIX B
DRAINAGE DISCHARGE REPORT FORM

DRAINAGE DISCHARGE REPORT FORM

Operator Name:
Area Designation:
Drained: Yes ____ No ____ Pumped: Yes ____ No ____
Date: _____ Time: _____
Quantity of Water Discharged (Gallons): _____ Appearance of Water at Time of Pumping or Discharge:
Signature of Operator:

APPENDIX C
FACILITY INSPECTION CHECKLIST

FACILITY INSPECTION CHECKLIST

Date: _____ Time: _____

Inspector: _____

Drainage – Ponds/Ditches

- _____ Oil sheen on water surface or runoff
- _____ Erosion or leaking embankment/slopes
- _____ Visible oil sheen in containment area
- _____ Do containment areas require pumping or draining

Security

- _____ Fence and gates intact
- _____ Gate lock(s) in working order
- _____ Facility lighting working
- _____ Pump starter controls locked when not in use

Storage Tank(s)

- _____ Tank checked for signs of leakage
- _____ Tank condition good (no rusting, corrosion, pitting)
- _____ Bolts, rivets, or seams damaged
- _____ Tank foundation intact
- _____ Gauges working properly
- _____ Vents not obstructed
- _____ Containment walls are intact with no visible gaps
- _____ Valves, flanges & gaskets leak-free

Loading/Unloading Area

- _____ Standing water in area capped
- _____ Signs posted (Warning, Diesel, etc.)
- _____ Connections are capped or blank-flanged
- _____ Leaks in or damage to hoses
- _____ Leaks at valves, flanged, fittings
- _____ Out-of-service pipes/hoses

Remarks/Recommendations:

R = Repair or Adjustment Required

APPENDIX D

**CERTIFICATION OF THE APPLICABILITY
OF THE SUBSTANTIAL HARM CRITERIA CHECKLIST**

**CERTIFICATION OF THE APPLICABILITY
OF THE SUBSTANTIAL HARM CRITERIA CHECKLIST**

FACILITY NAME & ADDRESS: Covol Engineered Fuels, LC – Ridge Road Facility
1865 West Ridge Road, Wellington, Utah 84542

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?
Yes _____ No **X**
2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?
Yes _____ No **X**
3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the formula in Attachment C-III to this Appendix or a comparable formula¹) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife and sensitive environments, see Appendices I, II, and III to DOC/NOAA's "Guidance for Facility and Vessel Response Environments" (see Appendix E to this part, Section 13, for availability) and the applicable Area Contingency Plan.
Yes _____ No **X**
4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to this Appendix or a comparable formula¹) such that a discharge from the facility would shut down a public drinking water intake²?
Yes _____ No **X**
5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil discharge in an amount greater than or equal to 10,000 gallons within the last 5 years?
Yes _____ No **X**

¹ If a comparable formula is used, documentation of the reliability and analytical soundness of the comparable formula must be attached to this form.

² For the purposes of 40 CFR part 112, public drinking water intakes are analogous to public water systems as described at 40 CFR 143.2(c).

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Name (please type or print)

Signature

Title

Date

from 40 CFR 112 Appendix C, Attachment C-11

APPENDIX E

**SPILL COUNTERMEASURES PLAN, SPILL REPORTING PROCEDURES
AND SPILL REPORTING FORM**

APPENDIX E

SPILL REPORTING PROCEDURES

For the purpose of Oil Spill Reporting, the word "spill" is used to reference a "spill event" (as defined in 40 CFR 112.2), as well as any discharge, release, or leak of "oil" (as defined in 40 CFR 112.2).

The Spill Prevention Control and Countermeasures (SPCC) Plan for the Plant will be filed in the Plant Office. This plan identifies responsible personnel (names and telephone numbers), and steps to be taken for response and clean up, (refer to Section (c) below).

The following procedures should be followed in the event of a reportable spill of oil:

Proper reporting of a spill is very critical and must be performed carefully, accurately, and in a timely manner. Spills of 10 gallons or more are to be reported to the Plant Manager.

(i) When to Report

According to SPCC rule Section 112.4 (a) facilities that store, transfer, use or consume oil and oil productions (112.1(b) are accountable to report spills or releases of oil that enters into or upon the navigable water of the United States or adjoining shorelines in harmful quantities.

A spill becomes reportable to the appropriate regulatory agency whenever a SPCC regulated facility has a:

- (1) discharge of more than 1,000 U.S. gallons of oil in a single discharge as described in 112.1(b)
- or
- (2) discharge of more than 42 gallons of oil as described in 112.1(b) in each of two discharges within any 12-month period.

At any operation, any leakage or spill of oil that is in danger of leaving or has left company property must be reported immediately as described below.

(ii) How to Report and To Whom

(a) In-House Verbal Reporting

In the case of a small spill less than 10 gallons and confined to the facility area, the cleanup operation will be conducted by Plant employees under the direction of the Plant Manager.

In the case of a spill over 10 gallons, the Plant Manager and the Regional Environmental Manager must be notified.

After taking immediate action, the person discovering the spill must notify his/her supervisor, giving the information listed below.

1. The location of the spill, including type of terrain and nearest waters and anticipated movement of spilled material;
2. Into what medium(s) was the oil spilled (land, water, and/or air);
3. The time and date the spill was first observed;
4. Existing weather conditions;
5. The device or activity involved when the spill occurred;
6. The cause of the spill;
7. The material spilled;
8. The estimated quantity of the spill;
9. What actions have been taken to stop, contain and cleanup the spill;
10. The effectiveness of cleanup operations;
11. Report any health hazards and characteristics;
12. Any injuries or problems as a result of the spill;
13. Who responded to spill;
14. Is help needed?

The Plant Manager or Regional Environmental Manager will determine if the spill is reportable. The Regional Environmental Manager will notify the regulatory agencies concerning the spill as required.

(b) In-House Written Reporting

For a reportable spill outside of a containment area, a complete written report must be submitted to the Plant Manager as soon as possible (usually within 24 hours of the spill discovery). This written report must address the same components listed above, and any additional issues deemed important by operating personnel. The attached spill reporting form has been designed to facilitate such written reporting.

(c) Reporting to State and Federal Agencies

The Plant Manager, Regional Environmental Manager or designated representative will execute all reporting to the agencies.

1. Report immediately any "reportable" spill, as well as any spill that enters or threatens to enter any river, stream, canal, sewer, drain, lake or pond to the EPA, and to the State as detailed in the SPCC Plan.
2. Make necessary written reports to the State, EPA and other agencies as required. The U.S. Coast Guard National Response Center typically does not require a written report of the spill, although one may be requested in certain situations. Verbal notification to the agencies must be made as soon as possible, but not later than the first working day after the spill. In case the

Regional Environmental Manager cannot be contacted by the end of the first working day after the spill, the verbal report must be made by the Plant Manager or designated representative. Oil entering water or having the potential to do so requires immediate verbal notification. Immediate has been defined for this situation as "as soon as possible" after the spill. Telephone numbers of agencies requiring notification are listed below.

U.S. Environmental Protection Agency, Permits and Technical Support Branch
(800) 227-8917

Utah Division of Environmental Quality, Division of Environmental Response and Remediation (801) 536-4123

The National Response Center requires notification if a discharge of oil causes a discoloration or "sheen" on the surface of water, violates water quality standards or causes a sludge or emulsion to be deposited beneath the surface or on the adjoining shorelines.

National Response Center (800) 424-8802 or (202)267-2675

SPILL REPORTING FORM

1. Date of spill _____
 2. Person(s) to discover spill _____
 3. Location of spill, including type of terrain and nearest waters or drains _____

 4. Time spill was first observed _____
 5. Existing weather conditions _____
 6. Device or activity involved when spill occurred _____

 7. Cause of spill _____

 8. Material spilled _____
 9. Estimated quantity of spill (gallons) _____
 10. Persons and/or agencies notified _____

 11. When and what action was taken for countermeasures, control and cleanup _____

 12. Effectiveness of cleanup operations _____

- Date: _____, Person completing form: _____, Title: _____

APPENDIX F
COMPLETED FORMS AND CHECKLISTS

Exhibit 3
Photographs of COVOL Facility



Photo 1: COVOL Wellington Administrative Offices.



Photo 2: Processing facility entrance and security gate.



Photo 3: Raw material conveyor and radial stacker with telescoping chute to reduce emissions.



Photo 4: Feed hopper, conveyor, screen and hammermill – covered to reduce emissions.



Photo 5: Processing area from south showing low opacity and good air quality.



Photo 6: Coal separation and bag house dust control equipment.



Photo 7: Conveyors and stackers for final coal piles.



Photo 8: Internal roads consist of aggregate cover to minimize fugitive dust from mobile sources.



Photo 9: Water truck used daily for dust suppression on roads.



Photo 10: Water truck log showing water application records.



Photo 11: Storm Water managed on site using drainage channels and culvert pipes.



Photo 12: Silt fencing and straw bales used to complement drainage system and preclude sediment erosion off site.



Photo 13: Drainage pipe discharges water toward storm water detention basins on south side of facility.



Photo 14: Storm water detention basin at southeast area of facility.



Photo 15: Straw bales used per SWPP plan for erosion protection.



Photo 16: Drainage channel and additional straw bales (if needed) for erosion protection.



Photo 17: Solid waste management provided by local disposal company.

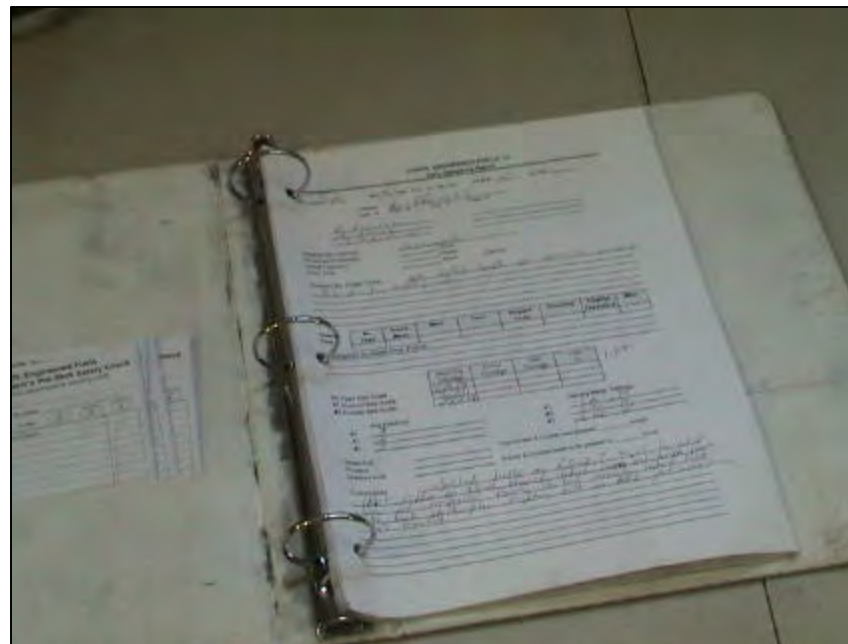


Photo 18: Weekly environmental inspection records maintained at facility.



Photo 19: Diesel fuel tank with secondary containment per site SPCC Plan.



Photo 20: Non-hazardous drum storage area for petroleum products with secondary containment per SPCC Plan.

Exhibit 4

*COVOL Environmental Policies and Procedures and
EMS Program Documents*

- 1. Headwaters Environmental Compliance Policies and
Procedures (ECPP)*
- 2. Operations Review Checklist*
- 3. Wellington – Enverity EMIS Configuration Document*

HEADWATERS INCORPORATED

Environmental Compliance Policies and Procedures

DRAFT

Headwaters Incorporated
10653 River Front Parkway, Suite 300
South Jordan, Utah 84095
Phone 801.984.9400 • Fax 801.984.9410

HEADWATERS INCORPORATED

Environmental Compliance Policies and Procedures

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 - Vision Statement – pg. 1
 - Purpose – pg. 1
 - Scope – pg. 1
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- III. Organization and Responsibilities – pg. 3
 - Environmental Staff – pg. 3
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SECTION I INTRODUCTION

VISION STATEMENT

Headwaters Incorporated creates value through environmentally responsible energy, chemical products and services, and developing innovative value-added opportunities for customers.

PURPOSE

The purpose of this document is to advance our Vision Statement through the adoption of a strong and thoughtful Environmental Compliance Policy statement for Headwaters Incorporated, and its subsidiaries and affiliates (the “company”). This document will also serve as a guide to the company’s environmental compliance group and facilities’ operations staffs by providing standard procedures and policies to help achieve company environmental standards and regulatory compliance.

SCOPE

This Policy expresses the commitment of, and provides a course of action for, the company to meet the environmental compliance standards applicable to all facets of its operations.

SECTION II

ENVIRONMENTAL COMPLIANCE POLICY

Headwaters Incorporated (“company”) is committed to providing environmental security and protection to our customers, to our employees, to the communities in which we operate, and to the environment. Each employee of the company will ensure that the appropriate standards of health, safety and environmental protection are observed and enforced.

The company will work closely with regulatory agencies and industry associations to develop and comply with sound environmental protection policies. When necessary, the company will act reasonably to implement new environmental protection initiatives. The company will utilize resources as an alternative to disposal wherever technically feasible and economically viable.

The company will periodically conduct environmental audits of its operations and will act promptly to provide corrective actions for any deficiencies that may be found. Our management will monitor each operating unit and will ensure that these principles are maintained.

The company’s Environmental Compliance Policy is demonstrated through:

Awareness: Exercising sound environmental practices and stewardship at all company-owned facilities and for all resources under our management.

Planning: Using environmental factors as a critical component in our planning and decision making processes and committing sufficient resources to implement effective environmental programs.

Education: Providing employees with sufficient knowledge to perform their work in an environmentally compliant and personally accountable manner. Allowing all employees to seek environmentally responsible solutions to all aspects of the company’s operations.

Research and Development: Engaging in research and development efforts to create technologies aimed at minimizing the environmental impacts of our customers and our own operations.

Communications: Maintaining open channels of communication with our customers, employees, government agencies, public officials, the media and the public to meet their information needs in regard to environmental issues.

Improvement: Evaluating our environmental performance through periodic reviews and audits to ensure that our conduct is consistent with these principles.

Participation: Participating with government agencies, professional organizations, and others in developing responsible regulations and standards affecting our activities in and impact on the environment.

Reducing Impacts: Optimizing operations in a manner that reduces any adverse environmental impacts caused by operations conducted at our facilities.

SECTION III

ORGANIZATION and RESPONSIBILITIES

The purpose of this section is to provide a description of the organization and responsibilities of the Headwaters Environmental Health and Safety (EH&S) Regulatory Compliance Section.

The company established its EH&S Regulatory Compliance Section to provide corporate support to ensure that facilities are operated in compliance with applicable laws, rules, regulations, policies, and procedures. The Regulatory Compliance Section and its Environmental Staff are within the Corporate Development and Administration Department. The Corporate Development and Administration Department in turn reports to the CEO of the Company. The Environmental Staff consists of a Corporate Environmental Manager that is supported by Regional Environmental Managers and an Administrative Assistant. As to environmental compliance matters, each Facility Manager has “dotted-line” reporting responsibility to the Corporate Environmental Manager.

Environmental Staff

The Corporate and Regional Environmental Managers’ primary responsibility is to facilitate implementation of corporate environmental policies and procedures, assist facility management in the identification and resolution of specific environmental compliance problems, and provide assurance to corporate management regarding the regulatory compliance status of its operating facilities. This responsibility is two-fold: one - to provide a compliance resource for Facility Managers; and, two - to provide corporate oversight for compliance issues. The duties of the Environmental Managers include: maintaining a working knowledge of applicable environmental regulations, and anticipating the effects of new and proposed regulations on facility operations; participating in facility management meetings where the impact of regulatory changes on facility operations is discussed and planned for; developing and implementing an environmental compliance and information management system for Headwaters’ facilities; assisting Facility Managers in resolving any regulatory compliance issues related to either governmental regulations or internal company policies and procedures; assuring that Headwaters’ facilities operating permits are maintained and current, including permit revisions and modifications; assisting in staff training on applicable regulations; and consulting with the Legal Department from time to time for assistance in completing the tasks listed above.

Individual business units within the company may employ local or sub-regional environmental support staff whose primary function is to coordinate the day-to-day environmental duties within one or more facilities. These coordinators serve as an extension of the Corporate Environmental Staff with respect to compliance management and are the liaisons between the Environmental Staff and the Facility Managers.

The Environmental Staff has administrative record keeping and documentation responsibilities that include maintenance of all facility permits, inspections, internal environmental monitoring records, and oversight of the Facility Managers efforts to maintain environmental operating records.

Facility Managers

Facility Managers are principally responsible for achieving and maintaining compliance with the applicable provisions of local (including tribal, where applicable), state and federal laws, rules and regulations, and company policies and procedures. Facility Managers are assisted by corporate staff and by various programs and policies developed and implemented by Headwaters' Regulatory Compliance Section, Corporate Development and Administration, Legal, Public Relations, and Human Resources Departments. Facility Managers have direct line reporting responsibility to their respective regional operations vice president and "dotted-line" reporting responsibility to the Corporate Environmental Manager. Facility Managers are responsible for management of daily regulatory compliance related tasks and maintaining environmental records, while still retaining authority and responsibility for all onsite policy and operating decisions that affect environmental compliance. Facility Managers have final responsibility for assuring the facility's conformance with federal, state and local environmental regulations as well as with the company's internal environmental and quality assurance procedures if, and where, they differ. They are responsible, with the assistance of the company's Environmental Staff and Legal Department, for securing and maintaining required environmental permits and licenses for the facility and for training facility personnel.

Laboratory Managers

Laboratory Managers that are primarily responsible for quality control/quality assurance matters, have "dotted-line" reporting responsibility to the Corporate Environmental Manager for applicable environmental programs that they are involved in. They are responsible for conformance with their facility's environmental permit requirements and ensuring that their facility handles only materials that are properly documented. Documentation for on-site material includes, but is not limited to, maintaining Material Safety Data Sheets ("MSDS") and making all required notifications under the Superfund Amendments and Reauthorization Act ("SARA") program.

Laboratory Managers of facilities that are primarily involved in research and development will need to have a constant and flexible relationship with the Environmental Staff. These Laboratory Managers will deal directly with a representative of the Environmental Staff on an as needed basis to ensure environmental compliance.

SECTION IV

CORPORATE ENVIRONMENTAL AUDIT PROGRAM

The purpose of this section is to describe the company's Corporate Environmental Audit Program.

Corporate Environmental Audit Program

An environmental compliance audit program has been established within the Environmental Services Compliance Group to monitor compliance efforts at the company's facilities. At the direction of the Legal Department, the company conducts both announced and unannounced environmental compliance audits at all company operating facilities on a periodic basis. The audits focus on compliance with applicable local (and tribal, if applicable) state and federal environmental laws and regulations as well as corporate policies and procedures. Audits also provide an opportunity to develop practical compliance solutions.

Audits

The company operates at approximately 200 facilities in the United States and Canada. Inasmuch as the operations at these facilities vary greatly, the company has developed a multi-leveled priority list for audits. Factors considered in determining the frequency of environmental audits include: potential environmental impact; levels of capital investment; environmental permits; levels of environmental regulatory requirements; size of operation; compliance history; size of staff; and visibility to clients and the public. Consequently, facilities that rate higher among the above listed factors are audited more frequently than other facilities.

Facilities that have the highest potential impact based on the above criteria are audited every twelve to eighteen months. The next level of facilities is audited every twenty-four months. Other facilities are not audited on a regular schedule, but are subject to random unannounced audits, and are contacted on a minimum triennial basis to assure the environmental program is being observed. Any facility requesting an audit will be audited in a timely manner.

All audits are conducted at the direction of the Legal Department, and, thus, subject to the attorney-client privilege. The focus of each audit is compliance and improvement. That is, to maintain compliance and to improve operations from an environmental standpoint.

SECTION V INFORMATION MANAGEMENT

The purpose of this section is to provide general guidance for managing regulatory compliance information at the company's facilities.

The management of regulatory compliance information is a key element of the company's goal of environmental compliance. Federal, state, and local (including tribal) regulations require that specific information on facility operations be available for inspection and review by regulatory personnel. In addition, this information can be used by facility personnel as a measure of operational efficiency and effectiveness.

The Facility Manager is responsible for maintaining environmental facility records including: permits, environmental plans and employee training, inspections, annual reports, emergency preparedness (SARA), MSDS, agency correspondence, monitoring/sampling and test data, spill reports, etc. It is the responsibility of the Facility Manager to set up an information management system to organize and document these critical environmental compliance records. This information management system must be compatible and consistent with any electronic environmental management system implemented by the company.

Any environmental documents required by permits or regulations are maintained for the minimum retention times required by those permits or regulations. If no retention time is specified, a minimum five-year retention period is observed. Duplicate files of permits and agency related materials are kept at corporate offices. If there is any question about requirements for records retention, contact the Corporate Environmental Manager.

Periodic inspection information, as well as operating records must be maintained either manually or electronically. In addition, permits, environmental compliance-related reports, training requirements and other environmental records must be an integral part of a facility's operation. The information management system used must be capable of calling to attention all routine environmental activities, scheduled maintenance for pollution abatement systems, and corrective actions or repairs that are required to maintain the facility's desired operational status and environmentally compliant condition.

SECTION VI

PLANNING and PERMITTING

The purpose of this section is to provide guidance for obtaining and maintaining required environmental permits.

The Regional or Corporate Environmental Manager must be contacted as soon as possible when planning any new construction project, physical change, or operational changes to or at existing facilities. Environmental permit preparation time and agency review time together are usually measured on the order of months. Environmental permits are usually required prior to breaking ground. ***Headwaters will not begin construction of a project unless all required environmental permits are in place.***

Many facilities where the company operates on the client's property may require less environmental program involvement by the company due to client ownership and/or contract conditions that assign environmental program implementation to the client (e.g. facilities that primarily market ash from a utility-owned silo may have less environmental program obligation than one owned by the company). Other facilities that are owned by the company, operated with the company's equipment, and heavily staffed with company personnel may be involved in several programs requiring environmental permits, record keeping and notification responsibilities. The following is a list of potential environmental programs that a facility could be involved in. The list is considered comprehensive for major federal and/or state programs:

- **Air Programs and Permits**
- **Water Program - National Pollutant Discharge Elimination System (NPDES) and Publicly Owned Treatment Works (POTW)**
- **Solid Waste Management and Disposal Programs and Permits**
- **SARA TITLE III – Community Right-To-Know (RTK; Tier II and Toxic Release Inventory (TRI) Reporting)**
- **Hazardous Wastes Programs and Permits**
- **Spill Prevention Control and Countermeasure (SPCC – oil spill plan)**
- **Universal Waste**
- **Used Oil**
- **Toxic Substances Control Act (TSCA) – for chemical manufacturing**

There are always unusual situations in which local or obscure permits or programs may be required, but this list is complete for practical purposes. Each of these programs is described below.

Air Programs and Permits

Any facility where there are company owned silo(s), stockpile(s), baghouse(s), research equipment, or other equipment that vents directly to the atmosphere and contains potential pollutants will likely require an air permit or documentation of an air permit exemption. Air permits may also be required for screening operations; however, states are variable as to whether

a permit is required or not – even in a situation where emissions are negligible. Whether or not an air permit is required, a facility is required to meet general air pollution requirements for fugitive dust (incidental, non-point source dust) and point sources.

Water Programs - NPDES (National Pollutant Discharge Elimination System) and Others

A General Storm Water Permit may be required at any facility at which coal, synfuel, or coal combustion products (“CCPs”) are processed, transferred, or stockpiled, or at which CCPs are otherwise exposed to the environment. Company manufacturing operations may also require a storm water permit if storm water leaves the facility. Facilities or operations performing a structural fill or other construction project that disturbs over one acre require a Construction storm water permit. Projects that alter a wetland a stream may also require a water permit. Each facility that has a general industrial or construction based storm water permit will also require a Storm Water Pollution Prevention Plan (SWPPP). Facilities with any type of storm water permit require annual storm water training of employees involved in activities that may pollute storm water. At utility or client property on which the company operates, a client’s water permit may be in place; the Facility Manager must check with the client to assure that all water program requirements are covered prior to operation.

Industrial wastewater discharges to waters of the United States, other than storm water, and/or to a POTW may also require a specific permit.

Solid Waste Management and Disposal Permits

These permits are generally required for structural fills, some transfer facilities and reclamation projects. Permits for clients’ landfills are generally held by the client. Very often, structural fills will also require NPDES storm water permits if they are greater than one acre. They may also require local land disturbance and/or erosion and sediment permits. At manufacturing facilities, care must be taken when managing rejected materials onsite, as this activity may trigger the requirement for a landfill permit. Contact the Environmental staff to discuss options on managing rejects, unused and unwanted raw materials, or unwanted finished products.

SARA TITLE III - Community Right-to-Know

This program is comprised of two components commonly referred to as Tier II Reporting and Toxic Release Inventory or TRI Reporting. Tier II Reporting is an emergency preparedness program and deals with notifications to appropriate state and local authorities when certain hazardous substances (not hazardous wastes) are present at a facility above threshold quantities. Hazardous substances are generally considered to be any material or substance that requires an MSDS. The normal threshold quantity for reporting is 10,000 pounds. In most instances, the only potential chemical/substances at a facility are diesel, gasoline, latex reagents, cement, concrete admixtures, aggregates and/or fly ash/bottom ash. At a utility site, the utility has most likely taken steps to meet the requirements of this program. Virtually all manufacturing sites are in this program. Terminal or transfer facility sites not on utility property generally need to make their own notification. Structural fills and mine reclamation sites need to be checked on a case-by-case basis with the Regional or Corporate Environmental Manager.

TRI Reporting is required for facilities that exceed a specific threshold for listed materials that are manufactured, processed, or otherwise used. The thresholds are 25,000 pounds, 25,000 pounds, and 10,000 pounds respectively. The list of materials that must be evaluated against these thresholds include heavy metals and organic compounds. Certain materials referred to as potentially bioaccumulative toxics or PBTs have much lower thresholds, including lead at 100 pounds and mercury at 10 pounds. These low thresholds impact facilities like block and stucco plants because of the lead and/or mercury inherent in the raw materials. Facilities that trigger one or more of these thresholds are required to complete and submit annual TRI Reports to EPA and their own state on forms provided by EPA. These reports provide a detailed account of any releases of the specific material to the environment through air, water, or solid waste disposal.

Hazardous Wastes

For most facilities, no hazardous wastes are handled at company facilities, with the exception of small quantities of spent solvents used with parts cleaners and solvent rags. Parts cleaners are usually exempt from the hazardous waste program if conditionally exempt small quantity generator (CESQG) status is maintained. Generation and accumulation of less than 220 pounds of hazardous waste per month, will maintain CESQG status. However, it is still important to maintain receipts and documentation of quantities guaranteed to verify quantities used. If the client handles hazardous wastes on site, be aware of additional record keeping requirements they may need. If you handle any other wastes, particularly in shops and garages, which you believe may be hazardous (toxic, reactive, ignitable or corrosive), or if you generate more than 220 pounds of hazardous waste per month contact the Regional or Corporate Environmental Manager immediately so that a hazardous waste program can be developed for your facility.

Universal Waste

A particular class of hazardous waste that is regulated and managed differently than all other hazardous wastes is referred to as "Universal Waste". Currently, Universal Wastes are limited to batteries, mercury thermostats, mercury-containing fluorescent light tubes, and pesticides. (In California this list is larger.) Industrial facilities that generate Universal Waste are classified as Small Quantity Handlers (SQH) if they accumulate less than 5,000 kilograms (11,000 pounds) of Universal Waste at any time or Large Quantity Handler (LQH) if they accumulate more than 5,000 kilograms (11,000 pounds) of Universal Waste at any time. SQH's, which include virtually all Headwaters facilities, are not required to notify EPA of Universal Waste Handling activities. Facilities with LQH status are required to notify EPA of Universal Waste Handling activities. SQH and LQH facilities are required to manage Universal Wastes as described in the Federal Regulations. In summary, for most facilities involved, this should include a small amount of additional recordkeeping, training and use of sound recycling practices for these particular items.

SPCC – (Spill Prevention Control and Countermeasure – oil spill prevention)

If more than 1,320 gallons of petroleum product (diesel fuel, hydraulic oils, gasoline, lube oils, etc.) is stored above ground in containers with a volume greater than or equal to 55 gallons, and that petroleum product has the potential to reach water (you cannot consider dikes, berms or any other manmade structure when you evaluate the potential to reach water) - then an SPCC Plan is required for the facility. If the petroleum product tanks and containers at the facility are under utility or client ownership or control, the client may maintain an existing Plan. Facility Managers must verify if products are covered by an existing Plan.

Used Oils

Used oil should either be handled by the client or by a heavy equipment servicer. If used oil cannot be handled in this manner, identify a reputable oil recycler and monitor all dealings with it. Oil recyclers are only allowed to perform certain activities with oils. Question and verify the legitimacy of any oil recycler. If you handle bulk quantities of used oil contact the Regional or Corporate Environmental Manager. All containers of Used Oil, regardless of size, must be labeled “Used Oil”.

Toxic Substances Control Act (TSCA)

The Toxic Substances Control Act (TSCA) of 1976 was enacted by Congress to give EPA the ability to track the 75,000 industrial chemicals currently produced or imported into the United States. EPA repeatedly screens these chemicals and can require reporting or testing of those that may pose an environmental or human-health hazard. EPA can ban the manufacture and import of those chemicals that pose an unreasonable risk.

Any facility contemplating manufacture or import of any chemical should contact the Corporate Environmental Staff immediately to determine pre-manufacture/import notification requirements and potential Inventory Update Reporting (IUR) requirements. As the company grows, facility managers must recognize whether they manufacture or import chemicals and actively enlist assistance from the Environmental Staff in determining if TSCA applies. Questions about TSCA should be directed to the Corporate or Regional Environmental Managers.

SECTION VII TRAINING

The purpose of this section is to provide guidance for conducting training of facility employees.

Personnel training programs are essential for safe working conditions and efficient operations at company facilities. Training must adequately prepare new employees to work within the parameters of their job description, and must reinforce current employees' knowledge of safe operating practices. Training must also address emergency response information. Company employees must be adequately trained to ensure that all operations are performed in a safe manner and in compliance with federal, state, and local (including tribal where applicable) regulations. These requirements are separate from OSHA Health and Safety requirements at facilities. For those requirements, please refer to the Company Health and Safety Policies and Procedures Manual.

The responsibility for training of the company's personnel with regard to environmental matters lies jointly with the Facility Manager and the Environmental Staff. Training programs are arranged by the Facility Manager and supported by the Environmental Staff and the Legal Department. Certain permits and regulations require training at regular intervals. In some instances, documentation of training and training programs is required. Annual formal training of employees must be documented at those facilities with General Storm Water Permits. The level of training required is specified in the individual facility Storm Water Pollution Prevention Plans. Annual training is also required for all facilities that handle Universal Waste and for any facility with a SPCC Plan. ***All new hires must receive environmental training regarding their position and the facility at which they work within 30 days of their initial employment.***

Training must adequately familiarize facility personnel with proper hazardous materials procedures, facility operations, emergency procedures and use of emergency equipment systems, conditions of the facility's permit, best management practices, and pertinent environmental, health and safety regulations.

Employees must complete the training appropriate to the responsibilities of their job before beginning unsupervised work. This training will consist of initial classroom training, on-the-job training, and annual update training. All training conducted must be accurately and consistently documented.

The training program must include provisions to allow for updates or reviews of the training program, as necessary to ensure compliance with the terms of the facility's permit and/or applicable regulations. Copies of any required training program or operations/maintenance manual must be kept on file at the operating facility for review by state, federal, and local (and tribal, where applicable) regulatory officials.

SECTION VIII

EMERGENCY PREPAREDNESS and RESPONSE

The purpose of this section is to provide guidelines for the preparation for, and response to, an emergency environmental condition.

Emergency conditions are generally caused by the upset or failure of normal operating procedures or equipment. Company facilities, in general, store only a limited number of materials in any quantity that could likely cause an environmental emergency condition. These materials include, but are not limited to, coal, latex reagents, synfuel, coal fly ash, cement, and diesel fuel. These materials, if stored in significant quantity, are registered with local, regional, and state emergency response organizations under the emergency planning and community right-to-know laws that we refer to as 'SARA III'.

The most effective emergency preparedness measures are to ensure sound operating practices and to constantly adhere to the environmental program fundamentals. All company facilities have posted emergency response contact phone numbers. These numbers include company, local, and state contact numbers that require notification of upset and emergency conditions. Should normal operating procedures fail, or natural conditions occur that disrupt normal operations, and an environmental emergency condition arise, the following actions are to be undertaken:

- Take any immediate action to contain the spill or release **that does not endanger the responder** (e.g. dike area; apply absorbent, turn off pumps, conveyors, fans, valves, etc.).
- Evacuate immediate area of spill.
- Verify identity of spilled material.
- Notify primary or secondary emergency company contacts.
- Notify appropriate response centers.
- Make necessary arrangements for cleanup and disposal.
- Assess incident and revise applicable plans accordingly.

If someone at the facility has received the required training and certification, the following steps may be taken to clean up the spill or release:

- Determine proper handling precautions (see MSDS).
- Secure appropriate personal protective equipment.
- Close off appropriate valve or take other action to stop the leak.
- Remove sources of ignition.
- Control and contain the spill, neutralize if necessary.
- Collect spilled material (vacuum, absorb, pump, or other as necessary).
- Transfer collected material to recover container.
- Decontaminate area.
- Label recovery container.
- Contact the Environmental Staff regarding storage and disposal.

Report and record the following information:

- Name, address and phone number of person reporting.
- Exact Location of the spill.
- Company name and location.
- Material spilled.
- Estimated quantity.
- Source of spill.
- Cause of spill.
- Action taken for containment and cleanup.

Report all spills or releases to the Corporate Environmental Manager or a Regional Environmental Manager or the head of the Regulatory Compliance Section within two hours of occurrence. Contact Numbers are:

- Tom Schmaltz (office) 706. 549.7903
- Tom Schmaltz (cell) 404.661.5485
- Steve Van Ootegham (office) 801.984.3777
- Steve Van Ootegham(cell) 801.953.4408
- Doug Martin (office) 484.947.2211
- Doug Martin (cell) 610.733.3099
- Mike Hampton (office) 801.984.9498
- Mike Hampton (cell) 801.201.7322

SECTION IX COMMUNICATIONS

The purpose of this section is to provide general guidelines for facilitating environmental compliance communications as well as the transfer of critical regulatory information between the corporate office and the company's facilities as well as among facility personnel. The company recognizes the importance of providing a network for communicating relevant environmental compliance issues between the company's facilities and corporate management, and between facility management and all facility personnel.

INTERNAL COMMUNICATIONS

Corporate-Facility Information Transfer

Environmental regulations in the United States are in an almost constant state of change. The US EPA regulates all environmental media including air, water and land. Programs responsible for the protection of air, water, and land are managed, for the most part, independently by individual State programs, leading to almost daily proposal or issuance of new regulations.

In order to remain in compliance with these ever-changing programs, operating facilities must be provided with the information needed to develop new operating procedures, or amend existing ones. It is the responsibility of the company's Corporate Environmental Manager and the Environmental Staff to analyze proposed and final regulations to determine the effect they will have on company facilities. This information will then be provided to upper management, facility management, and other appropriate staff in a timely manner so that operational and budgetary planning can be conducted.

Information transfer can be conducted through a number of mechanisms including but not limited to; regulatory alerts, newsletters, or seminars and training sessions. Management and staff are encouraged to share information between facilities in order to facilitate solutions to common problems.

On routine issues, communications related to environmental affairs are to be made between the Facility Manager and the Corporate Environmental Staff. Any employees who have environmental questions or concerns should relate them to the Facility Manager. Support and assistance can come from anywhere, particularly Area Operations Managers and Facility Managers of similar facilities. Facility Managers and the Corporate Environmental Staff may need to coordinate environmental efforts with the Legal Department, Regional Managers, Area Managers or Regional Vice Presidents, depending upon the gravity of the environmental issue. Prudent judgment must dictate the involvement of appropriate persons.

Any environmental upset condition should be immediately reported to the Facility Manager or Corporate Environmental Staff.

Internal Facility Communication

Each Facility Manager is responsible for insuring that facility personnel are provided with all the information needed to conduct their jobs safely and effectively, while remaining in compliance with environmental permit requirements and state, federal, and local (including tribal, where applicable) regulations. To accomplish this, periodic meetings with all plant personnel should be held to discuss environmental compliance issues and plant operating problems and concerns.

Good internal facility communication is dependant on good two-way communication between Facility Managers and the Environmental Staff. Facility Managers should periodically inform corporate of progress and problems with environmental issues. Corporate Environmental Staff must maintain communications as described in the previous section. Facility and corporate management must be notified immediately of any incidents (i.e., spills, fires, explosions, security breaches, etc.) that have the potential to affect the facility's compliance with federal and/or state environmental laws, rules and/or regulations.

MEDIA COMMUNICATIONS

The company's policy on communications with media regarding environmental matters is established so that only accurate, non-confidential information is released to the media. ***Employees are instructed to refer all calls, questions and inquiries from outside the company, to the company's Director of Investor Relations.*** In addition, it is the company's policy for all employees to respond to questions about rumors in the following manner: ***"It is our policy not to comment about rumors or speculation."***

SECTION X REGULATORY AUDITS/INSPECTIONS

The purpose of this section is to provide guidance in the event that a representative of a regulatory or other law enforcement agency presents himself at a company facility for the purpose of conducting an inspection, or conducting a search.

Inspections and searches by regulatory agencies and law enforcement agencies may be conducted with or without prior notice. Inspections and searches are usually conducted during regular working hours. Upon arrival, the inspector or law enforcement officer should be directed to the Facility Manager or a designated alternate.

Inspectors or officers should be requested to provide their credentials, and a copy of any subpoena, order, search warrant or other authority under which the inspection or search is being conducted. However, routine (annual, etc.) agency inspections may not be accompanied by a formal request document and the lack of such a document is not grounds to deny entry.

The Facility Manager or a designated alternate should inquire as to the reasons for the inspection or search and which areas of the facility and records will be inspected or searched.

The Facility Manager or a designated alternate must accompany the inspector at all times during the inspection or search. ***Under NO CIRCUMSTANCES are inspectors to be allowed anywhere within the facility without a company representative escort.***

If a facility has received prior notice of an inspection or search, facilities should notify the Regional or Corporate Environmental Manager to ensure that they have the appropriate personnel on hand to provide information.

Company facility management may not refuse access to the facility to an inspector from a regulatory agency or law enforcement officer, except under extreme circumstances with the prior approval of the Legal Department.

If an inspection or search becomes unreasonably disruptive the Facility Manager or a designated alternate must contact the Legal Department immediately.

If an inspector or law enforcement officer has access to information or areas of the facility that contains trade secret information, the inspector or law enforcement officer should be informed that such information must be treated with confidentiality. This notification should be provided in writing.

Inspectors and law enforcement officers may take photographs but may be requested to provide copies of such photographs to the facility. Any photographs of trade secret areas or other areas that the company considers sensitive should be requested to be marked confidential. This request should be provided in writing. Where possible, the view of trade secrets should be

blocked. The facility should take its own photographs as well if the inspector takes photos and the photos taken by the facility should be nearly identical to those taken by the inspector.

Inspectors and law enforcement officers may take environmental samples. The facility should document procedures used by the inspector or law enforcement to obtain samples. The facility must also record analyses planned for the samples by the inspecting agency. Facility personnel must observe sampling and obtain sample splits.

Inspectors and law enforcement officers may review all facility operating records and records that reside or will reside in the public domain (e.g. permits). Inspectors and law enforcement officers may not review non-operating business records or legal documents without the prior approval of the Legal Department. In the event that such records are requested, the Facility Manager or a designated alternate must contact the Legal Department.

The Facility Manager must attempt to immediately correct any violations pointed out by the inspection, such as blocked aisles, missing labels, misuse of safety equipment, leaking drums, and other similar conditions.

The Facility Manager must notify the Environmental Staff or Legal Department immediately following the inspector or law enforcement officer presenting himself at the facility.

Copies of all notices of violation or other inspection reports from regulatory agencies must be immediately forwarded to the Legal Department.

Operations Review Checklist

Facility Name: _____ Reviewer's Name: _____

Date of Review: _____ Plant Manager: _____

1. General Housekeeping

- a. All trash, debris, and unusable scrap is cleaned up and properly disposed.
- b. Paved work areas are maintained free of excess dust.
- c. Dumpsters are not overfilled and are kept closed when not in use.
- d. Mobile and other oil-containing equipment is stored in a location that minimizes risk to the environment.
- e. Raw materials and recyclables (cardboard, pallets, plastics, recyclable rejects, used oil, batteries, fluorescent lights, mercury switches, etc.) are maintained in designated location(s) that minimize potential environmental risk.
- f. The tops of silos and areas around silos are free of raw materials.
- g. Small spills are immediately cleaned up.

2. Liquid Materials Management

- a. Secondary containment structures are functioning properly (no cracks, leaks, seepage, etc.).
- b. Liquid within secondary containment is periodically removed and disposed of as used oil or oily waste (oil) or drained if not contaminated (water).
- c. Areas where liquids are stored and maintained are free of visible spills or leaks.
- d. Empty drums are completely empty and stored so as not to accumulate water (closed bungs, tops in place, on their sides).
- e. Piping and/or hoses from hydraulic and similar oil-containing equipment are free of leaks.
- f. All liquid storage containers 55 gallons or greater are free of leaks.
- g. Containers without secondary containment are stored in a manner to minimize the risk of a leak or spill reaching water by:
 - i. Being away from drains unless the drains are covered or plugged.
 - ii. Being away from creeks, rivers, other waterways.
 - iii. Being under cover whenever possible.
- h. Storm water and process water are always separate.

3. Solid Materials and Product Management

- a. Aggregate materials (pumice, gravel, sand, shale, etc.) are neatly stored in a designated and managed location.
- b. Solid materials are covered whenever possible.
- c. Rejects are stored in a manner to minimize solids runoff (covering, minimize fines content, etc.).

- d. Storage containers (silos, hoppers, bins, bunkers, etc.) are properly maintained (no leaks, cracks, significant structural degradation, etc.)
- e. Finished product is properly packaged and stored in the correct manner to minimize exposure to storm water.
- f. Excess pallets are neatly stacked and excess inventory is minimized.

4. Vehicle Fueling and Preventive Maintenance

- a. Fueling hoses and connections are leak-free.
- b. Fueling nozzles and hoses are stored in a way to prevent uncontained spills or leaks.
- c. Small spills are responded to and cleaned up immediately.
- d. Vehicle maintenance activities are conducted in a manner to minimize exposure to storm water.

5. Dust Control

- a. There are no visible emissions from baghouses or bin vent filters.
- b. Methods of dust control for roadways and work areas are in place and adequate.
- c. Dust-producing equipment (crushers, screens, pug mills, conveyors, etc.) is equipped with proper dust control.
- d. Pneumatic material-transfer lines are properly operated and maintained to minimize dust.
- e. Silo overfill protection measures (high level alarm, fill policy, etc.) are in place and effective.

6. Waste Management and Reduction

- a. Items including but not limited to cardboard, pallets, plastics, recyclable rejects, used oil, batteries, fluorescent lights, mercury switches, etc. are managed by recycling wherever possible.
- b. Waste containers (dumpsters, roll-offs, etc.) are of adequate size and the frequency of removal is adequate to avoid overflow.
- c. Different types of wastes, especially those that might not be safely compatible, are separated.
- d. Liquid wastes (used oil, solvents, additives, etc.) are labeled and stored in contained areas.
- e. All hazardous wastes are properly containerized in labeled containers that are stored in specified hazardous waste storage areas.

7. Spill Response

- a. The facility has adequate spill response materials (absorbents like kitty litter, pumice, etc.; pads, boom, etc.) readily available.
- b. Employees have been given training on how to respond to spills.
- c. This facility has a defined spill response procedure.

8. Container and Equipment Labeling

- a. All containers containing used oil are labeled “Used Oil”.
- b. Containers of Universal Waste; i.e. fluorescent light tubes, batteries, and mercury switches, are appropriately labeled.
- c. Containers of hazardous waste are properly labeled.
- d. Air emissions equipment is properly labeled (as required by individual permits).

9. Monitoring, Sampling, and Inspections

- a. All storm water samples are taken timely.
- b. Visible emissions are monitored as required in site permits.
- c. Dust control devices (baghouses, bin vent filters, sweepers, etc.) are routinely inspected and properly maintained.
- d. All required stack/emissions testing is completed on time and for the correct parameters.

10. Recordkeeping

- a. All emission test records are current and maintained for at least three years.
- b. All dust control device maintenance records are maintained and up to date. are current and maintained for at least three years.
- c. Throughput records are current and maintained for at least three years.
- d. Records of hours of operation are current and maintained for at least three years.
- e. All discharge monitoring records are current and maintained for at least three years.
- f. Waste disposal records (hazardous waste manifests, solid waste manifests, used oil manifests) are available and maintained for at least three years.
- g. Records of any environmental incidents are available and maintained for at least three years.
- h. Past reports; i.e. DMRs, excess emission reports, annual emission/throughput reports, etc. are maintained and available for at least three years.
- i. Training records for programs like SPCC, Stewardship, and Storm Water are current and available.

11. Planning and Training

- a. The facility Storm Water Pollution Prevention Plan (SWPPP) is current and available.
- b. The Spill Prevention Control and Countermeasure (SPCC) Plan is current and available.
- c. A current Storm Water Training Program is in place and being used.
- d. A current SPCC and/or Environmental Stewardship Training Program is in place and being used.
- e. Other required plans (Fugitive Dust Control Plan, RCRA Contingency Plan, etc.) are current and available.

12. Reporting

- a. DMRs are completed and submitted on time.
- b. Annual throughput and emissions reports are completed and submitted on time.
- c. Annual Storm Water Compliance Evaluation reports are completed in a timely manner and available.
- d. Tier II reports are completed and submitted on time.
- e. TRI Reports are completed and submitted on time.
- f. Annual environmental fees are paid on time.

Wellington – Air and Water Compliance

1. Task Summary

1.1. Overview

- Please verify the configuration settings in the task summary and complete any unfilled cells.

Task (Air/Water)	Person Assigned	Frequency	Due Date	Reminder Frequency	Person to Receive Reminder Notifications	Overdue Frequency	Person to Receive Overdue Notifications
Daily Coal Processed (Air)	Mike Gipson, Plant Manager	Daily	Next Day	None	Person assigned only	Once per week, until complete	Person assigned, Keith Thompson, Business Unit VP
Daily Baghouse Pressure Drop Readings (Air)	Mike Gipson, Plant Manager	Daily	Next Day	None	Person assigned only	Once per week, until complete	Person assigned, Keith Thompson, Business Unit VP
Annual Facility Task – Baghouse Inspection (Air)	Mike Gipson, Plant Manager	Annual, 1/1	12/31	Quarterly Reminders	Person assigned only	Once per week, until complete	Person assigned, Keith Thompson, Business Unit VP
Monthly Dust Suppression Activity Recordkeeping Task (Air)	Mike Gipson, Plant Manager	Monthly	1 Week	None	Person assigned only	Once per week, until complete	Person assigned, Keith Thompson, Business Unit VP
Quarterly Visual Observation and Facility Inspection (Water)	Mike Gipson, Plant Manager	Quarterly, calendar	2 Months	Weekly reminders, starting one month before due date	Person assigned only	Once per week, until complete	Person assigned, Keith Thompson, Business Unit VP

Annual Sampling (Water)	Mike Gipson, Plant Manager	1/1	12/31	Monthly Reminders	Person assigned only	Once per week, until complete	Person assigned, Keith Thompson, Business Unit VP
Annual SW Training Reminder (Water)	Mike Gipson, Plant Manager	1/1	12/31	Quarterly Reminders	Person assigned only	Once per week, until complete	Keith Thompson, Business Unit VP
Annual DMR Report Reminder	Mike Gipson, Plant Manager	12/1	1/28	Weekly Reminders	Person assigned only	Once per week, until complete	Person assigned, Keith Thompson, Business Unit VP

1.2. Upload File Tasks Notes

- All tasks requiring a file to be uploaded will contain the following: 1) a comments box, 2) validation checkbox requiring the user to manually indicate that the documents were uploaded.

Field	Display Name	Type	Is Required	Validation	Notes
Comments	Comments	Text Area	No	None	
File Upload	Upload File	File Upload	Yes	None	
Upload Acknowledgement	Did you upload files?	Yes/No	Yes	None	

2. Tasks

2.1. Daily Coal Processed

2.1.1. General

- Does the facility run 7 days a week? If so, how should we handle Saturday and Sunday entries? The facility may change its schedule during the year. Let's set this up with a day/date field so that the form has an entry for every day and on those days that the facility does not operate, a notation will be made to this effect when the next operation day readings are made

2.1.2. Fields

Field	Display Name	Type	Is Required	Validation	Notes
Coal Processed	Coal Processed	Text Field	Yes	Whole Number	Tons

2.2. Daily Baghouse Pressure Drop Readings.

2.2.1. General Questions

- Does the facility run 7 days a week? If so, how should we handle Saturday and Sunday entries? The facility may change its schedule during the year. Let's set this up with a day/date field so that the form has an entry for every day and on those days that the facility does not operate, a notation will be made to this effect when the next operation day readings are made
- Confirm 1 task for the three readings. One task, three readings

2.2.2. Fields

Field	Display Name	Type	Is Required	Validation	Notes
Pressure Drop #1	Pressure Drop Baghouse #1	Text Field	Yes	Whole Number	Inches
Pressure Drop #2	Pressure Drop Baghouse #2	Text Field	Yes	Whole Number	Inches
Pressure Drop #3	Pressure Drop Baghouse #3	Text Field	Yes	Whole Number	Inches

2.3. Annual Task.

2.3.1. General Questions

- What information is being captured for the baghouse inspection? Is it the same as all of the others? (Wasn't specified in Schedule C) Yes, let's use the information that we are using in the others. Don't need to have a "Baghouse Differential", since this is the same as pressure drop reading.
- Is any information captured for the pressure drop device calibration? Just a confirmation that it was performed? Just confirmation, unless a document verifying calibration is received, in which case it should be scanned and saved as a PDF file.

2.3.2. Fields

Field	Display Name	Type	Is Required	Validation	Notes

2.4. Monthly Recordkeeping Task.

2.4.1. General Questions

- Should this task be started at the beginning of the month to allow the data to be entered as it occurs? Yes

2.4.2. Fields

- Dust Suppression Section - List

Field	Display Name	Type	Is Required	Validation	Notes
Date	Date	Date/Time	Yes	None	
Number of Treatments	Number of Treatments	Text Field	Yes	Whole Number	
Volume Applied	Dilution Ration Volume Applied	Text Field	Yes	Numeric	Units?Gallons

- Pile Dust Suppression Activity - List

Field	Display Name	Type	Is Required	Validation	Notes
Date	Date	Date/Time	Yes	None	
Dust Suppression Applied	Dust Suppression Applied	Text Field	Yes	None	What type of field is this?
Duration	Duration	Text Field	Yes	None	

- Rainfall Record - List

Field	Display Name	Type	Is Required	Validation	Notes
Date	Date	Date	Yes	None	
Rainfall	Rainfall	Text Field	Yes	None	What type of field is this?

- Below Freezing Record - List

Field	Display Name	Type	Is Required	Validation	Notes
Date	Date that max daily temp was below freezing	Date	Yes	None	
Comments	Comments	Text Area	No	None	

- Pavement Sweeping - List

Field	Display Name	Type	Is Required	Validation	Notes
Date	Date	Date/Time	Yes	None	
Comments	Comments	Text Area	No	None	

2.5. Quarterly Visual Observation and Facility Inspection

2.5.1. General

2.5.2. Fields (See 1.2 Above)

2.6. Annual Sampling

2.6.1. General

2.6.2. Fields (See 1.2 Above – if a document is uploaded)

2.7. Annual SW Training Reminder

2.7.1. General

- Is any information being captured, or is this a simple reminder? Upload a scanned copy of the training log.

2.7.2. Fields – None

2.8. Annual DMR Report Reminder

2.8.1. General

- Is any information being captured, or is this a simple reminder? Upload a scanned (or electronic) copy of the DMR

2.8.2. Fields - None

3. Emissions

- No emissions for the facility

4. Limits

- Confirm that the system should send sanity check threshold warnings when the emissions come within 80% of limit. The system should have the ability to calculate the total coal processed on a rolling 12-month basis. For any 12-month period that the amount exceeds 80%, a sanity check should be sent out indicating how much coal may be processed in the next month so as not to exceed the rolling 12-month limit.

Process	Material	Limit	Notes
Coal Processed	Coal	1.5 million tons per rolling 12 month period	

Exhibit 5
David Wilson Resume

DAVID S. WILSON, P.E., P.G.

Drexel University, M.S., Civil Engineering (1993)
University of Utah, B.S., Geological Engineering (1988)

SUMMARY OF EXPERIENCE

Mr. Wilson has more than eighteen years of experience in environmental and geotechnical engineering. He is a Professional Engineer, registered in Utah, Wyoming, Oklahoma and Kansas, and a Professional Geologist, registered in Utah. His technical areas of expertise include engineering and environmental geology, hydrogeology, geotechnical engineering, solid and hazardous waste management, and site remediation. He is experienced in site investigations, conceptual engineering, final engineering design, and remedial construction oversight. He has performed investigations, developed hydrogeologic and environmental interpretations, and designed remedial solutions for sites having contaminated sludges, debris, soil, surface water and ground water. His project work has included Remedial Investigations and Feasibility Studies for CERCLA sites, RCRA Facility Investigations and Corrective Measures Studies for RCRA facilities, underground storage tank sites (USTs)/Leaking USTs, and environmental audits, assessments, investigations, and engineering studies under a variety of other state and industry specific programs.

PROFESSIONAL EXPERIENCE

ERM-Rocky Mountain, Inc., Salt Lake City, Utah
(1994 - present)

As a Principal and manager of ERM's Salt Lake City, Utah office, Mr. Wilson has managed and directed a variety of environmental projects, including environmental assessments, hydrogeologic studies, remedial designs, and hazardous waste management plans. Representative clients and projects are listed below by category.

Facility Development and Infrastructure

List of Clients

Safety Kleen (Laidlaw)	Western Slope Refinery	Bloomfield Refining Co.
BNSF Railroad	OCI Wyoming	Kennecott Copper
Williams Energy	Conagra	Colorado Electric Power
Tooele County	Tri-State Energy	Alliant Techsystems
Createrra (Sharon Steel Site)	Mercer (Midvale Slag Site)	

Representative Projects

- Provided due diligence, plan development and Soil Management oversight for redevelopment of OU1 of the Midvale Slag Superfund on behalf of the brownfield redeveloper.
- Prepared a Site Modification Plan for Redevelopment for the closed Sharon Steel Superfund site on behalf of the developer who acquired the property for brownfield redevelopment.
- Performed a "Needs Assessment" for the Tooele County Environmental Impact Board to assess the market place for disposal facilities handling low-level radioactive waste (LLRW) and naturally occurring radioactive materials (NORM).
- Designed a 20 acre wastewater treatment lagoon for a potassium mining company to provide aerobic and anaerobic treatment, and complete evaporation of the water without discharge.
- Provided forensic analysis of a failed pond liner for a Colorado electric power plant that was developing a claim against the designer/contractor of the pond.
- Managed the quality assurance program during closure construction activities for three hazardous waste cells at a commercial disposal facility in Utah.
- Prepared "basis of design," construction plans, and specifications for retrofit of two wastewater lagoons to meet minimum technology requirements at New Mexico petroleum refining company.

General Site Remediation*List of Clients*

U.S. Army - Ft. Wingate	Occidental Chemical	O.C. Tanner
Daw Technologies	Crysen Refinery	St. Gobain
Teleflex Defense Systems	Boyden Medical	Lennar (Country Square)
Village Cleaners	Campbell Soup	Pep Boys
SLOC - Olympics 2002	Union Pacific	Mark Miller Toyota
Questar	Salt Lake City Corporation	Chevron
BP		

Representative Projects

- Served as Project Coordinator for remediation of the Northwest Oil Drain on behalf of the Working Group responsible for cleanup under an AOC with EPA for removal of hydrocarbon affected sediment from the canal.
- Directed environmental assessments to determine the impacts at several oil & gas fields in Wyoming for development of remedial action plans and site restoration costs for a major natural gas development company.
- Performed geotechnical investigations, siting studies, and preliminary design for a solid/hazardous waste landfill under consideration for a former U.S. Army Base in New Mexico.
- Provided consulting services for removal of abandoned underground "oil/water separation tank" discovered during expansion of a Utah manufacturer's facilities.
- Provided site characterization and engineering services for remediation of ground water impacted by the release of 180,000 pounds of isobutyl alcohol at a chemical plant in Brazil.
- Performed enhanced bioremediation of petroleum contaminated soil at Utah manufacturer's facility using enzyme catalysts.
- Provided sampling/analysis and regulatory support during remediation of lead contaminated soil at an existing shooting range to be developed for the biathlon events during the 2002 Winter Olympic Games.

Remedial Design*List of Clients*

Martin Marietta	Village Cleaners	Chevron U.S.A.
Valeo Refrigerants (Brazil)	Union Pacific	Lennar (Country Square)
U.S. Silica	Occidental Chemical	Western Slope Refining
Bloomfield Refinery	TRW	Watson Pharmaceutical
LDS Church	Conagra – Monford	BNSF Railroad - Gallop

Representative Projects

- Directed risk assessment and remedial alternatives evaluation for selection of a pump and treat remedy for source area remediation at an automotive part manufacturing plant

in São Paulo, Brazil; subsequently lead design of a recovery well and air stripper remediation system.

- Managed and designed a multi-layer protective cover for a chemical waste landfill; and designed an LNAPL recovery system for chemical plant in Brazil.
- Performed forensic evaluation of cap movement at a closed hazardous waste landfill for a Colorado aerospace manufacturer.
- Designed a sheet-pile retaining wall to protect a canal during excavation of hazardous sludge at a Utah refinery.
- Prepared solid waste disposal plan, including design of landfill, for solidified petroleum sludge at closed refinery in Colorado.
- Designed an in-situ remediation system for shallow ground water at a dry cleaning facility where perchloroethylene (PCE) had historically been released to the environment.

Site Characterization and Hydrogeologic Studies

List of Clients

Union Pacific	Linatex	Village Cleaners
Hercules	Johnson Matthey	Heber Creeper Village
Rhodia (Rhone Poulenc)	A&Z Produce	Lennar (Country Square)
Columbia Gas	Northrop Grumman	Inland Refining (Crysen)
Parsons Behle & Latimer	Holme Roberts & Owens	Questar
Safeway Stores	U.S. Construction	Kennecott Copper
Occidental Chemical	Phillips 66	Nielson Construction
General Electric	Air National Guard	Honeywell
Bountiful City Landfill		

Representative Projects

- Conducted subsurface investigations at several Utah railroad yards to delineate presence of light non-aqueous phase liquid (LNAPL) plumes; and developed remedial solutions to recover free product and mitigate environmental impacts.
- Performed sampling of landfill compost for metals analysis to assess potential use of compost in reclamation at Utah mine tailings impoundment.

- Performed statistical analysis of ground water quality data for monitoring of closed RCRA impoundments at Delaware chemical plant.
- Reviewed existing ground water data to assess changes in water quality at former coal gasification facility in Utah.
- Provided hydrogeological and environmental interpretation for third party property owner located adjacent to a site undergoing an RI/FS.

Risk Assessments

List of Clients

Crysen Refinery
St. Gobain
Your Valet Cleaners
Hercules

Village Cleaners
Occidental Chemical
Marathon/Husky

Teleflex
TRW (Lucas Varity)
Questar

Representative Projects

- Directed an environmental assessment, site investigation, risk assessment, site management plan development, and decontamination/demolition of an aerospace, plating operation at a Utah facility.
- Conducted a site investigation and risk assessment, and developed a closure plan for two former refinery sludge lagoons at a Utah petroleum refinery.
- Performed quality assurance testing during decontamination of a former metals plating operation in Utah to ensure acceptable health-risk levels.
- Performed a human health risk assessment on behalf of a chemical plant in Brazil to validate a proposed plan to close a landfill in place beneath a multi-layer protective cover.
- Developed a human health risks assessment based on potential exposures to chlorinated solvents in shallow ground water associated with releases from a dry cleaning facility.

Environmental Assessments and Compliance Audits

List of Clients

Gates Rubber	White Oak Mine	Jordan Valley Hospital
Williams Field Services	Kennecott Copper	Hercules
Chrysler Motor	Johnson Matthey	IMC Kalium (GSL Mineral)
Windjet	Intermountain Real Estate	Heber Creeper Village
Wasatch Recreation	Wasatch Property	Superior Ice
Raytheon	Amoco Transmission	Boyer Company
Fischer Scientific	Meridian Laboratory	U.S. Express Trucking
Northrop Grumman	Union Pacific	ITT Fluid Technologies
Freeport Center	Paracelsus Hospital	Diamond Rental
Diamond Rental	Autoliv	Safety-Kleen
Safeway Foods	Salt Lake Organizing Committee - Olympics	

Representative Projects

- Performed Phase I assessments and compliance audits at multiple rubber hose and belt manufacturing facilities in Brazil.
- Conducted Phase I and Phase II assessments at an existing warehouse facility to characterize baseline conditions before building occupancy by our client.
- Conducted environmental assessment of existing and proposed railroad and mining facilities to facilitate expansion of mine tailings facility for Utah mining company.
- Delineated wetlands associated with Utah hospital as part of an environmental assessment to facilitate a property transfer.
- Performed a Phase I Assessment and limited compliance audit at a coal mine operation in central Utah.

Environmental Permitting

List of Clients

Theratech Pharmaceuticals	Safety Kleen	Jetway
Owens Corning	ICI Explosives	Alcoa (Alumax)
Montana Brands	Johnson Matthey	Southwire
Asarco	Cargill	Borden Foods
Questar	Specialized Bicycle	Air Liquide
Firestone Building Products		

Representative Projects

- Developed Storm Water Pollution Prevention (SWPP) Plan and Spill Prevention, Control, and Countermeasures (SPCC) Plan for dairy product manufacturer in Utah.
- Prepared audit checklists for a mining client to assist in the performance of internal audits, with particular emphasis on CERCLA continuous releases, Land Disposal Restrictions, and wetlands.
- Assisted Utah pharmaceuticals manufacturer with review of environmental permits relative to proposed facility expansion.
- Reviewed and updated closure plan for TSCA storage unit operated at a hazardous waste landfill located in Utah.
- Provided regulatory consultation to bring an insulation manufacturing plant into compliance with all environmental regulations, including storm water management, SPCC, air permits, and waste management.

ERM, Inc., Exton, Pennsylvania
(1988 - 1994)

Mr. Wilson served as a project manager, engineer and hydrogeologist on several projects for ERM, Inc. His experience included work on a variety of projects for industrial clients and regulated government agencies. He designed remedial systems for hazardous waste sites requiring stabilization, closure by capping, installation of slurry walls, placement of geosynthetic materials, removal of wastes, and recovery of contaminated ground water. Representative projects are listed below.

General Site Remediation*List of Clients*

Amphenol Corporation
Amana Appliances
Allied Signal

Arco Chemical
AT&T
Union Carbide

Occidental Chemical
Hercules

Representative Projects

- Evaluated the hydrogeology for design of a shallow ground water interceptor trench at New York aerospace component manufacturer.
- Prepared subsurface investigation work plan to evaluate slurry wall and cap containment system for a western Pennsylvania site.
- Directed subsurface investigation, risk assessment, and development of remedies for a chemical plant in Brazil.
- Engineering design and construction observations services during installation of the slurry wall and cap system at an Iowa facility.
- Performed feasibility study for Pennsylvania Superfund site in which plastic recycling and capping were determined to be the most practical alternatives.
- Conducted a Feasibility Study for remediation of a New Jersey Superfund site in which capping alternatives were compared for in-place closure of a solid/hazardous waste landfill.

Remedial Design*List of Clients*

Union Carbide
Exxon
St. Judes Hospital
PNC Realty

Occidental Chemical
U.S. Navy
City of Indiana
Allied Signal

Chrysler Motors
Mobile Oil
Scott Paper

Representative Projects

- Performed slope stability analysis for design of a landfill cap and gabion well system for a New Jersey landfill.
- Engineered closure for the RCRA units at a Delaware chemical manufacturing facility, including a mercury brine sludge impoundment, a drum storage area, and a carbon tetrachloride tank.
- Evaluated subsurface conditions and designed infiltration gallery system for New Jersey petroleum company.
- Managed conceptual design for removal of LNAPL from ground water at a Maryland petroleum company.
- Detailed design of a 20-foot-deep, 500-foot-long ground water recovery system to intercept and remove contaminated ground water at a Pennsylvania Superfund site.
- Designed landfill gas collection system for closed sanitary landfill in new Jersey.

Site Characterization and Hydrogeologic Studies*List of Clients*

Occidental Chemical
Union Carbide
Reichold Chemical

Allied Signal
Rohman Has

YMCA
Hazelton Nuclear Power Plant

Representative Projects

- Prepared work plan and performed geotechnical/geological engineering assessment for Virginia site in Karst terrain.
- Managed Task I, II, III of RCRA Corrective Action Program, including development of a site-wide soil and ground water investigation at Delaware site.
- Managed geotechnical/environmental assessment at Pennsylvania YMCA.
- Directed borehole logging and well installation at A Pennsylvania Power & Light plant that had released sulfuric acid to the ground water.
- Performed contaminant transport analysis in ground water for a Delaware Superfund site to complete a risk assessment and remedial alternatives evaluation.

ADDITIONAL EDUCATION

Hazardous Waste Operations, 40-hour training (29 CFR 1910.120(e)), May 1988.

Hazardous Waste Operations, 8-hour update (29 CFR 1910.120(e)), most recent May 2001.

Subsurface Investigation Methods, University of Wisconsin, 1990.

Designing with Geosynthetics, Geosynthetic Research Institute, 1988

PROFESSIONAL AFFILIATIONS, REGISTRATIONS, AND CERTIFICATIONS

Registered Professional Engineer (Utah, Wyoming, Oklahoma, Kansas)

Registered Professional Geologist (Utah)

Association of Engineering Geologists (AEG)

Utah Certified UST Consultant

PUBLICATIONS and PRESENTATIONS

"Performance Analysis of Remedial Action Alternatives for a Superfund Feasibility Study," 1991. Proceedings of the Twenty-Third Mid-Atlantic Industrial Waste Conference. Pittsburgh, Pennsylvania.

"Performance Analysis of Remedial Alternatives," 1991. Environmental Engineering, Proceedings of the 1991 Specialty Conference, American Society of Civil Engineers. Reno, Nevada.

"Design and Construction of an Interceptor Trench for Shallow Ground Water Recovery," 1992. Proceedings of the Twenty-Fourth Mid-Atlantic Industrial Waste Conference. Washington, D.C.

"Design, Construction, and Operation of an Interceptor Trench for Shallow Ground Water Remediation," 1993. Joint CSCE-ASCE National Conference on Environmental Engineering. Montreal, Canada.

"Introduction to Engineering Evaluation for Contaminated Sites," 1994. Northeastern University - Marcel Dekkar, New York, NY.

"Recovery System Design for Light Non-Aqueous Phase Liquid (LNAPL) at Chemical Plant in Brazil," 1997. Association of Engineering Geologist, 40th Annual Meeting, Portland, Oregon.

"Recovery System Design for Light Non-Aqueous Phase Liquid (LNAPL) at Chemical Plant in Brazil," 1997. The Geological Society of America, 1997 Annual Meeting. Salt Lake City, Utah.

"Mitigation of Environmental Liabilities at Brazilian Chemical Plant," 2000. Air & Waste Management Association, 2000 Annual Meeting. Salt Lake City, Utah

"Environmental Ethics," 2003. Utah Environmental Symposium, Salt Lake City, Utah

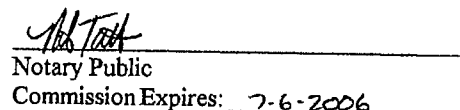
"Pilot and Full-Scale ISCO Program for TCE Plume Remediation in Multi-Layered Hydrogeologic Environment," 2006. Battelle Conference – Remediation of Chlorinated and Recalcitrant Compounds, Monterey, California.

BRC Wellington LLC
Dry-Coal Cleaning Facility

Permit Application
Revised October 2013

APPENDIX 1-3

Property Warranty Deeds



Recorded at the Request of: *South Eastern Utah Title Co.*
c/o Covol Engineered Fuels, LC

Mail Tax Notice to: Covol Engineered Fuels, LC
10653 S. River Front Parkway
Suite 300
South Jordan, Utah 84095

WARRANTY DEED (Corporate Form)

TERRA SYSTEMS INC., a corporation organized and existing under the laws of the State of Utah, with its principal office at 1865 W. Ridge Road, PO Box 1673, Price, Utah 84501, Carbon County, GRANTOR, hereby CONVEYS and WARRANTS to COVOL ENGINEERED FUELS, LC, a limited liability company organized and existing under the laws of the State of Utah, with its principal office at 10653 S. River Front Parkway, Suite 300, South Jordan, Utah 84095, Salt Lake County, GRANTEE, for the sum of Ten and No/100 Dollars (\$10.00) and for other good and valuable consideration, the following described tract of land in Carbon County, State of Utah, to-wit:

BEGINNING AT THE NORTHWEST CORNER OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 14 TOWNSHIP 15 SOUTH RANGE 10 EAST OF THE SALT LAKE BASE AND MERIDIAN AND RUNNING THENCE S00°26'51"E 469.62 FEET ALONG THE QUARTER SECTION LINE, THENCE N89°30'07"E 1020.02 FEET, THENCE N00°26'51"W 397.84 FEET TO THE SOUTHERLY RIGHT-OF-WAY LINE OF AN EXISTING COUNTY ROAD KNOWN AS RIDGE ROAD. THENCE ALONG SAID LINE THE FOLLOWING TWO (2) CALLS, S89°23'40"W 293.93 FEET THENCE 464.66 FEET ALONG THE ARC OF A 1456.39 FOOT RADIUS CURVE TO THE RIGHT AND CONCAVE TO THE SOUTH, (CHORD BEARS N81°30'15"W 462.69 FEET) TO A POINT ON THE 40 ACRE LINE, THENCE ALONG SAID LINE S89°30'07"W 269.03 FEET TO THE POINT OF BEGINNING. SAID PARCEL CONTAINS 435602.54 SQ. FT. OR 10.00 ACRES

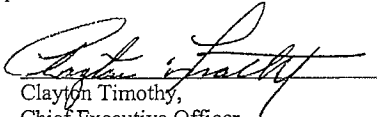
Subject to all existing easements of record, recorded rights-of-way, and subject to prior interests or conveyances of oil, gas and mineral rights.

The officers who sign this deed hereby certify that this deed and the transfer represented thereby was duly authorized under a Resolution duly adopted by the Board of Directors of the GRANTOR at a lawful meeting duly held and attended by a quorum.

WITNESS the hand of said GRANTOR, this 14 day of March, 2005.

TERRA SYSTEMS, INC.
a Utah corporation

By:


Clayton Timothy,
Chief Executive Officer

STATE OF UTAH)
 : ss.
COUNTY OF CARBON)

On the 14 day of March, 2005, personally appeared before me CLAYTON TIMOTHY, who being duly sworn did say that he is the Chief Executive office of the above-named corporation and that said instrument was signed in behalf of said corporation by authority of a Resolution of its Board of Directors, and he acknowledged to me that said corporation executed the same.

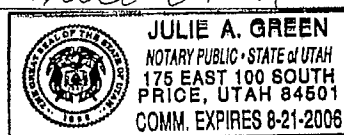
Notary Public

My Commission Expires:

8-21-06

Residing at:

Price Utah



Form No. 1343 (Utah)-90
ALTA Plain Language Commitment

COMMITMENT FOR TITLE INSURANCE
ISSUED BY

SOUTH EASTERN UTAH TITLE COMPANY
(SEUTCO)

175 EAST 100 SOUTH (P.O. BOX 855) PRICE, UTAH 84501

Phone: (435-637-4455) Fax: (435-637-4459)

setitle@emerytelcom.net

E-mail closing docs to: vikki@southeasttitle.com

ORDER NO. 76488 C

HEADWATERS, INC.
10653 S. RIVER FRONT PARKWAY, SUITE 300
SOUTH JORDAN, UTAH 84095
ATTN: JASON DAY

RE: TERRA SYSTEMS PURCHASE

We agree to issue a policy to you according to the terms of this Commitment. When we show the policy amount and your name as the proposed insured in Schedule A, this Commitment becomes effective as of the Commitment date shown in Schedule A.

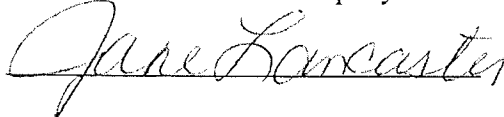
If the Requirements shown in this Commitment have not been met within six months after the Commitment date, our obligation under this Commitment will end. Also, our obligation under this Commitment will end when the Policy is issued and then our obligation to you will be under the Policy.

Our obligation under this Commitment is limited by the following:

- The provisions in Schedule A.
- The Requirements in Schedule B-1.
- The Exceptions in Schedule B-2.
- The Conditions on the inside cover page.

The Commitment is not valid without SCHEDULE A and Sections 1 and 2 of SCHEDULE B.

South Eastern Utah Title Company

By: 

CONDITIONS

1. DEFINITIONS:

(a) "Mortgage" means mortgage, deed of trust or other security instrument. (b) "Public Records" means title records that give constructive notice of matters affecting the title according to the state law where the land is located.

2. LATER DEFECTS:

The Exceptions in Schedule B-Section 2 may be amended to show any defects, liens or encumbrances that appear for the first time in the public records or are created or attached between the Commitment date and the date on which all of the Requirements (a) and (c) of Schedule B-Section 1 are met. We shall have no liability to you because of this amendment.

3. EXISTING DEFECTS:

If any defects, liens or encumbrances existing at Commitment date are not shown in Schedule B, we may amend Schedule B to show them. If we do amend Schedule B to show these defects, liens or encumbrances, we shall be liable to you according to Paragraph 4 below unless you knew of this information and did not tell us about it in writing.

4. LIMITATION OF OUR LIABILITY:

Our only obligation is to issue to you the Policy referred to in this Commitment, when you have met its Requirement. If we have any liability to you for any loss you incur because of an error in this Commitment, our liability will be limited to your actual loss caused by your relying on the Commitment when you acted in good faith to:

comply with the Requirements shown in Schedule B-Section 1

eliminate with our written consent any Exceptions shown in Schedule B-Section 2.

We shall not be liable for more than the Policy amount shown in Schedule A of this Commitment and our liability is subject to the terms of the Policy form to be issued to you.

5. CLAIMS MUST BE BASED ON THIS COMMITMENT:

Any claim, whether or not based on negligence, which you may have against us concerning the title to the land must be based on this Commitment and is subject to its terms.

ALTA Plain Language Commitment

SCHEDULE A

Commitment No. 76488 C

Policy or Policies to be issued:

Owners: \$TBD

Lenders: \$

Effective Date: March 1, 2005 at 8:00 a.m.

1. Proposed Insured:

Owner: Headwaters, Inc.

Lender:

2. Fee Simple interest in the land described in this Commitment is owned, at the Commitment Date by:

PRICE CITY, A MUNICIPAL CORPORATION

Order No. 76488 C

3. The land referred to in this Commitment is situated in the State of Utah, County of Carbon and is described as follows:

BEGINNING at the Northwest Corner of the Southwest Quarter of the Northeast Quarter of Section 14, Township 15 South, Range 10 East, of the SLB&M; and running thence South 00 deg. 26' 51" East 469.62 feet along the Quarter Section Line; thence North 89 deg. 30' 07" East 1020.02 feet; thence North 00 deg. 26' 51" West 397.84 feet to the Southerly Right of Way Line of an existing County Road known as Ridge Road; thence along said line the following two (2) calls, South 89 deg. 23' 40" West 293.93 feet; thence 464.66 feet along the arc of a 1456.39 foot radius curve to the right and concave to the South, (chord bears North 81 deg. 30' 15" West 462.69 feet) to a point on the 40 acre line; thence along said line South 89 deg. 30' 07" West 269.03 feet to the point of beginning.

Tax Serial # Part of 1B-293

SCHEDULE B - Section 1

Requirements

The following requirements must be met:

- (a) Pay the agreed amounts for the interest in the land and/or the mortgage to be insured.
- (b) Pay us the premiums, fees and charges for the policy.
- (c) Documents satisfactory to us creating the interest in the land and/or the mortgage to be insured must be signed, delivered and recorded.
- (d) You must tell in writing the names of anyone not referred to in this commitment who will get an interest in the land or who will make a loan on the land. We may then make additional requirements or exceptions.
- (e) Release(s) or Reconveyance(s) of item(s):
- (f) Other:
- (g) You must give us the following information:
 - 1. Any off record leases, surveys, etc.
 - 2. Statement(s) of identity, all parties
 - 3. Other

SCHEDULE B - Section 2

Exceptions

Any policy we issue will have the following exceptions unless they are taken care of to our satisfaction.

PART 1:

1. Taxes or assessments which are not shown; as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
2. Any facts, rights, interests or claims which are not shown by the public records but which could be ascertained by an inspection of said land or by making inquiry of persons in possession thereof.
3. Easements, claims or easement or encumbrances which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. Unpatented mining claims: reservations or exceptions in patents or in acts authorizing the issuance thereof: water rights, claims or title to water.
6. Any lien, or right to a lien, for services, labor or material theretofore or hereafter furnished, imposed by law and not shown by the public records.
7. Defects, liens, encumbrances, adverse claims or other matters, if any created, first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date the proposed insured acquires of record for value the estate or interest or mortgage thereon covered by this commitment.

Note: Any matter in dispute between you and the company may be subject to arbitration as an alternative to court action pursuant to the rules of the American Arbitration Association or other recognized arbitrator. A copy of which is available on request from the company. Any decision reached by arbitration shall be binding upon both you and the company. The arbitration award may include attorney's fees if allowed by State Law and may be entered as a judgment in any court of proper jurisdiction.

The above numbered exceptions: 1 -7 will be eliminated in an ALTA Extended Coverage Policy.

Order No. 76488 C

8. Taxes for the year 2005, now accumulating, not yet due, and any other assessments including but not limited to Special Service Districts. Taxes for the year 2004 are Exempt. Said land is a part of Tax Serial No. is 1B-293.

9. Easements for right of ways, roads, ditches, canals, fence lines, pipelines, pole lines which may be established on said property.

10. Oil, Gas and Mineral Lease executed by Price City, a municipal Corporation in favor of River Gas Corporation, recorded July 27, 2001 in Book 481 at Page 430, for a term of 5 years or as long thereafter as substances are produced.

Various Assignments of Lessee's interest in and to said lease.

11. Said land is located within the boundaries of the Price River Water Improvement District which has been assigned to Miller Creek Water Special Service District, and may be subject to taxes or assessments levied by said District.

12. Subject to the claim of Terra Systems, Inc. as disclosed to the Title Company.

A judgment search was made in the following names and none were found of record that affect the subject property except as noted above.

Buyer: Headwaters, Inc.

Buyer:

Seller: Price City, a Municipal Corporation

Seller: Terra Systems, Inc.

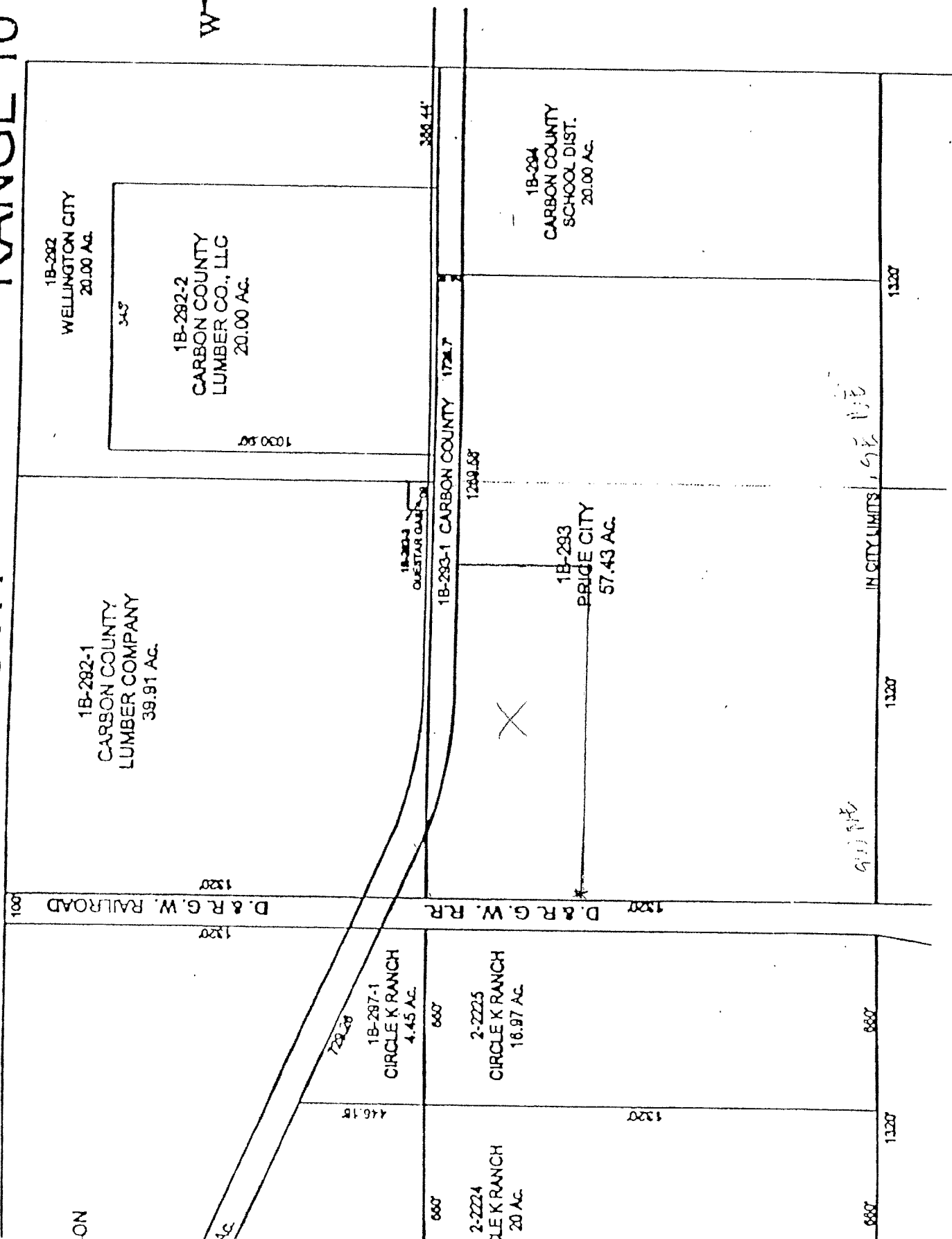
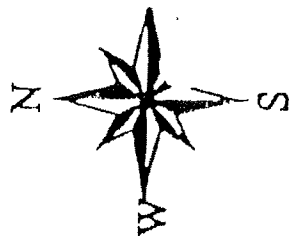
TITLE INQUIRIES concerning this Commitment can be directed to:

Jane Lancaster/Title Agent

Vikki Barnett/Escrow Agent

* * * *

RANGE 10 EAS-



When Recorded, Mail To:

Coval Engineered Fuels, LC
10653 S. River Front Parkway, Suite 300
South Jordan, Utah 84095

SPECIAL WARRANTY

E 110426 B 586 P 654
Date 17-MAR-2005 2:07pm
Fee: 12.00 Check
SHARON MURDOCK, Recorder
FILED By SM
For SOUTH EASTERN UTAH TITLE CO
CARBON COUNTY CORPORATION

PRICE CITY, a Municipal Corporation of the State of Utah, having an address of 185 East Main, P.O. Box 893, Price, Utah 84501, GRANTOR, hereby conveys and warrants against all claiming by, through or under Grantor, to COVAL ENGINEERED FUELS, LC, a Utah Limited Liability Company, having an address at 10653 South River Front Parkway, Suite 300, South Jordan, Utah 84095, GRANTEE, for the sum of Ten Dollars (\$10.00) and other good and valuable consideration, that certain tract of land situated in Carbon County, Utah, which land is more particularly described as follows:

BEGINNING AT A POINT WHICH LIES S00°26'51"E ALONG THE QUARTER SECTION LINE 469.62 FEET FROM THE NORTHWEST CORNER OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 14 TOWNSHIP 15 SOUTH RANGE 10 EAST OF THE SALT LAKE BASE AND MERIDIAN AND RUNNING THENCE S00°26'51"E 852.51 FEET TO THE NORTH LINE OF THE SOUTHEAST QUARTER OF SECTION 14, THENCE ALONG SAID LINE N89°40'58"E 1020.02 FEET, THENCE N00°26'51"W 855.73 FEET, THENCE S89°30'07"W 1020.02 FEET TO THE POINT OF BEGINNING.
SAID PARCEL CONTAINS 871,220.73 SQ. FT. OR 20.00 ACRES.

SUBJECT TO A 100 FOOT WIDE RAILROAD EASEMENT BEING 50.0 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

BEGINNING AT A POINT WHICH LIES N00°26.51"W ALONG THE QUARTER SECTION LINE 117.37 FEET FROM THE SOUTHEAST CORNER OF THE NORTHEAST QUARTER OF SECTION 14 TOWNSHIP 15 SOUTH RANGE 10 EAST OF THE SALT LAKE BASE AND MERIDIAN THENCE 167.36 FEET ALONG THE ARC OF A 200.00 FOOT RADIUS CURVE, CONCAVE TO THE SOUTHWEST, (CHORD BEARS S66°05'14"E 164.16 FEET) TO A POINT 50.00 FEET FROM THE NORTH LINE OF THE SOUTHEAST QUARTER OF SECTION 14, THENCE N89°40'58"E 870.48 FEET TO THE POINT OF TERMINUS.

Tap Serial # Part of 1B-293
Subject to all existing easements of record and all other existing rights-of-ways however evidenced.

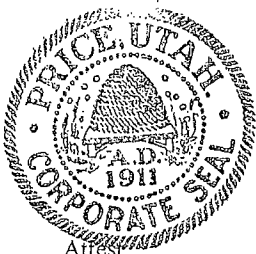
Grantor hereby reserves unto itself all oil, gas and mineral rights associated herewith and appurtenant thereto.

WITNESS the hand of said Grantor this 14th day of MARCH, 2005.

PRICE CITY, a Municipal Corporation

By:

Joe L. Piccolo
Joe L. Piccolo, Mayor

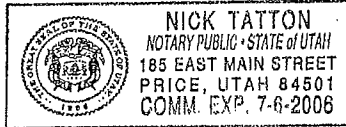


Attest:

Joanne Lessar
Joanne Lessar, City Recorder

STATE OF UTAH)
 : ss.
COUNTY OF CARBON)

On this 14th day of MARCH, 2005, personally appeared before me JOE L. PICCOLO and JOANNE LESSAR, who being by me duly sworn did say that the are the Mayor and City Recorder of Price City, respectively, and that the within and foregoing instrument was signed on behalf of Price City by authority of resolution of its City Council.



Nick Tatton
Notary Public
Commission Expires: 7-6-2006

Form No. 1343 (Utah)-90
ALTA Plain Language Commitment

COMMITMENT FOR TITLE INSURANCE
ISSUED BY

SOUTH EASTERN UTAH TITLE COMPANY
(SEUTCO)
175 EAST 100 SOUTH (P.O. BOX 855) PRICE, UTAH 84501
Phone: (435-637-4455) Fax: (435-637-4459)
setitle@emerytelcom.net
E-mail closing docs to: vikki@southeasttitle.com

ORDER NO. 76489 C

HEADWATERS, INC.
10653 S. RIVER FRONT PARKWAY, SUITE 300
SOUTH JORDAN, UTAH 84095
ATTN: JASON DAY

RE: PRICE CITY PURCHASE

We agree to issue a policy to you according to the terms of this Commitment. When we show the policy amount and your name as the proposed insured in Schedule A, this Commitment becomes effective as of the Commitment date shown in Schedule A.

If the Requirements shown in this Commitment have not been met within six months after the Commitment date, our obligation under this Commitment will end. Also, our obligation under this Commitment will end when the Policy is issued and then our obligation to you will be under the Policy.

Our obligation under this Commitment is limited by the following:

- The provisions in Schedule A.
- The Requirements in Schedule B-1.
- The Exceptions in Schedule B-2.
- The Conditions on the inside cover page.

The Commitment is not valid without SCHEDULE A and Sections 1 and 2 of SCHEDULE B.

South Eastern Utah Title Company

By: Jane Lancaster

CONDITIONS

1. DEFINITIONS:

(a) "Mortgage" means mortgage, deed of trust or other security instrument. (b) "Public Records" means title records that give constructive notice of matters affecting the title according to the state law where the land is located.

2. LATER DEFECTS:

The Exceptions in Schedule B-Section 2 may be amended to show any defects, liens or encumbrances that appear for the first time in the public records or are created or attached between the Commitment date and the date on which all of the Requirements (a) and (c) of Schedule B-Section 1 are met. We shall have no liability to you because of this amendment.

3. EXISTING DEFECTS:

If any defects, liens or encumbrances existing at Commitment date are not shown in Schedule B, we may amend Schedule B to show them. If we do amend Schedule B to show these defects, liens or encumbrances, we shall be liable to you according to Paragraph 4 below unless you knew of this information and did not tell us about it in writing.

4. LIMITATION OF OUR LIABILITY:

Our only obligation is to issue to you the Policy referred to in this Commitment, when you have met its Requirement. If we have any liability to you for any loss you incur because of an error in this Commitment, our liability will be limited to your actual loss caused by your relying on the Commitment when you acted in good faith to:

comply with the Requirements shown in Schedule B-Section 1

eliminate with our written consent any Exceptions shown in Schedule B-Section 2.

We shall not be liable for more than the Policy amount shown in Schedule A of this Commitment and our liability is subject to the terms of the Policy form to be issued to you.

5. CLAIMS MUST BE BASED ON THIS COMMITMENT:

Any claim, whether or not based on negligence, which you may have against us concerning the title to the land must be based on this Commitment and is subject to its terms.

ALTA Plain Language Commitment

SCHEDULE A

Commitment No. 76489 C

Policy or Policies to be issued:

Owners: \$TBD

Lenders: \$

Effective Date: March 1, 2005 at 8:00 a.m.

1. Proposed Insured:

Owner: Headwaters, Inc.

Lender:

2. Fee Simple interest in the land described in this Commitment is owned, at the Commitment Date by:

PRICE CITY, A MUNICIPAL CORPORATION

Order No. 76489 C

3. The land referred to in this Commitment is situated in the State of Utah, County of Carbon and is described as follows:

BEGINNING at a point which lies South 00 deg. 26' 51" East along the Quarter Section Line 469.62 feet from the Northwest Corner of the Southwest Quarter of the Northeast Quarter of Section 14, Township 15 South, Range 10 East, of the SLB&M; and running thence South 00 deg. 26' 51" East 852.51 feet to the North Line of the Southeast Quarter of Section 14; thence along said Line North 89 deg. 40' 58" East 1020.02 feet; thence North 00 deg. 26' 51" West 855.73 feet; thence South 89 deg. 30' 07" West 1020.02 feet to the point of beginning.

SUBJECT to a 100 foot wide Railroad Easement being 50.0 feet on each side of the following described centerline:

BEGINNING at a point which lies North 00 deg. 26' 51" West along the Quarter Section Line 117.37 feet from the Southeast Corner of the Northeast Quarter of Section 14, Township 15 South, Range 10 East, of the SLB&M; thence 167.36 feet along the arc of a 200.00 foot radius curve, concave to the Southwest, (chord bears South 66 deg. 05' 14" East 164.16 feet) to a point 50.00 feet from the North Line of the Southeast Quarter of Section 14; thence North 89 deg. 40' 58" East 870.48 feet to the point of terminus.

Tax Serial # Part of 1B-293

SCHEDULE B - Section 1

Requirements

The following requirements must be met:

- (a) Pay the agreed amounts for the interest in the land and/or the mortgage to be insured.
- (b) Pay us the premiums, fees and charges for the policy.
- (c) Documents satisfactory to us creating the interest in the land and/or the mortgage to be insured must be signed, delivered and recorded.
- (d) You must tell in writing the names of anyone not referred to in this commitment who will get an interest in the land or who will make a loan on the land. We may then make additional requirements or exceptions.
- (e) Release(s) or Reconveyance(s) of item(s):
- (f) Other:
- (g) You must give us the following information:
 - 1. Any off record leases, surveys, etc.
 - 2. Statement(s) of identity, all parties
 - 3. Other

SCHEDULE B - Section 2

Exceptions

Any policy we issue will have the following exceptions unless they are taken care of to our satisfaction.

PART 1:

1. Taxes or assessments which are not shown; as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
2. Any facts, rights, interests or claims which are not shown by the public records but which could be ascertained by an inspection of said land or by making inquiry of persons in possession thereof.
3. Easements, claims or easement or encumbrances which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. Unpatented mining claims: reservations or exceptions in patents or in acts authorizing the issuance thereof: water rights, claims or title to water.
6. Any lien, or right to a lien, for services, labor or material theretofore or hereafter furnished, imposed by law and not shown by the public records.
7. Defects, liens, encumbrances, adverse claims or other matters, if any created, first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date the proposed insured acquires of record for value the estate or interest or mortgage thereon covered by this commitment.

Note: Any matter in dispute between you and the company may be subject to arbitration as an alternative to court action pursuant to the rules of the American Arbitration Association or other recognized arbitrator. A copy of which is available on request from the company. Any decision reached by arbitration shall be binding upon both you and the company. The arbitration award may include attorney's fees if allowed by State Law and may be entered as a judgment in any court of proper jurisdiction.

The above numbered exceptions: 1 -7 will be eliminated in an ALTA Extended Coverage Policy.

Order No. 76489 C

8. Taxes for the year 2005, now accumulating, not yet due, and any other assessments including but not limited to Special Service Districts. Taxes for the year 2004 are Exempt. Said land is a part of Tax Serial No. is 1B-293.

9. Easements for right of ways, roads, ditches, canals, fence lines, pipelines, pole lines which may be established on said property.

10. Oil, Gas and Mineral Lease executed by Price City, a municipal Corporation in favor of River Gas Corporation, recorded July 27, 2001 in Book 481 at Page 430, for a term of 5 years or as long thereafter as substances are produced.

Various Assignments of Lessee's interest in and to said lease.

11. Said land is located within the boundaries of the Price River Water Improvement District which has been assigned to Miller Creek Water Special Service District, and may be subject to taxes or assessments levied by said District.

12. Access for ingress and egress or lack thereof.

A judgment search was made in the following names and none were found of record that affect the subject property except as noted above.

Buyer: Headwaters, Inc.

Buyer:

Seller: Price City, a Municipal Corporation

Seller:

TITLE INQUIRIES concerning this Commitment can be directed to:

Jane Lancaster/Title Agent

Vikki Barnett/Escrow Agent

* * * *

TOWNSHIP 15 SOUTH

RANGE 10 EAST



Mail Tax Notice To:
Bowie Refined Coal, LLC
6100 Dutchmans Lane, 9th Floor, Suite 900
Louisville, Kentucky 40205


 Notary Public
SUSAN EYRE
Commission #601971
My Commission Expires
October 08, 2014
State of Utah

EXHIBIT A

Parcel 1:

A) Beginning at the Northwest Corner of the Southwest Quarter of the Northeast Quarter of Section 14, Township 15 South, Range 10 East, of the SLB&M; and running thence South 00°26' 51" East 469.62 feet along the Quarter Section Line; thence North 89°30' 07" East 1020.02 feet; thence North 00°26' 51" West 397.84 feet to the Southerly Right of Way Line of an existing County Road known as Ridge Road; thence along said line the following two (2) calls, South 89°23'40" West 293.93 feet; thence 464.66 feet along the arc of a 1456.39 foot radius curve to the right and concave to the South, (chord bears North 81°30' 15" West 462.69 feet) to a point on the 40 acre line; thence along said line South 89°30' 07" West 269.03 feet to the point of beginning.

Excepting therefrom all oil, gas and minerals previously conveyed or reserved.

B) Also, Beginning at the Northwest corner of the Southwest Quarter of the Northeast Quarter of Section 14 Township 15 South Range 10 East, SLB&M and running thence North 00°26'51" West 119.35 feet along the Quarter section line to the Southerly right of way line of Ridge Road thence Southeasterly along the arc of a 1456.39 foot radius curve concave Southwesterly 294.72 feet; thence Bears South 66°34'01" East 294.22 feet thence South 89°30'07" West 269.03 feet to the point of beginning.

Excepting therefrom all coal and other minerals previously conveyed or reserved.

Tax Parcel No. 1B-293-2

Parcel 2:

Beginning at a point which lies South 00°26'51" East along the Quarter Section Line 469.62 feet from the Northwest Corner of the Southwest Quarter of the Northeast Quarter of Section 14, Township 15 South, Range 10 East, of the SLB&M; and running thence South 00°26'51" East 852.51 feet to the North Line of the Southeast Quarter of Section 14; thence along said Line North 89°40'58" East 1020.02 feet; thence North 00°26' 51" West 855.73 feet; thence South 89°30' 07" West 1020.02 feet to the point of beginning.

Subject to a 100 foot wide Railroad Easement being 50 feet on each side of the following described centerline:

Beginning at a point which lies North 00°26'51" West along the Quarter Section Line 117.37 feet from the Southeast corner of the Northeast Quarter of Section 14, Township 15 South, Range 10 East, of the SLB&M; thence 167.36 feet along the arc of a 200.00 foot radius curve, concave to the Southwest, (chord bears South 66°05'14" East 164.16 feet) to a point 50.00 feet from the North line of the Southeast Quarter of Section 14; thence North 89°40'58" East 870.48 feet to the point of terminus.

Excepting therefrom all oil, gas and minerals previously conveyed or reserved.

Tax Parcel No. 1B-293-3

Subject to all existing easements and rights-of-ways of record, and all prior interests or conveyances of oil, gas and mineral rights however evidenced.

BRC Wellington LLC
Dry-Coal Cleaning Facility

Permit Application
Revised October 2013

APPENDIX 1-4

Zoning and Conditional Use Permit Information

Chapter 10

COMMERCIAL AND MANUFACTURING ZONES

The M-1 Zone
provides for light
industrial uses.

Updated August 27, 2008

Wellington City

Land Use Code, Title 12

Section 10-3 MANUFACTURING ZONE M-1.

Subsections

- 10-3-1 Purpose
- 10-3-2 Permitted Use
- 10-3-3 Area Regulations
- 10-3-4 Side Yard Regulations
- 10-3-5 Front Yard Regulations
- 10-3-6 Rear Yard Regulations
- 10-3-7 Height Regulations
- 10-3-8 Coverage Regulations
- 10-3-9 Parking

Section 10-3-1 PURPOSE.

To provide in Wellington for light industrial uses.

Section 10-3-2 PERMITTED USES.

1. Ice manufacturing.
2. Food products manufacturing.
3. Textile manufacturing.
4. Furniture products manufacturing
5. Jewelry manufacturing.
6. Staging for trucking.
7. Retail sales establishment intended to service Wellington residents.
8. Restaurants and fast food establishments.
9. Professional offices.
10. Service business.
11. Warehousing.
12. Services.
13. Professional offices.
14. Industry and Manufacturing.

Chapter 10

COMMERCIAL AND MANUFACTURING ZONES

Wellington City

Land Use Code, Title 12

Section 10-3-3 AREA REGULATIONS.

Area requirements will be dependent on compliance with parking and setback regulations.

Section 10-3-4 SIDE YARD REGULATIONS.

None, except that wherever a building is located upon a lot adjacent to residential zone or agricultural boundary, there shall be provided a side yard of not less than ten (10) feet on the side of the building adjacent to the zone boundary line, and on corner lots, the side yard, which faces on a street, shall be not less than twenty (20) feet.

Section 10-3-5 FRONT YARD REGULATIONS.

The minimum depth of the front yard for all advertising signs, buildings, structures, walls, or fences more than two (2) feet in height shall be twenty (20) feet.

Section 10-3-6 REAR YARD REGULATIONS.

None, except that on corner lots which rear upon the side yard of another lot in a residential or agricultural zone, the minimum rear yard shall be ten (10) feet.

Section 10-3-7 HEIGHT REGULATIONS.

No building or structure shall be erected to a height greater than two and one-half (2 ½) stories, or thirty-five (35) feet.

Section 10-3-8 COVERAGE REGULATIONS.

No building or structure or group of buildings with their accessory buildings shall cover more than sixty (60) percent on the area of the lot.

Section 10-3-9 PARKING REGULATIONS.

For a new building or structure or the enlargement or increase in capacity or floor area of an existing main building or structure there should be at least one (1) permanently maintained parking space of not less than one hundred eighty (180) square feet for every two (2) employees at peak shift on that parcel of land.

WELLINGTON CITY CONDITIONAL USE APPLICATION

Date: 7/13/05

The following information must be provided for all conditional use permits.

Property Owner Name(s): Corval Engineered Fuels, LC

Property Address: 1865 W. Ridge Road

Property Zone: M-1 Lot Size: _____

Property Owner's Mailing Address: 10653 S. River Front Pkwy Ste 300

Property Owners Telephone #: 613-1036

Description of Proposed Conditional Use (use separate page if necessary): Wellington City ordinance states there shall be no structure over 35ft. The silo (loadout) will be 75ft. proposed conditional use is to allow silo @ 75ft. due to the fact of the zoning, which is M-1

Please attach the following:

Detailed Site plans w/Plat map drawn to scale

Signature of Neighbors (if required)

I, the undersigned, state that all information provided is true and accurate to my best knowledge.

Property Owner's Signature: _____ Date: _____

Lessee's Signature (If Applicable): _____ Date: _____

Approving Signatures

Planning and Zoning Ellie A. Fyler Date: 7-13-05

City Council Karl R. Hansberger Date: 7-18-05



Adding Value to Energy™

Hand Delivered

July 6, 2005

Mayor Karl Houskeeper
City Counsel
City of Wellington, Utah

RE: Letter of Assurance

Dear Mayor Houskeeper and Council Members:

This Letter of Assurance is provided in connection with the proposed activities of our subsidiary, Covol Engineered Fuels, LC ("Covol"), at 1865 W. Ridge Road, Wellington, Utah 84542.

As you know, Covol owns 30 acres at the above location and intends to construct and operate a coal-cleaning facility. More specifically, Covol will contract to have coal shipped to the facility where it will be processed and returned to the coal owners or other buyers.

The coal-cleaning process will generate residual material suitable for beneficial uses such as structural fill. Covol intends to use some of this material for its own purposes with the remaining residual material either returned to the original coal owners or sold to third parties.

Headwaters Incorporated supports Covol's desire to be a long-term resident of Wellington and a positive contributor to the local economy. As such, Headwaters hereby provides you with assurance that it will lend its financial support and cause Covol to manage the coal and residual material located at the facility in accordance with applicable laws. Further, upon termination of its operations, Headwaters will ensure that Covol will remove all coal and residual material located on the property (excluding material used for improvements).

Sincerely,

HEADWATERS INCORPORATED

A handwritten signature in dark ink, appearing to read "S. Stewart", is written over a horizontal line.

Steven G. Stewart
Chief Financial Officer

Co: Keith Thompson,
General Manager, Covol Engineered Fuels LC

10653 S. River Front Parkway
Suite 300
South Jordan, UT 84095
P: 801.984.9400
F: 801.984.9410

BRC Wellington LLC
Dry-Coal Cleaning Facility

Permit Application
Revised October 2013

APPENDIX 1-5

Affidavit of Publication of
Administrative Completeness



April 30, 2008

Mr. Daron Haddock
Environmental Manager - Compliance
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, Utah 84116

**RE: Affidavit of Publication
Covol Engineered Fuels, LC
Wellington Dry Coal Cleaning Facility**

Dear Mr. Haddock:

As required, Covol Engineered Fuels, LC (Covol) is submitting the original affidavit of publication for the advertisement of the Notice of Permit Application for Covol's dry coal cleaning facility located in Wellington, Utah.

If you have any questions regarding the application or need additional information, please call me at (801) 984-3770.

Sincerely,

A handwritten signature in cursive script, appearing to read "Gina Rau".

Gina Rau
Environmental Manager

Attachments (1)

cc: Mike Gipson – Covol Engineered Fuels, LC – Wellington, UT Facility

AFFIDAVIT OF PUBLICATION

STATE OF UTAH)

SS.

County of Carbon,)

I, Richard Shaw, on oath, say that I am the Publisher of the Sun Advocate, a twice-weekly newspaper of general circulation, published at Price, State a true copy of which is hereto attached, was published in the full issue of such newspaper for 4 (Four) consecutive issues, and the first publication was on the 1st day of April, 2008, and that the last publication of such notice was in the issue of such newspaper dated the 22nd day of April, 2008.

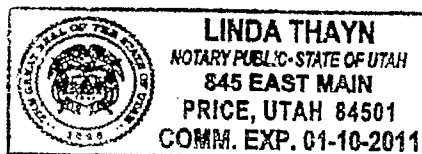

Richard Shaw - Publisher

Subscribed and sworn to before me this 22nd day of April, 2008.



Notary Public My commission expires January 10, 2007 Residing at Price, Utah

Publication fee, \$ 399.36



**NOTICE OF PERMIT APPLICATION
COVOL ENGINEERED FUELS, LC**

Notice is hereby given that COVOL Engineered Fuels, L.C., 10653 South River Front Parkway, South Jordan, Utah 84095 has submitted an application to the Utah Division of Oil, Gas and Mining (the "Division") to operate a dry-coal cleaning facility approximately 2 miles southwest of Wellington, Utah. The permit area for this facility is located in NE¼ Sec. 14, T. 15 S., R. 10 E., SLBM and contains approximately 30 acres. Pursuant to the Utah Administrative Code R645-300-121.150 notice is also provided that this facility is located within 100 feet of the outside right-of-way of a public road (Ridge Road).

The Division has determined that this application is administratively complete. A copy of the permit application is available for public inspection at the following locations:

Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, UT 84114-5801

Carbon County Clerk's Office
120 East Main
Price, Utah 84501

Written comments, objections, and requests for informal conferences or public hearings on the application or location of the facility may be addressed to:

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

Closing date for submissions of comments, objections, and requests for informal conference or public hearing is 30 days from the last date of newspaper publication.

Published in the Sun Advocate April 1, 8, 15 and 22, 2008.

AFFIDAVIT OF PUBLICATION

STATE OF UTAH)

ss.

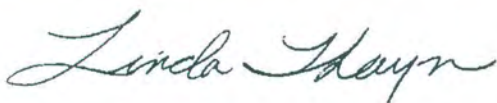
County of Carbon,)

I, Richard Shaw, on oath, say that I am the Publisher of the Sun Advocate, a twice-weekly newspaper of general circulation, published at Price, State of Utah a true copy of which is hereto attached, was published in the full issue of such newspaper for 4 (Four) consecutive issues, and on the Utah legals.com website, the first publication was on the 1st day of August, 2013, and that the last publication of such notice was in the issue of such newspaper dated the 22nd day of August 2013.



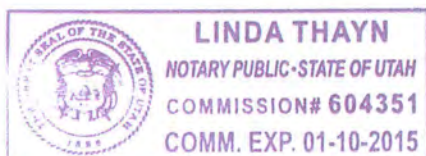
Richard Shaw – Publisher

Subscribed and sworn to before me this 22nd day of August, 2013.



Notary Public My commission expires January 10, 2015 Residing at Price, Utah

Publication fee, \$ 235.20



NOTICE OF PERMIT TRANSFER

BRC Wellington LLC, 6100 Dutchmans Lane, Suite 900, Louisville, Kentucky 40205 has submitted to the Utah Division of Oil, Gas & Mining a request to transfer coal mining permit C/007/0045 from Headwaters Energy Services to BRC Wellington LLC. The facility was originally permitted on August 31, 2009 to conduct coal cleaning operations at its Wellington, Utah site located in an industrial area on Ridge Road in Carbon County approximately 2 miles southwest of Wellington. The permit area, found on the USGS Price, Utah quadrangle map, is located in SW¼ NE¼ Section 14, Township 15 South, Range 10 East, SLBM.

Written comments, objections, or a request for an informal conference should be directed to the Utah Division of Oil, Gas & Mining, PO Box 145801, Salt Lake City, Utah 84114-5801. Copies of the transfer request and current mining and reclamation plan are available for public inspection at the offices of the Utah Division of Oil, Gas & Mining (Headquarters Office: 1594 West North Temple, Suite 1210, Salt Lake City, Utah 84116, Phone 801-538-5265; Price Field Office: 319 N. Carbonville Rd. #C, Price, Utah 84501, Phone 435-613-3737).

Published in the Sun Advocate August 1, 8, 15 and 22, 2013.

AFFIDAVIT OF PUBLICATION

STATE OF UTAH)

ss.

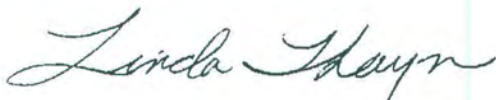
County of Carbon,)

I, Richard Shaw, on oath, say that I am the Publisher of the Sun Advocate, a twice-weekly newspaper of general circulation, published at Price, State of Utah a true copy of which is hereto attached, was published in the full issue of such newspaper for 1 (One) consecutive issues, and on the Utah legals.com website, the first publication was on the 22nd day of August, 2013, and that the last publication of such notice was in the issue of such newspaper dated the 22nd day of August 2013.



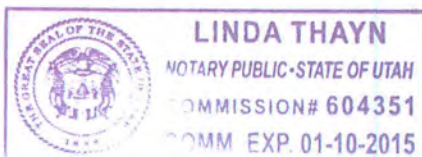
Richard Shaw – Publisher

Subscribed and sworn to before me this 22nd day of August, 2013.



Notary Public My commission expires January 10, 2015 Residing at Price, Utah

Publication fee, \$ 58.80



NOTICE OF PERMIT TRANSFER

BRC Wellington LLC, 6100 Dutchmans Lane, Suite 900, Louisville, Kentucky 40205 has submitted to the Utah Division of Oil, Gas & Mining a request to transfer coal mining permit C/007/0045 from Headwaters Energy Services to BRC Wellington LLC. The facility was originally permitted on August 31, 2009 to conduct coal cleaning operations at its Wellington, Utah site located in an industrial area on Ridge Road in Carbon County approximately 2 miles southwest of Wellington. The permit area, found on the USGS Price, Utah quadrangle map, is located in SW¼ NE¼ Section 14, Township 15 South, Range 10 East, SLBM.

Written comments, objections, or a request for an informal conference should be directed to the Utah Division of Oil, Gas & Mining, PO Box 145801, Salt Lake City, Utah 84114-5801. Copies of the transfer request and current mining and reclamation plan are available for public inspection at the offices of the Utah Division of Oil, Gas & Mining (Headquarters Office: 1594 West North Temple, Suite 1210, Salt Lake City, Utah 84116, Phone 801-538-5265).

Published in the Sun Advocate August 22, 2013.

CHAPTER 2

SOILS

2.10 Introduction

This chapter contains pertinent information relating to identification, management, and reclamation activities associated with the soil resources present in the disturbed area of the Wellington Dry-Coal Cleaning Facility.

2.20 Environmental Description

The Wellington Dry-Coal Cleaning Facility lies in central Utah in the lowlands south of the Book Cliffs and north of the San Rafael Swell. Topography is dominated by broad plains and pediment surfaces dissected by small drainages. The dominant surficial geologic formation at the site is the Mancos Shale, of which the Blue Gate member is present at the surface in this location. The Blue Gate member is dominated by shales with some siltstones and minor sandstone bedding. The drainages are often filled with alluvial and slope wash deposits (Weiss et al, 1990). Surface elevations at the site range from about 5,530 to about 5,500 feet above sea level. Due to thin soils and shortage of irrigation water, most areas near the facility are not used to grow crops. Photographs taken of the area prior to facility construction are provided in Appendix 2-1.

Soils in the area have formed from residual shale particles that mixed as they migrated down slope. Soils are usually shallow to very shallow, and consist predominantly of silty clay loams. The inherent erosion hazard from water is moderate (Jensen and Borchert, 1988).

2.2.1 Prime Farmland Investigation

No prime farmland soils are located within the Wellington Dry-Coal Cleaning Facility disturbed area (Jensen and Borchert, 1988). In surrounding undisturbed areas, native vegetation is very sparse. Furthermore, the disturbed area has been zoned for general industrial use by Carbon County, which allows for coal-cleaning activities at this site.

2.2.2 Soil Survey

In accordance with the agreement between DOGM and the prior owner, soils data for the Wellington Dry-Coal Cleaning Facility disturbed area have been taken from previously published information (Jensen and Borchert, 1988). Soil survey data are presented in Appendix 2-2, and are herein summarized in Sections 2.2.2.1 and 2.2.2.2. Survey data include the following information: taxonomic classification, typical pedon, ranges of mineral and particle size characteristics, competing series, and geographic setting (Appendix 2-2). Prior to any future disturbance of currently-undisturbed areas of the site, soil samples will be collected from the area to be affected. These samples will be analyzed according to DOGM guidelines then in affect.

2.2.2.1 Soils Map

Figure 2-1 delineates the soil types present in the disturbed and adjacent areas.

2.2.2.2 Soil Identification

According to the Soil Survey of Carbon Area, Utah (Jensen and Borchert, 1988), the Wellington Dry-Coal Cleaning Facility disturbed area is located largely on soils classified as the Persayo-Chipeta Complex with some soils classified as the Killpack Clay Loam on its eastern edge. The Persayo-Chipeta Complex (Map Unit 80) consists of light brownish-grey, shallow, well-drained soils that formed in shale. Permeability is slow to moderately slow and the soil is slightly to moderately alkaline. The potential for water erosion is moderate to high, and the potential for blowing soil is moderate. Large-scale agricultural use or revegetation of the Persayo-Chipeta Complex is not considered practical due to its fine texture and the low amount of precipitation that it receives (Jensen and Borchert, 1988). Additional information for the Persayo and Chipeta soils is included in Appendix 2-2.

The Killpack Clay Loam (Map Unit 59) consists of grayish-brown, moderately deep, well-drained soils that have formed as residuum from shale. Permeability is slow and the soil is mildly alkaline. The potentials for water erosion and blowing soil are moderate. Like the Persayo-Chipeta Complex, revegetation of the Killpack Clay Loam is not considered practical due to its

fine texture and the low amount of precipitation that it receives (Jensen and Borchert, 1988). Additional information for the Killpack Clay Loam is included in Appendix 2-2.

2.2.2.3 Soil Description

In accordance with the agreement between the prior owner and DOGM, no site-specific soil survey was performed. Thus, no further descriptions of soils are included.

2.2.2.4 Soil Productivity

Under favorable conditions, Jensen and Borchert (1988) indicate that Killpack soils can produce 700 lb/acre (dry weight) of rangeland vegetation. They report that production rates of 500 and 300 lb/acre can be expected under normal and unfavorable conditions. The Persayo-Chipeta Complex has a rangeland vegetation productivity of 300 to 400 lb/acre under favorable conditions, dropping to 100 to 150 lb/acre under unfavorable conditions.

2.2.3 Prime Farmland Soil Characterization

The published soil survey indicates that soil within the disturbed area does not qualify as prime farmland (Jensen and Borchert, 1988).

2.2.4 Substitute Topsoil

The Applicant segregated topsoil from the site prior to disturbance and, therefore, does not propose to use substitute topsoil during reclamation. Since the use of substitute topsoil is not anticipated, no field trials or other tests of suitability are anticipated.

2.30 Operation Plan

2.3.1 General Requirements

2.3.1.1 Removing and Storing Soil Methods

The Wellington Dry-Coal Cleaning Facility has been operating periodically since January 2006. At the time the facilities were constructed, topsoil was segregated and stored in stockpiles located within the main yard of the facility. Due to the thin nature (less than 6 inches thick) and relatively poor quality of the soil, it was not segregated by soil horizon. All of the segregated soil will be treated as topsoil in compliance with R614-201-234.300.

2.3.1.2 Suitability of Topsoil Substitutes/Supplements

No topsoil substitutes or supplements are planned to be used at the facility.

2.3.1.3 Testing of Topsoil Handling and Reclamation Procedures

The facility is located in an area zoned for general industrial purposes, and is expected to be used for other industrial activities after the dry-coal cleaning operation is shut down. Hence, total site reclamation is not anticipated.

For those areas of the site where reclamation will occur, BRC Wellington will exercise care to guard against erosion during and after application of topsoil and will employ the necessary measures to ensure the stability of topsoil on graded slopes. Erosion control measures will include surface roughening and erosion mat placement on slope areas thought to be unstable. The Applicant will fill, regrade, or otherwise stabilize any rills or gullies deeper than 9 inches which form in areas which have been regraded and topsoiled. The areas adjacent to any rills or gullies which have been filled, regraded or otherwise stabilized will be reseeded or stabilized appropriately.

2.3.1.4 Construction, Modification, Use, and Maintenance of Topsoil Stockpiles

The two topsoil storage piles at the facility were constructed in August 2005 and consist of 1,302 cubic yards of soil that was removed from the ground surface during site grading prior to constructing the facility. Since the topsoil averaged less than six inches thick, it was not segregated before it was stockpiled. The stockpiled materials were initially placed on a stable surface in the southeast portion of the permit area but were then moved in October 2010 to the location indicated on Plate 5-1 to accommodate site activities. The west stockpile contains 302 yd³ of topsoil and the southwest stockpile contains 1,000 yd³ of topsoil. The stockpiles were protected from wind and water erosion by being revegetated on November 18, 2010 with the seed mix contained in Table 3-1 (minus *Eriogonum inflatum*, *Oenothera caespitosa*, and *Stipa hymenoides* due to a lack of availability at the time) and by installing silt fencing below the stockpiles to help trap sediment coming off the stockpiles. A marker has been placed on the piles to indicate that they contain topsoil. It is not anticipated that this topsoil will be moved or disturbed again until required for redistribution during final reclamation.

2.3.2 Topsoil and Subsoil Removal

2.3.2.1 Topsoil Removal and Segregation

It is not anticipated that additional soil disturbances will occur at the site. However, if such disturbances do occur, all topsoil thicker than 6 inches will be removed prior to disturbance as a separate layer from the subsoil, segregated, and stockpiled separately. Topsoil less than 6 inches thick will be removed according to Section 2.3.2.3.

2.3.2.2 Poor Topsoil

Topsoil that is of an insufficient quantity or of poor quality (for sustaining vegetation) will be removed as a separate layer and segregated. Such operations will be done with approval of DOGM and in compliance with R614-301-233.100.

2.3.2.3 Thin Topsoil

Topsoil to be removed that is less than 6 inches thick will be removed with the immediately underlying unconsolidated materials. This material mixture will be treated as topsoil.

2.3.2.4 Minor Disturbances Not Requiring Topsoil Removal

Small Structures. Topsoil will not be removed prior to construction resulting in only minor disturbances. Such construction activities include work on small structures such as power poles, signs, fence lines, and other small structures.

Vegetation. BRC Wellington will not remove topsoil for minor disturbances where such activity will not destroy vegetation or cause erosion.

2.3.2.5 Subsoil Segregation

Due to the poor quality of the subsoil, the B and C soil horizons will not be individually segregated and stockpiled.

2.3.2.6 Timing

Soil removal will take place after all vegetation has been removed that could interfere with soil salvage. Surface disturbance activities will take place after the soil has been removed.

2.3.2.7 Topsoil and Subsoil Removal Under Adverse Conditions

In areas of surface disturbance where sufficient topsoil is present, topsoil and subsoil will be removed separately and segregated, except where natural conditions render such operations hazardous.

Conventional Machines. In localities where steep grades, adverse terrains, severe rockiness, limited depth of soils, or other adverse conditions exist that render soil removal and segregation activities using conventional machines hazardous, soils will not be salvaged and stockpiled.

Substitute Topsoil. Importing of substitute topsoil will not be required.

2.3.3 Topsoil Substitutes and Supplements

2.3.3.1 Overburden Materials Supplementing and/or Replacing Topsoil

No overburden materials will be used in site reclamation.

2.3.3.2 Suitability of Topsoil Substitutes and Supplements

No topsoil substitutes or supplements are planned for use at the facility.

2.3.3.3 Physical and Chemical Analyses

No topsoil substitutes or supplements are planned for use at the facility. Hence, no physical or chemical analyses of substitute material are anticipated.

2.3.3.4 Testing of Substitute Topsoil

Since it will not be used at the site, no testing of substitute topsoil is anticipated.

2.3.4 Topsoil Storage

2.3.4.1 Topsoil Stockpiling

Topsoil that was removed from the area during site grading is stored in two on-site stockpiles (Section 2.3.1.4). Any topsoil removed from the site in the future will be stockpiled for later use in reclamation operations when it is impractical to promptly redistribute the topsoil on regraded areas.

2.3.4.2 Stockpiled Topsoil

Stable Stockpile Site. The topsoil removed from the site is stored in two small stockpiles (approximately 5,500 square feet each), located in a stable area in the southern portion of the permit area.

Protection from Contaminants and Compaction. Stockpiled topsoil will be located in areas away from traffic that might introduce contaminants and unnecessary compaction.

Wind and Water Erosion Protection. The topsoil stockpile will be protected from wind and water erosion by prompt establishment and maintenance of a vegetative cover. Silt fencing or a soil berm with a minimum height of 1 foot will be installed below the stockpile to help trap sediment runoff from the stockpile.

Topsoil Redistribution. No stockpiled topsoil will be moved until redistributed during reclamation operations unless approved by DOGM.

2.3.4.3 Topsoil Stockpile Relocation

Stockpiled topsoil in jeopardy of being detrimentally affected in terms of its quantity and quality by facility operations may be temporarily redistributed.

Host Site. Topsoil relocation may occur provided that such action does not permanently adversely affect topsoil of the host site.

Topsoil Suitability. Topsoil relocation may occur provided the topsoil is retained in a condition more suitable for redistribution than if stockpiled.

2.40 Reclamation Plan

2.4.1 General Requirements

Topsoil redistribution, amendments, and stabilization are discussed below.

2.4.2 Soil Redistribution

2.4.2.1 Soil Redistribution Practices

Under the industrial post-operation land-use scenario, the extent of the future redistribution of soil resources following facility shutdown is not currently known. However, for the sake of

developing a reclamation cost estimate, it is assumed in this permit application that the 9.7-acre area south of the facility loop road will be reclaimed, with the runoff- and sediment-control structures being retained for use by the future landowner. For areas of the site that may be reclaimed, the topsoil will be redistributed following removal of all structures not part of the post-operation land use and regrading of the site. Due to the high clay content and sodicity of the soils, no reclamation grading or redistribution of topsoil will occur when the soil is too wet to adequately handle. As described in 2.4.2.3, roads, storm water impoundments, and their appurtenant drainage channels will be left in place to support the post-operation land use.

2.4.2.2 Regrading

Since the facility is essentially level, extensive site regrading will not be performed following its closure. The topographic configuration of the plant area will be left essentially unchanged for the subsequent landowner.

2.4.2.3 Topsoil Redistribution on Impoundments and Roads

On-site storm water impoundments and roads will be left in place to support the post-operation land use.

2.4.3 Soil Nutrients and Amendments

No soil nutrients or amendments will be applied.

2.4.4 Soil Stabilization

2.4.4.1 Protection and Stabilization of Surface Areas

The site has no unstable grades. Since there will be no substantial regrading of the site upon closure, no protection or stabilization of surface areas will be required.

2.4.4.2 Mulch Application

In support of the post-operation land use, no substantial regrading or redistribution of topsoil is anticipated upon site closure. If topsoil is redistributed over an area, revegetation of this soil will be promoted via surface roughening and (potentially) the application of erosion mats, rather than through the application of mulch.

2.4.4.3 Rills and Gullies

Low slope angles and drainage diversions retained on the site will minimize the potential for rills and gullies to form following closure.

2.50 Performance Standards

2.5.1 Topsoil, Subsoil, and Topsoil Supplements Management

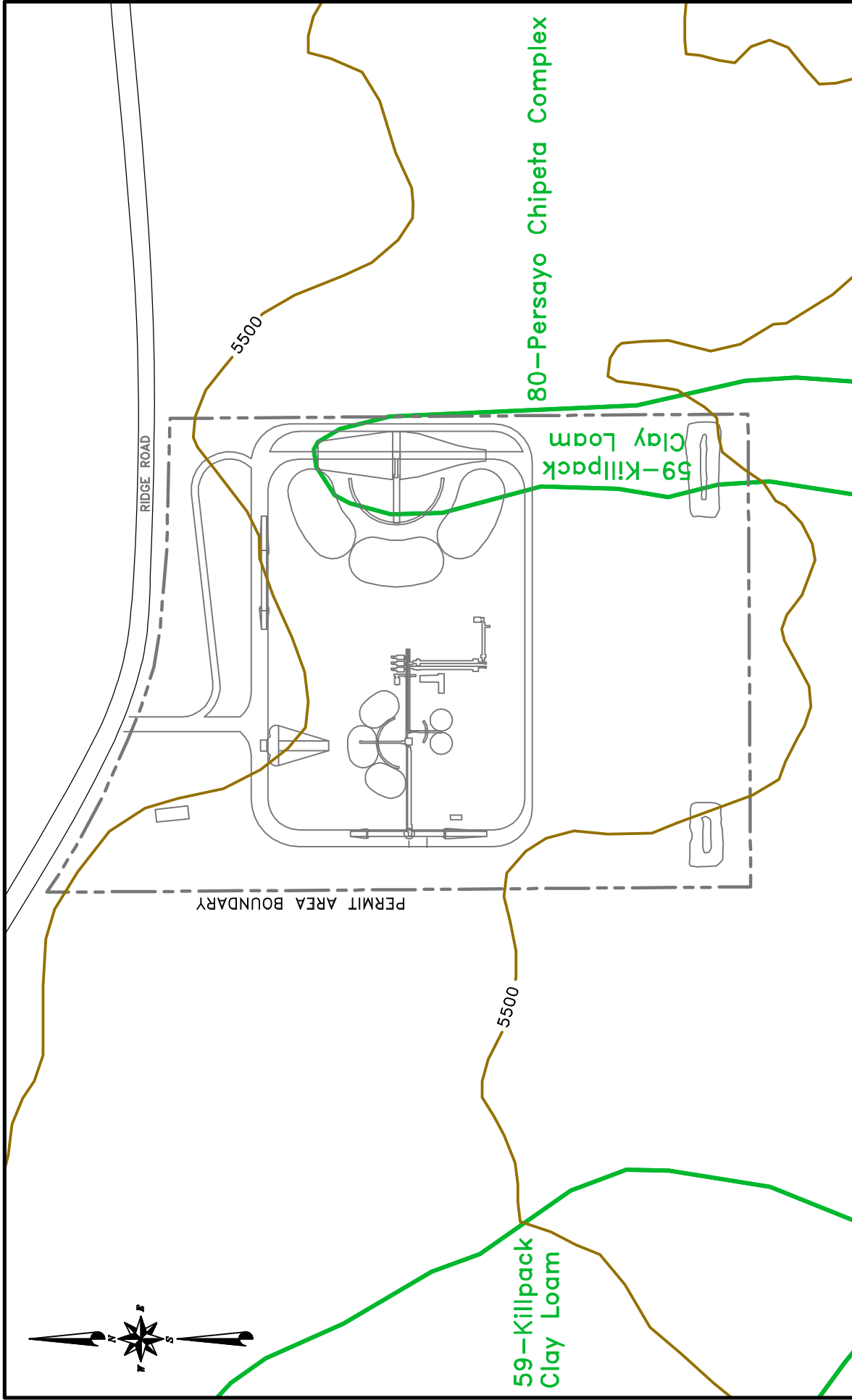
All topsoil, subsoil, and topsoil supplements shall be managed as outlined in Sections 2.30 and 2.40.

2.5.2 Stockpiled Topsoil and Subsoil

All stockpiled topsoil and subsoil will be managed according to plans outlined in Sections 2.30 and 2.40.

REFERENCES

- Jensen, Earl H. and James W. Borchert, 1988. Soil Survey of Carbon Area, Utah. U.S. Department of Agriculture Soil Conservation Service. 294 pp.
- Weiss, Malcolm P., Irving J. Witkind, and William B. Cashion, 1990. Geologic Map of the Price 30' X 60' Quadrangle, Carbon, Duchesne, Uintah, Utah, and Wasatch Counties, Utah. U.S. Geological Survey Miscellaneous Investigations Series Map I-1981. 1:100,000 scale.



BASE MAP: 7.5' USGS QUADRANGLE
 PRICE, UTAH 1972
 SOILS: USDA NRCS, WEB SOIL SURVEY

0' 300'



FIGURE 2-1. SOILS MAP

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Permit Application
October 2013

APPENDIX 2-1

Pre-Disturbance Photographs



Photo 1- North Property Boundary Facing West, Ridge Road on Right



Photo 2- Overview of Property Facing Southwest

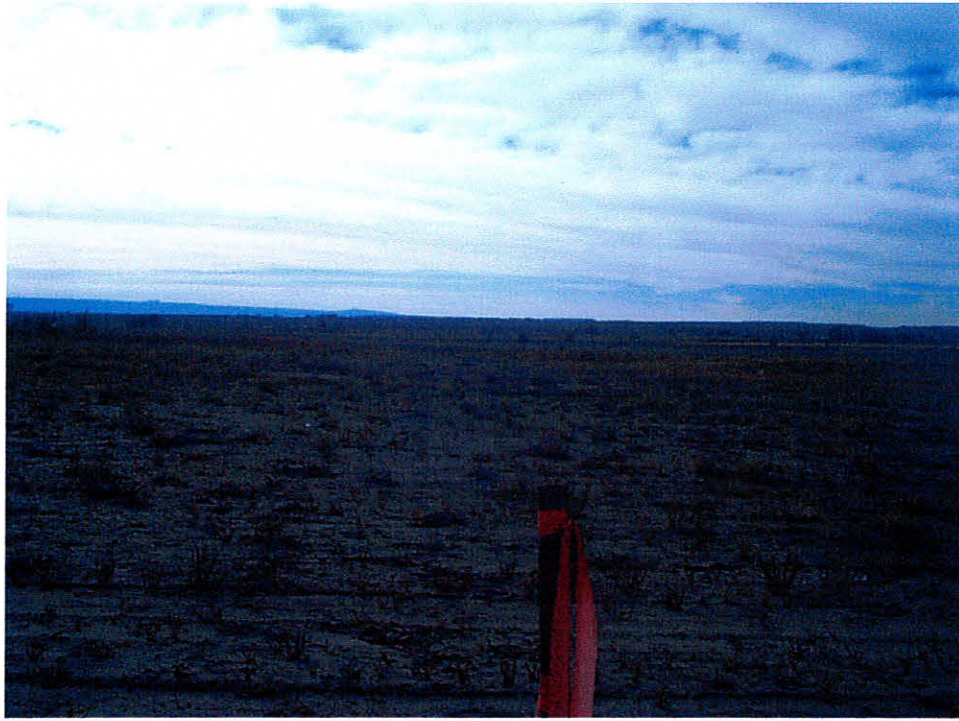


Photo 3- East Property Boundary Facing South

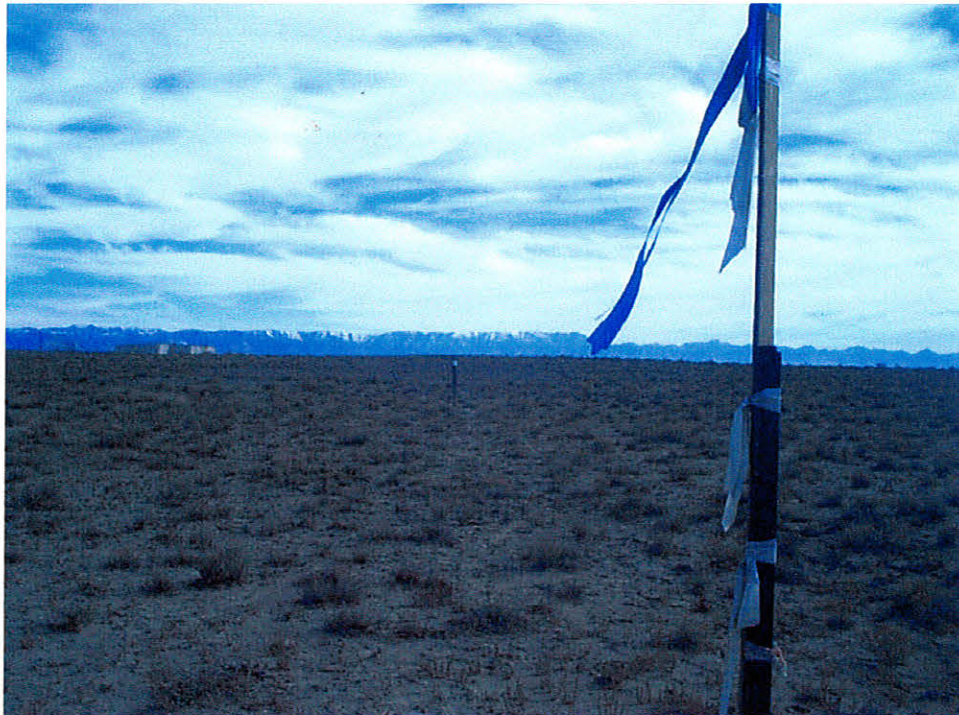


Photo 4- Southwest Property Boundary Facing North



Photo 5- Overview of Property



Photo 6- Septic Tank

BRC Wellington LLC
Dry-Coal Cleaning Facility

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APPENDIX 2-2

Published Soil Survey Information

Official Series Description - CHIPETA Series

CHIPETA SERIES

The Chipeta series consists of very shallow and shallow, well drained, slowly permeable soils that formed in residuum and colluvium from shale. Chipeta soils are on upland pediments and hills and have slopes of 0 to 35 percent. The average annual precipitation is about 7 inches and the mean annual temperature is about 50 degrees F.

TAXONOMIC CLASS: Clayey, mixed, active, calcareous, mesic, shallow Typic Torriorthents

TYPICAL PEDON: Chipeta silty clay loam -cultivated. (Colors are for air-dry soil unless otherwise noted.)

Ap--0 to 5 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; weak fine subangular blocky structure; hard, firm, sticky and plastic; few fine and medium roots; few fine discontinuous pores; violently effervescent; slightly alkaline (pH 7.7); clear smooth boundary. (1 to 5 inches thick)

C--5 to 13 inches; light brownish gray (2.5Y 6/2) silty clay, dark grayish brown (2.5Y 4/2) moist; moderate medium and fine subangular blocky structure; hard, very firm, sticky and plastic; few fine and medium roots; few large continuous pores, few fine discontinuous pores; violently effervescent; slightly alkaline (pH 7.6); clear wavy boundary. (6 to 10 inches thick)

Cy--13 to 17 inches; light brownish gray (2.5Y 6/2) silty clay, dark grayish brown (2.5Y 4/2) moist; weak, moderately thick platy structure parting to weak medium blocky; hard, very firm, sticky and plastic; few fine and medium roots; many fine crystals and mycelia-like veins of gypsum; 20 percent unweathered shale fragments; violently effervescent; slightly alkaline (pH 7.4); gradual irregular boundary. (3 to 5 inches thick)

Cr--17 inches; weathered marine shale.

TYPE LOCATION: Emery County, Utah; 1 mile south and 1-1/2 miles east of Castle Dale, 1,000 feet south and 20 feet east of the northwest corner, sec. 11, T. 19 S., R. 8 E.

RANGE IN CHARACTERISTICS:

Soil moisture regime: Typic Aridic.

Soil temperature regime: Mesic.

Depth to shale: 5 to 20 inches.

Salinity: moderate to strong.

Particle-size control section: 35 to 50 percent clay.

Mean annual soil temperatures: 49 to 57 degrees F.

Reaction: slightly alkaline to strongly alkaline.

A horizon:

Hue: 10YR to 5Y

Value: 5 to 8 dry, 3 to 6 moist

Chroma: 2 to 4

Texture: loam or silty clay loam

C horizon:

Hue: 10YR to 5Y

Value: 4 to 6 dry, 3 to 5 moist

Chroma: 1 to 4

Textures: silty clay loam or silty clay

Gypsum: 0.5 to 10 percent and gypsum crystal ranges from few to many.

COMPETING SERIES: This is the Chipenhill series. Chipenhill soils have more than 10 percent gypsum.

GEOGRAPHIC SETTING: These soils are on gently sloping to steep upland pediments and hills. Slopes are complex and range from 0 to 35 percent. These soils formed in residuum from alkaline marine shales containing gypsum. The climate is semiarid. The mean annual temperature is 45 to 55 degrees F. The freeze-free period ranges from 90 to 160 days. Mean annual precipitation ranges from 5 to 11 inches.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Killpack, Persayo, and Libbings soils.

Killpack soils: have fine-silty particle-size control sections.

Persayo soils: have loamy particle-size control sections.

Libbings soils: have a salic horizon.

DRAINAGE AND PERMEABILITY: Well drained; medium to very high runoff; slow permeability.

USE AND VEGETATION: A few of the smoother areas of deeper soil are irrigated and used for growing grain and hay crops. Potential vegetation is mat saltbush and galleta.

DISTRIBUTION AND EXTENT: Western Colorado, Wyoming, eastern Utah, and New Mexico. LRR D, MLRA 34. The series is extensive.

MLRA OFFICE RESPONSIBLE: Lakewood, Colorado

SERIES ESTABLISHED: Uncompahgre Valley Area, Colorado, 1910.

REMARKS:

All pH values given are of soil paste.

Diagnostic horizons and features recognized in this pedon are:

Ochric epipedon-the zone from the surface to 5 inches (Ap horizon)

Shallow feature-weathered shale at 17 inches (Cr horizon)

Taxonomic version: Seventh Edition, 1996.

National Cooperative Soil Survey
U.S.A.

Official Series Description - KILLPACK Series

KILLPACK SERIES

The Killpack series consists of moderately deep, well drained, slowly permeable soils that formed in alluvium and residuum from saline marine shale. Killpack soils are on sideslopes and toeslopes of rolling shale hills. Slopes are 1 to 25 percent. Average annual precipitation is about 7 inches and mean annual temperature is about 52 degrees F.

TAXONOMIC CLASS: Fine-silty, mixed, active, calcareous, mesic Typic Torriorthents

TYPICAL PEDON: Killpack clay loam, cropland. (Colors are for air-dry soil unless otherwise noted.)

Ap--0 to 9 inches; brownish gray (2.5Y 5/2) clay loam, dark grayish brown (2.5Y 4/2) moist; weak medium and fine granular structure; hard, firm, slightly sticky and slightly plastic; common fine roots; common fine pores; strongly calcareous; mildly alkaline (pH 7.8); clear smooth boundary. (6 to 9 inches thick)

C--9 to 23 inches; light brownish gray (2.5Y 6/2) clay loam, grayish brown (2.5Y 5/2) moist; moderate coarse subangular blocky parting to weak fine subangular blocky structure; hard, firm, sticky and plastic; few fine roots; few fine pores; strongly calcareous; mildly alkaline (pH 7.7); gradual wavy boundary. (8 to 21 inches thick)

Cy--23 to 29 inches; light brownish gray (2.5Y 6/2) silty clay loam, grayish brown (2.5Y 5/2) moist; massive; hard, very firm, sticky and plastic; few fine roots; strongly calcareous; mildly alkaline (pH 7.7); many gypsum crystals 5 to 15mm in diameter; gradual wavy boundary. (6 to 10 inches thick)

Cr--29 inches; light brownish gray weathered shale.

TYPE LOCATION: Emery County, Utah; 2 miles northwest of Elmo, northeast of the Elmo road and the Cleveland-Price road; 2,450 feet north and 300 feet east of the SW corner of sec. 30, T. 16 S., R. 10 E.

RANGE IN CHARACTERISTICS: Soil temperatures are more than 47 degrees F. Depth to shale bedrock ranges from 20 to 40 inches. There is a few to common gypsum crystals accumulated immediately above the shale. Clay minerals are mixed but dominantly illite and kaolinite. The particle-size control section ranges from silty clay loam to silt loam with 18 to 35 percent clay.

The A horizon has hue of 10YR through 5Y, dry value of 5 or 6, moist value of 4 or 5, and chroma of 2 through 4.

The C horizon has hue of 10YR through 5Y, value of 5 through 7 dry, 3 through 7 moist, and chroma of 2 through 4.

The Cy horizon has the same color as the C horizon and contains 5 to 15 percent shale channers.

COMPETING SERIES: These are the Rosney, Sagers and Swinger series. Rosney, Sagers and Swinger soils are deeper than 40 inches to bedrock.

GEOGRAPHIC SETTING: These soils are on the gentle sideslopes of rolling shale hills. Slope gradients range from 1 to 25 percent. Killpack soils formed in alluvium and residuum from saline marine shale. The climate is semiarid with mean annual temperature of 47 to 55 degrees F. Mean annual precipitation ranges from 5 to 11 inches.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Chipeta, Persayo, Billings and Libbings soils. Chipeta and Persayo soils are less than 20 inches deep over shale. Billings soils are very deep and developed in alluvium. Libbings soils have salic horizons above a depth of 20 inches.

DRAINAGE AND PERMEABILITY: Well drained; medium to rapid runoff; slow permeability.

USE AND VEGETATION: Cultivated areas are used for grain, alfalfa hay, and irrigated pasture. The remaining areas are used for rangeland. Potential vegetation is shadscale, greasewood, galleta grass, and gardner saltbush.

DISTRIBUTION AND EXTENT: Eastern Utah and western Colorado. The series is moderately extensive.

MLRA OFFICE RESPONSIBLE: Lakewood, Colorado

SERIES ESTABLISHED: Emery County, Utah, 1972.

REMARKS: The pH values were determined of soil paste.

National Cooperative Soil Survey
U.S.A.

Official Series Description - PERSAYO Series

PERSAYO SERIES

The Persayo series consists of shallow, well drained soils on hills, terraces, and ridges. These soils formed in thin sediments weathered from underlying soft sedimentary bedrock. Slopes are 1 to 45 percent. The mean annual precipitation is about 9 inches and the mean annual temperature is about 51 degrees F.

TAXONOMIC CLASS: Loamy, mixed, active, calcareous, mesic, shallow Typic Torriorthents

TYPICAL PEDON: Persayo silty clay loam - grassland. (Colors are for dry soil unless otherwise noted.)

A--0 to 4 inches; light yellowish brown (2.5Y 6/3) silty clay loam, light olive brown (2.5Y 5/3) moist; moderate fine granular structure, weak platy in the upper 1/2 inch; soft, very friable; calcareous; moderately alkaline (pH 8.2); gradual smooth boundary. (3 to 7 inches thick)

C--4 to 14 inches; light yellowish brown (2.5Y 6/4) silty clay loam, light olive brown (2.5Y 5/4) moist; weak medium subangular blocky structure parting to moderate fine granules; hard, very friable; few small calcium sulfate crystals; calcareous; moderately alkaline (pH 8.2) gradual smooth boundary. (7 to 14 inches thick)

Cr--14 inches; calcareous; gray and yellow shale and siltstone.

TYPE LOCATION: Montrose County, Colorado; 0.1 mile north of the southeast corner of Sec. 22, T. 51 N., R. 10 W.

RANGE IN CHARACTERISTICS:

These soils are dry in all parts of the moisture control section for more than three-fourths of the time that the soil temperature is above 41 degrees F.

Moisture regime: Typic Aridic.

Mean annual soil temperature: 47 to 58 degrees F.

Mean summer soil temperature: 60 to 75 degrees F.

Depth to paralithic contact: 4 to 20 inches.

Organic carbon: approximately .4 percent.

The sand/clay ratio: less than 1 to about 3.

Exchangeable sodium: typically less than 3 percent, but tends to increase as depth increases and differs among pedons.

Calcium carbonate equivalent: 5 to 14 percent. Calcium sulfate: less than 1 to about 10 percent.

Particle-size control section (weighted average): Texture: silt loam, loam, clay loam, or silty clay loam.

Clay content: 18 to 35 percent.

Silt content: 30 to 65 percent.

Sand content: 5 to 45 percent.

Coarse fragments: usually less than 5 percent and range from 0 to 15 percent.

A horizon

Hue: 10YR to 5Y

Value: 5 to 7 dry, 4 to 6 moist

Chroma: 2 through 4

Reaction: slightly to strongly alkaline

Consistence: soft to slightly hard.

C horizon

Hue: 10YR through 5Y

Value: 5 or 6 dry, 4 or 5 moist

Chroma: 2 to 4

Reaction: slightly alkaline to strongly alkaline. It contains some visible calcium carbonate and gypsum which are not concentrated into a definite horizon of secondary accumulation and are considered to be characteristics of the parent sediments rather than pedogenic.

COMPETING SERIES: This is the Shalet series. Shalet soils have hues redder than 7.5YR.

GEOGRAPHIC SETTING: These soils are on upland hills, terraces, and ridges. Slopes range from 1 to 45 percent. The soil formed in thin sediments weathered from underlying soft sedimentary bedrock. Elevation ranges from 5,000 to 6,800 feet. At the type location mean annual precipitation is 7 to 11 inches with peak periods of precipitation occurring during the late summer. Mean annual temperature ranges from 47 to 53 degrees F., and mean summer temperature is about 66 to 70 degrees F. Frost-free period ranges from 95 to 150 days. In Utah this soil has a mean annual precipitation of 6 to 8 inches, mean annual temperature of 48 to 50 degrees, and a frost-free season of 115 to 140 days at an elevation of 5,300 to 6,200 feet.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Chipeta and Menoken soils. Chipeta soils have more than 35 percent clay in the series control section. Menoken soils lack bedrock above a depth of 20 inches and have cambic horizons.

DRAINAGE AND PERMEABILITY: Well drained; medium to rapid runoff; moderate or moderately slow permeability.

USE AND VEGETATION: These soils are used almost exclusively for native pastureland. Native vegetation is salt sage, greasewood, shadscale, and scattered grasses.

DISTRIBUTION AND EXTENT: Western Colorado and Wyoming, northwestern New Mexico, and eastern Utah. The series is of large extent. MLRA 35.

MLRA OFFICE RESPONSIBLE: Lakewood, Colorado

SERIES ESTABLISHED: Western Colorado Reconnaissance, W95, 1939.

REMARKS: Diagnostic horizons and features recognized in this pedon are: Paralithic contact - at about 14 inches. Classified according to Keys to Soil Taxonomy Ninth Edition, 2003

National Cooperative Soil Survey
U.S.A.

CHAPTER 3

BIOLOGY

3.10 Introduction

This chapter provides a general description of the biological resources found in the vicinity of the Wellington Dry-Coal Cleaning Facility, and describes measures taken to protect biological resources adjacent to the permit area. As indicated in Appendix 3-1, information concerning biological resources in the area was obtained from a literature search, a field survey by a competent biologist, and consultation with the Utah Division of Wildlife Resources (“DWR”) and the U.S. Fish and Wildlife Service (“USFWS”).

Unlike many coal mining operations which are located in previously undisturbed areas, the Wellington Dry-Coal Cleaning facility occupies property that is zoned for general industrial purposes and the site was disturbed prior to the submittal of this application. Given the poor suitability of site soils for agricultural and rangeland purposes (see Section 2.2.2.2 of this application), the site will be reclaimed for future industrial use rather than restoring the site to its undisturbed condition (see also Section 4.1.2.1 of this application). This is in accordance with R645-301-413.120. Also, unlike many coal mining operations, the area impacted by the facility is almost exclusively limited to the permit area boundary. No subsidence, groundwater, or surface water impacts are expected to extend off site. This is due to the lack of underground mining and subsidence at this facility as well as environmental controls that include runoff, sediment, and fugitive dust management, fencing off the permit area, and proper waste disposal. Thus, while biological resources inside the permit boundary may have been affected by current uses of the property, efforts have been taken to protect biological resources in the undisturbed areas adjacent to the permit boundary.

3.1.1 Vegetative, Fish and Wildlife Resources

General vegetative, fish and wildlife resource conditions in the vicinity of the Wellington Dry-Coal Cleaning Facility are discussed in Appendix 3-1 and Section 3.20.

3.1.2 Potential Impact to Vegetative, Fish and Wildlife Resources

Potential impacts to vegetative, fish and wildlife resources and the associated mitigation plans are presented in Appendix 3-1 and Sections 3.30 and 3.40 of this application.

3.1.3 Description of Reclamation Plan

The plan to reclaim vegetative, fish and wildlife resources to a condition suitable for the post-operations land use is presented in Section 3.40.

3.20 Environmental Description

3.2.1 Vegetation Information

3.2.1.1 Plant Communities Within the Proposed Permit and Adjacent Areas

As indicated in Appendix 3-1, the general area is characterized as a greasewood/rabbitbrush plant community. Vegetation within and/or adjacent to the facility consists of the following:

Trees

- Russian olive (*Elaeagnus angustifolia*) – also considered a noxious species
- Tamarisk (*Tamarix spp.*) – also considered a noxious species
- Fremont cottonwood (*Populus fremontii*)
- Willow (*Salix spp.*)

Shrubs:

- Big sage (*Artemisia tridentata*)
- Big rabbitbrush (*Chrysothamnus nauseosus*)
- Greasewood (*Sarcobatus vermiculatus*)
- Winterfat (*Krascheninnikovia lanata*)
- Broom snakeweed (*Gutierrezia sarothrae*)
- Skunkbush (*Rhus trilobata*)
- Inkweed (*Suaeda torreyana*)
- Shadscale (*Atriplex confertifolia*)

Forbs

- Halogeton (*Halogeton glomeratus*)
- Curlycup gumweed (*Grindelia squarrosa*)
- Desert trumpet (*Eriogonum inflatum*)
- Showy milkweed (*Asclepias speciosa*)
- Russian thistle (*Salsola iberica*)
- Plains prickly pear cactus (*Opuntia polyacantha*)
- Rocky Mountain bee plant (*Cleome serrulata*)
- Common sunflower (*Helianthus annulus L.*)
- Diffuse knapweed (*Centaurea diffusa*)

Grasses:

- Foxtail barley (*Hordeum murinum*)
- Cheatgrass (*Bromus tectorum*)
- Indian ricegrass (*Orizopsis hymenoides*)

Vegetation within the site boundary is primarily isolated to the edges of the fenced area. Approximately 70% of the vegetative species within and adjacent to the site consists of cheatgrass, rabbitbrush, greasewood, Russian thistle, big sage, and halogeton. Based on observations in adjacent undisturbed areas, the facility area was likely dominated by rabbitbrush, greasewood, sage, and native prior to any disturbance in the region. However, cheatgrass, halogeton, and Russian thistle have commonly invaded many areas since the region was settled, and likely existed in the permit area prior to development (Chris Jensen, personal communication, 13 Oct 2008).

Miller Creek is a perennial stream that exists about 0.4 mile south of the Wellington site. A riparian corridor exists along this stream for a width of 25 to 50 feet. Vegetation within this corridor consists predominantly of Russian olive (*Elaeagnus angustifolia*) and Tamarisk (*Tamarix spp.*), with a few Fremont cottonwood (*Populus fremontii*) and Willow (*Salix sp.*) trees. Both Russian olive and Tamarisk are classified as noxious species.

3.2.1.2 Land Productivity Prior to Mining

Cover density in adjacent undisturbed areas averages approximately 55 to 65% (Chris Jensen, personal communication, 13 Oct 2008). Based on the general uniformity of vegetation in undisturbed areas outside the boundary fence, it is assumed that cover densities within the site area prior to disturbance were similar to those that now exist outside of the boundary fence in adjacent areas.

3.2.2 Fish and Wildlife Information

Undisturbed lands in the area generally support limited wildlife habitat, which is mainly due to the lack of precipitation, unproductive soils, and sparse vegetation. Disturbed areas support even less wildlife.

During a site inspection conducted in September 2008, cottontail rabbit (*Sylvilagus audubonii*) and some ant mounds were the only signs of wildlife observed within the BRC Wellington permit area (see Appendix 3-1). Although maps obtained from the DWR web site indicate that mule deer and pronghorn antelope may occupy the general area surrounding the Wellington site, no evidence (e.g., scat, tracks, grazed vegetation) of big game species known to inhabit the region (e.g. mule deer, elk, antelope, big horn sheep) was identified in the permit or adjacent areas. Forage for these large herbivores is generally sparse within the area.

The DWR has also indicated that burrowing owls may be present in the general vicinity of the Wellington site. A burrowing owl assessment was conducted of the area on September 25, 2008 by Chris Jensen, Project Biologist with Canyon Environmental. Mr. Jensen's qualifications for conducting this assessment are summarized in Appendix 3-2. This assessment was conducted by walking transects across the permit and adjacent areas at a spacing of 10 to 15 feet. In the absence of specific guidelines established by the State of Utah for conducting these assessments, guidelines promulgated by the States of Arizona, California, and Colorado were used for this assessment. Anthony Wright, Regional Sensitive Species Biologist with the DWR, indicated that these methodologies were appropriate for use in Utah (see Appendix 3-1). No burrows indicating the presence of burrowing animals were found within or adjacent to the site. However, prairie dogs and their burrows were observed approximately one-half mile east of the site near Ridge Road and appropriate habitat for prairie dogs and burrowing owls is located south and east of the permit area as noted in Appendix 3-1.

In order to best determine the presence or absence of burrowing owls in the areas adjacent to the coal cleaning facility, the prior owner conducted an additional burrowing owl survey in June 2010. A representative from the prior owner consulted with DWR and DOGM prior to conducting the survey to verify the appropriate time and protocol to be used to implement the survey. The results of this survey have been placed in the DOGM confidential file.

Given the lack of perennial surface water, there is no fish habitat within the permit area.

3.2.2.1 Level of Detail

The scope and level of detail within this document are sufficient to design the protection and enhancement plan for wildlife and fish in the area.

3.2.2.2 Site-specific Resource Information

A site-specific evaluation of wildlife within the permit and adjacent areas was conducted on September 25, 2008. The results of this evaluation are provided in Appendix 3-1. Information obtained from DWR and USFWS as part of that evaluation indicates that critical habitat areas have been designated in Carbon County (as a whole) for the following Federally-protected species (see Appendix 3-1):

- Mexican spotted owl (*Strix occidentalis lucida*) – Threatened
- Humpback chub (*Gila cypha*) – Endangered
- Bonytail chub (*Gila elegans*) – Endangered
- Razorback sucker (*Xyrauchen texanus*) – Endangered
- Colorado pikeminnow (*Ptychochelilus lucius*) – Endangered

Critical habitat areas for the Mexican spotted owl are located in the Book Cliffs about 25 miles east of the permit area. Given this significant distance, activities at the BRC Wellington site will not adversely impact this species or its critical habitat. Critical habitat areas for the Humpback chub, Bonytail chub, Razorback sucker, and Colorado pikeminnow are found in the Green River more than 30 miles east of the permit area. Runoff- and sediment-control measures that have been implemented within the Wellington permit area preclude adverse impacts to these species or their critical habitats.

Under the USFWS Windy Gap Process, projects within the Upper Colorado River Basin may be assessed a one-time conservation fee, depending on annual water usage, to study and protect endangered fish species. The conservation fee is generally assessed only if the annual water consumption exceeds 100 acre-feet. BRC Wellington owns 6 shares of water for use in the permit area, equating to 6 acre-feet of water per year. Actual water usage from October 31, 2006 through November 31, 2007 was 4.1 acre-feet. BRC Wellington acknowledges that the assessment of the conservation fee must be decided by the U.S. Fish and Wildlife Service, with this assessment potentially being independent of the 100 acre-foot value.

Appendix 3-1 indicates that the following endangered, threatened, or sensitive species may be present in the general vicinity of the permit area:

- Black-footed ferret (*Mustela nigrapes*) – Endangered/extirpated
- Burrowing owl (*Athene cunicularia*) – State sensitive
- White-tailed prairie dog (*Cynomys leucurus*) – State sensitive
- Bluehead sucker (*Catostomus discobolus*) – State sensitive

Black-footed ferrets feed on prairie dogs as their primary food source. As such, their potential presence cannot be ruled out when prairie dog towns exist. The fact that no prairie-dog burrows have been observed within and adjacent to the permit area makes it improbable that ferrets exist in this area. The closest prairie-dog town is located approximately one-half mile east of the permit area. The lack of potential black-footed ferret habitat in the permit and adjacent areas, together with prohibitions on personnel and equipment access outside of the chain-link boundary fence, indicate that site activities will have no adverse impacts on this species or its habitat.

Burrowing owls utilize existing mammal burrows or sometimes excavate their own burrows in soil for nesting. The fact that no burrows have been observed within and adjacent to the permit area makes it improbable that burrowing owls currently exist in the permit and adjacent areas. However, the area does contain potentially suitable conditions for nesting of burrowing owls. Plans to minimize potential impacts to this species are presented in Section 3.3.3 of this application.

White-tailed prairie dogs live in underground burrows. No such burrows have been observed within and adjacent to the permit area. Given the developed nature of the Wellington site, the existence of the boundary fence, access restrictions outside of that fence, and the lack of identified burrows in the permit and adjacent areas, it is doubtful that site activities would adversely impact prairie dogs or their habitats.

The Bluehead sucker is a bottom-dwelling fish species that occurs in the upper Colorado River basin. This species may occur in Miller Creek, approximately 0.4 mile south of the permit area. Runoff-and sediment-control measures implemented in the permit area will eliminate the potential for sediment to reach Miller Creek from the BRC Wellington site, thereby minimizing potential impacts to this species.

Migratory raptors may forage in the area and could nest in the riparian corridor along Miller Creek. Given the distance from the permit area, activities at the BRC Wellington site will not directly impact potential nesting sites for these raptors. However, the raptors may prey on species that occur within or adjacent to the permit area. These prey species include cottontail rabbit (*Sylvilagus audubonii*), jackrabbit (*Lepus spp.*), and white-tailed prairie dog (*Cynomys leucurus*). Plans to minimize potential impacts to migratory raptors in the area are discussed in Section 3.3.3 of this application.

3.2.2.3 Fish and Wildlife Service Review

If requested, the applicant authorizes the release of information pertaining to Section 3.2.2 and 3.3.3 to the U.S. Fish and Wildlife Service Regional and Field office for their review.

3.2.3 Maps and Aerial Photographs

No maps or aerial photographs will be used to address the biological resources of the permit area.

3.30 Operation Plan

3.3.1 Measures Taken to Disturb the Smallest Practicable Area

No disturbance will occur beyond the fenced area that constitutes the disturbed and permit area boundary. All areas within the fence may be used for active operations. Thus, interim

revegetation of the site is not feasible. The area within the fence is the smallest practicable area of disturbance for this operation.

3.3.2 Description of Anticipated Impacts of Subsidence

No subsidence associated with the Wellington Dry-Coal Cleaning Facility will occur since the facility does not conduct underground mining operations.

3.3.3 Plan to Minimize Disturbances and Adverse Impacts

A limited number of potential biological concerns were identified in Appendix 3-1 that may require attention to minimize the adverse impacts of facility operations in the permit area. These potential concerns and plans to minimize adverse impacts are as follows:

- The Bluehead sucker, a State-sensitive species, may be present in Miller Creek. Runoff- and sediment-control facilities at the site have been installed and will be maintained to minimize disturbances to Miller Creek, thereby minimizing potential impacts to this species. No diversions from or discharges of water to Miller Creek currently occur or are planned. However, if future site activities require the diversion of water from or the direct discharge of water to Miller Creek, BRC Wellington will first consult with DWR and implement appropriate methods to ensure that potential impacts to this species are minimized.
- Burrowing owls, a State-sensitive species, do not currently occur on or adjacent to the site (as indicated by a lack of burrows). However, due to the presence of suitable breeding habitat at the site, this species could inhabit the site in the future. Therefore, if future land-disturbing activities are planned at the site during the Burrowing owl breeding season (February through August), BRC Wellington will conduct a pre-construction survey of the area to determine whether or not Burrowing owls are present in the area to be disturbed. If they are found in the area of proposed disturbance, discussions will be held with DWR to determine the most prudent plan of action. This may include avoiding construction in the subject area until after the breeding season is over, until all of the chicks had fledged the burrow, or until the adults have vacated the site.
- Migratory raptors may forage at the Wellington site or nest in the riparian corridor along Miller Creek. If future land-disturbing activities are planned at the site during the

raptor nesting season (February through September), BRC Wellington will conduct a pre-construction survey to determine whether or not raptors are nesting in the area to be disturbed. If they are found in the area of proposed disturbance, construction in the subject area will be postponed until after the nesting season is over.

- Various prey species of interest to raptors may be present in the permit area. Raptors may perch on facility equipment in search of such prey. Employees will be alerted during periodic staff meetings of the presence of raptors and told to avoid contact with or harassment of the raptors.

No big-game wildlife species are known to frequent the permit or adjacent areas. However, to protect larger species if they do occur the area, the fence around the BRC Wellington facility will be maintained during operations. No disturbance will occur outside of that fenced area. Furthermore, runoff control measures will be maintained to preclude off-site surface-water impacts. Other protective measures within the disturbed area boundary include adhering to clean industrial hygiene procedures, properly disposing of all waste (papers, cans, bottles, etc.), and instructing employees not to hunt or harass wildlife. Thus, measures have been implemented to minimize adverse impacts to fish and wildlife and related environmental resources.

3.40 Reclamation Plan

As indicated in Section 2.2.2.2 of this application, the soil at the Wellington facility is poorly suited for agricultural use. Furthermore, native vegetation in the area is poorly suited for rangeland use of the site (see Section 3.2.1). Hence, in accordance with R645-301-413.120, rather than restoring the land to its pre-disturbance land use it will be restored to a higher or better post-operations industrial land use consistent with the current zoning of the site and adjacent areas. The extent of site restoration following operations is discussed more fully in Section 5.40 of this permit application.

Under the post-operation industrial land use, complete post-operation revegetation of the site is not anticipated. However, a proposed seed mix, application rate, and other plans have been developed for those areas of the site that will require revegetation to support the post-operation

land use (see Section 3.4.1). Aspects of the reclamation plan related to fish and wildlife are discussed in Section 3.4.2.

3.4.1 Revegetation

Due to the future industrial use of the site following coal-cleaning operations, the extent of future revegetation is not currently known. However, for the sake of developing a reclamation cost estimate, it is assumed in this permit application that the area south of the facility loop road will be revegetated during reclamation. This area, in which the runoff- and sediment-control structures will be retained for use by the future landowner, covers 9.7 acres of the permit area. The precise areas to be revegetated will be determined in consultation with the future site owner. Areas requiring revegetation will be treated as outlined below.

3.4.1.1 Schedule and Timetable

Any revegetation of the site will begin after the plant growth medium has been replaced. To the extent feasible, seeding will occur in the late fall, just prior to the onset of snow fall. If this schedule is not feasible, grasses and forbs will be planted in the late spring (May or early June), while shrubs and seedlings will be planted in the late summer through early fall (late August through early October).

3.4.1.2 Descriptions

Species and Amounts of Seed. All revegetated areas will be planted with the seed mix specified in Table 3-1.

Method Used for Planting and Seeding. Revegetation will be performed using broadcast methods.

Mulching Techniques. Mulch consisting of grass hay or alfalfa hay will be applied at a rate of at least 2 tons per acre to areas being revegetated following preparation of the soil and prior to seeding. Mulch materials will only be obtained from fields that are certified by the County Extension Agent as noxious weed free. Mulch will be spread over the surface of the area to be revegetated using mechanical spreading, mechanical blowers, or hand spreading. Mulch will then be incorporated into the soil by plowing or chiseling to a depth of at least 12 inches.

Irrigation, Pest, and Disease Control. No persistent pesticides will be used in the permit area unless previously approved by DOGM.

Measures Proposed for Revegetation Success. Revegetation success will be monitored in accordance with Appendix A of DOGM's "Vegetation Information Guidelines." As indicated in Section 1.40 of this application, the entire permit area is disturbed. This condition, together with the fact that all land outside of the permit area is owned by individuals other than BRC Wellington, precludes the establishment of a permanent revegetation reference area. Hence, prior to revegetation of the site, BRC Wellington will confer with DOGM to select a temporary reference area on adjacent property that is representative of the permit area. BRC Wellington will then seek landowner permission to monitor that location in accordance with the Vegetation Information Guidelines. Assuming that this permission can be obtained, the temporary reference and revegetated areas will be inspected for plant growth and erosion at a schedule and using methods that comply with the Vegetation Information Guidelines. The operator will apply additional seed mix as deemed necessary.

3.4.1.3 Greenhouse Studies, Field Trials or Other Equivalent Studies

If DOGM requires additional testing for the purpose of demonstrating that reclamation as required by the State Program can be accomplished according to information given in this document, the applicant will comply.

3.4.2 Fish and Wildlife

3.4.2.1 Enhancement Measures

Wildlife habitat will be enhanced during reclamation through the use of runoff controls to prevent excessive erosion and through the use of a seed mix that includes plants that are indigenous to the area.

3.4.2.2 Plants Used for Wildlife Habitat

The post-operation land use will be industrial. Hence, the reclamation plan has not been specifically developed to support a fish and wildlife post-operation land use.

3.4.2.3 Cropland

Cropland is not a post-operation land use.

3.4.2.4 Residential, Public Service and Industrial Land Use

Although the post-operation land use is industrial, the site is not of sufficient size to permit the effective use of greenbelts and other substantial wildlife enhancements in reclamation.

3.50 Performance Standards

3.5.1 General Requirements

The Applicant commits to conduct all operations in accordance with Sections R645-301-330 through R645-301-340 of the regulations.

3.5.2 Contemporaneous Reclamation

Given the limited extent of areas within the permit boundary that are not in active use, contemporaneous reclamation is not considered practical at the facility.

3.5.3 Revegetation: General Requirements

As noted above, in order to support the post-operation industrial land use, it is assumed that only areas south of the site loop road will be reclaimed following the Wellington operations. This revegetation plan complies with the requirement that a vegetative cover will be established on all reclaimed areas. The vegetative cover will be in accordance with the approved permit and reclamation plan.

3.5.3.1 Vegetative Cover

For areas that will be revegetated, the seed mix is intended to provide vegetative cover that will be diverse, effective, and permanent. The seed mix was selected with to be compatible with the climate, potential seedbed quality, and drought tolerance.

Native Species. The vegetative mixture is comprised of species native to the area. The seeds will be purchased from suppliers who will certify their purity, germination, hard seed, and percentages of maximum weed seed contents.

Extent of Cover. The vegetative cover will be at least equal in extent to the natural vegetation as measured in an adjacent reference area at the time of revegetation (see Section 3.4.1.2).

Stabilizing. The area to be revegetated will be mulched during reclamation. This mulching, together with the vegetative cover mixture, will provide erosional stability at least equivalent to that of adjacent undisturbed areas.

3.5.3.2 Reestablished Plant Species

Compatible. The plant species proposed for revegetation have been selected to be compatible with the intended post-operation land use.

Seasonal Characteristics. Because the reclamation seed mix is dominated by native species, the revegetation plant species will have the same growing season as the native vegetation.

Self-generation. The revegetation seed mix consists of species capable of self-generation and plant succession.

Compatibility. The seed mix proposed for revegetation contains plants native to the area and compatible with the plants and animals species of the permit area.

Federal and Utah Laws or Regulations. The seed mixture purchased to revegetate the mine area will contain neither poisonous nor noxious plant species. No species will be introduced in the area without being approved by DOGM.

3.5.3.3 Vegetative Exception

The applicant does not require vegetative exception at this time.

3.5.3.4 Cropland

The permit area contains no land designated as cropland for post-operation land use.

3.5.4 Revegetation: Timing

Areas intended for revegetation will be reclaimed during the first normal period for favorable planting conditions after replacements of the plant-growth medium, as discussed in Section 3.4.1.1.

3.5.5 Revegetation: Mulching and Other Soil Stabilizing Practices

Areas to be revegetated will be mulch as described in Section 3.4.1.2. If excessive erosion occurs following revegetation and prior to bond release, those affected areas will be repaired using a method approved by DOGM.

3.5.6 Revegetation: Standards for Success

The standards for revegetation success are detailed in Section 3.4.1.2.

3.5.6.1 Success of Revegetation

The success of revegetation will be judged on the effectiveness of the vegetation for post-operation land use and the standards outlined in Section 3.5.3. Success will be determined in accordance with Appendix A of DOGM's Vegetation Information Guidelines (see Section 3.4.1.2).

3.5.6.2 Standards for Success

Standards of success will be applied in accordance with the approved post-operation industrial land use.

Grazing Land or Pasture Land. No areas within the permit area are designated as grazing or pasture lands.

Cropland. No area within the permit area is designated as cropland.

Fish and Wildlife Habitat. No area within the permit area is designated as fish and wildlife habitat.

Industrial, Commercial or Residential. The entire permit area is designated as industrial. Revegetation of the site will adequately control erosion.

Previously Disturbed Areas. There is no previously disturbed area within the permit boundary.

3.5.6.3 Siltation Structure Maintenance

Siltation structures will be maintained until removal is authorized by DOGM and the disturbed areas have been stabilized and revegetated. For additional details on siltation structures, see Section 5.4.2.

3.5.6.4 Removal of Siltation Structures

To more adequately support the post-operation industrial land use, the siltation structures will remain on site following closure of the Wellington facility.

3.5.7 Revegetation: Extended Responsibility Period

BRC Wellington will be responsible for revegetation success during the extended responsibility period or until the property is sold to another company for industrial purposes, whichever is sooner. The period of extended responsibility will begin after the last year of augmented seeding, fertilization, irrigation, or other revegetation work, excluding husbandry as approved by DOGM. Vegetation parameters will equal or exceed the approved success standard during the last two years of the responsibility period. The success standards are outlined in Sections 3.5.6.1 and 3.5.6.2 of this application.

BRC Wellington will comply with DOGM-approved husbandry practices, consisting of normal conservation practices within the region of the operation. These practices may include disease, pest, and vermin control; pruning; reseeding; and transplanting.

3.5.8 Protection of Fish, Wildlife, and Related Environmental Values

This plan is designed to minimize disturbances and adverse impacts on fish, wildlife and their related environments. BRC Wellington will periodically educate their employees about wildlife needs and their importance. This will be done during periodic staff meetings by making the employees aware of species of concern (see Section 3.2.2.2) and their prey base. The mitigation requirements of Section 3.3.3 will also be discussed with existing employees during periodic staff meetings and with new employees during initial orientation. Given the lack of permanent surface water in the permit and adjacent areas, there are no fisheries within the permit area.

3.5.8.1 Existence of Endangered or Threatened Species

There are no known endangered or threatened species within the permit area. Therefore, facility operations will not result in the destruction or adverse modification of critical habitats. If State- or Federally-listed endangered or threatened species are discovered in the permit area in the future, the presence of these species will be reported to DOGM upon their discovery. Operations thereafter, including site reclamation, will proceed in accordance with appropriate DOGM stipulations.

3.5.8.2 Bald and Golden Eagles

No suitable bald or golden eagle habitat exists in the permit and adjacent areas. If such habitat is discovered in the future, BRC Wellington will promptly report such habitat to DOGM and will proceed with operations thereafter in accordance with appropriate DOGM stipulations. If these species are observed in the area, BRC Wellington will make employees aware of the species and their prey base during periodic staff meetings in accordance with Section 3.3.3 of this plan.

3.5.8.3 Taking of Endangered or Threatened Species

The applicant understands that there is no permission implied by these regulations for taking of endangered or threatened species, their nests, or eggs.

3.5.8.4 Replacement of Wetland and Riparian Vegetation

No wetland or riparian habitat exists in the permit area, nor has any such habitat been disturbed by this operation. The closest riparian habitat is located along Miller Creek approximately 0.4 mile south of the permit area (see Appendix 3-1).

3.5.8.5 Manmade Wildlife Protection Measures

Electric Power Lines. Power lines to and within the permit area are buried which eliminates electrocution hazards to raptors.

Potential Barriers. The permit area is limited in aerial extent and is located in an area zoned for industrial use. A chain link fence has been constructed to keep wildlife from entering the facility and being exposed to the industrial hazards located within. Given the limited area of the facility, wildlife can easily migrate around the outside of the fence if needed.

Pond Protection. The perimeter facility fence excludes large wildlife from encountering the sedimentation ponds. No site ponds contain hazardous concentrations of toxic-forming materials.

TABLE 3-1

Revegetation Seed Mixture

Scientific Name	Common Name	Application Rate (pls lb/acre)
Shrubs		
<i>Atriplex gardneri</i> var. <i>cuneata</i>	Castle Valley saltbush	2.0
<i>Atriplex corrugata</i>	Mat saltbush	3.0
<i>Atriplex confertifolia</i>	Shadscale	4.0
<i>Ceratoides lanata</i>	Winterfat	4.0
Forbs		
<i>Eriogonum inflatum</i>	Desert trumpet	1.0
<i>Helianthus annuus</i>	Annual sunflower	4.0
<i>Oenothera caespitosa</i>	Evening primrose	0.3
<i>Sphaeraicea coccinea</i>	Globemallow	0.5
Grasses		
<i>Bouteloua gracilis</i>	Blue grama	0.5
<i>Elymus lanceolatus</i>	Thickspike wheatgrass	2.0
<i>Elymus cinereus</i>	Great Basin wildrye	2.0
<i>Elymus smithii</i>	Western wheatgrass	1.0
<i>Hilaria jamesii</i>	Galleta	2.0
<i>Sporobolus airoides</i>	Alkalai sacaton	0.2
<i>Stipa comata</i>	Needle and thread	3.0
<i>Stipa hymenoides</i>	Indian ricegrass	2.0
<i>Distichlis spicata</i>	Saltgrass	0.5
TOTAL		32.0

BRC Wellington LLC
Dry-Coal Cleaning Facility

Permit Application
October 2013

APPENDIX 3-1

Biological Survey of the
Permit and Adjacent Areas

**BIOLOGICAL EVALUATION
FOR THE COVOL ENGINEERED
FUELS DRY-COAL CLEANING FACILITY
SECTION 14, TOWNSHIP 15 SOUTH, RANGE 10 EAST
CARBON COUNTY, UTAH**

Canyon Environmental Report No. 08-007

**October 9, 2008
(Revised March 25, 2009 and June 29, 2009)**

Prepared for

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INTRODUCTION

On September 25, 2008, a biological evaluation was conducted by Canyon Environmental, on behalf of Earthfax Engineering for the COVOL Dry-Coal Cleaning Facility. The proposed project is located approximately 3 miles south-southwest of Wellington in Carbon County, Utah. The legal description is a portion of Section 14, Township 15 South, Range 10 East (Appendix A). The surveyed project area comprises approximately 30 acres of land.

The site is comprised of an existing coal cleaning facility located on the south side of Ridge Road in a generally flat area. The site is enclosed within a six-foot tall chain link fence. Very little vegetation is contained within the actual site itself and the existing vegetation is isolated to the peripheral edges along the fence line. The surrounding area is comprised of flat mesas and dry drainages.

Canyon Environmental obtained a species list from the United States Fish and Wildlife Service (USFWS) as well as information from the Utah Division of Wildlife Resources (DWR) that identified federally protected plants and animals, as well as Utah state plant and animal Species of Concern that are known from and could occur at, the Project Site (Appendix B).

The subject property was inspected within the context of evaluating the potential impacts to these identified high value species and determining whether “take” of these species would occur. In addition, habitat at the site was characterized and observed, as well as flora and fauna identified. The site inspection was performed on September 25, 2008.

PROJECT AREA

The proposed project is located on a dry, flat mesa in the badlands area of central Utah. Miller Creek flows to the south of the site at a distance of about 0.25 miles. A small dry drainage that flows into Miller Creek is situated about 1,000 feet southwest of the project area. The majority of the site within the enclosed fence is devoid of any vegetation. The coal cleaning facility is comprised of a series of mills, piping, and truck drive-through areas. The vegetation on the site is isolated to the edges of the fenced area. Two water collection ponds are located on the southwest and southeast corners of the site, respectively. Topography across the site generally flat with slight slope to the south toward the nearby drainage and creek. The average elevation across the site is roughly 5,520 feet above mean sea level (amsl.).

Habitat and Wildlife

Habitat at the site is characterized as a greasewood/rabbitbrush plant community, which is also vegetated with other drought tolerant shrubs and grasses in areas within the fenced site and away from the Miller Creek corridor. Within the enclosed project area, plant cover is generally very sparse and soil conditions are such that much of the land is barren. The surrounding area immediately about the fenced compound is comprised primarily of greasewood, sagebrush, rabbitbrush, Russian thistle, and cheatgrass. Soil conditions appear to be very poor and vegetation immediately about the fenced enclosure is sparse. The Miller Creek riparian corridor averages about 25-50 feet in width to the south of the site (Approximately 0.25 miles in

distance) and is primarily comprised of Russian olive (*Elaeagnus angustifolia*) and Tamarisk (*Tamarix spp.*) with a few Fremont cottonwood (*Populus fremontii*) and Willow (*Salix sp.*) trees. The vegetation along the corridor is not consistent and lacks any kind of canopy. A map identifying these vegetative communities is included in Appendix A. The following vegetation was noted at the site and in the surrounding site vicinity:

Trees

- Russian olive (*Elaeagnus angustifolia*)
- Tamarisk (*Tamarix spp.*)
- Fremont cottonwood (*Populus fremontii*)
- Willow (*Salix sp.*)

Shrubs

- Big sage (*Artemisia tridentata*),
- Big rabbitbrush (*Chrysothamnus nauseosus*)
- Greasewood (*Sarcobatus vermiculatus*)
- Winterfat (*Krascheninnikovia lanata*)
- Broom snakeweed (*Gutierrezia sarothrae*)
- Skunkbush (*Rhus trilobata*)
- Inkweed (*Suaeda torreyana*)
- Shadscale (*Atriplex confertifolia*)

Forbs

- Halogeton (*Halogeton glomeratus*)
- Curlycup gumweed (*Grindelia squarrosa*)
- Desert trumpet (*Eriogonum inflatum*)
- Showy milkweed (*Asclepias speciosa*)
- Russian thistle (*Salsola iberica*)
- Plains prickly pear cactus (*Opuntia polyacantha*)
- Rocky mountain bee plant (*Cleome serrulata*)
- Common sunflower (*Helianthus annuus L.*)
- Diffuse knapweed (*Centaurea diffusa*)

Grasses

- Foxtail barley (*Hordeum murinum*)
- Cheatgrass (*Bromus tectorum*)
- Indian ricegrass (*Orizopsis hymenoides*)

Noxious Weeds

- Russian olive (*Elaeagnus angustifolia*)
- Tamarisk (*Tamarix spp.*)

Vegetation within the site boundary is isolated to the extreme edges near the existing fence surrounding the site. The adjacent area about the site and in the nearby vicinity is sparsely covered with greasewood, sagebrush, rabbitbrush, halogeton, and various grasses. It is reasonable to assume that the project area contained similar plant habitat prior to the development of the facility.

Wildlife and signs of animal life at the subject property included cottontail rabbit (*Sylvilagus audubonii*), and some ant mounds. No burrows were observed within the project area, or within the immediate vicinity about the site. However, prairie dog burrows and prairie dogs were identified along the highway approximately 0.5 miles to the east of the site.

According to information from the DWR, the subject property and surrounding area are identified as habitat for pronghorn antelope. Mule deer habitat was also identified by the DWR to the south of the project area (Appendix A). No evidence (scat, tracks, grazed vegetation) of big game species known to inhabit the region (mule deer, elk, antelope, bighorn sheep) was identified within the survey area. Forage for these large herbivores is generally sparse within the project area and surrounding environs. The scarcity of forage plants in and about the site appears to be primarily related to poor soil quality and the lack of available water.

DESIGNATED CRITICAL HABITAT

During a review of land status, evaluation of threatened or endangered species occurrences, and review of historical information, we noted that critical habitat areas have been designated in Carbon County, Utah for the following federally protected species:

Humpback chub (<i>Gila cypha</i>)	Endangered
Bonytail chub (<i>Gila elegans</i>)	Endangered
Razorback sucker (<i>Xyrauchen texanus</i>)	Endangered
Colorado pikeminnow (<i>Ptychochelilus lucius</i>)	Endangered
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	Threatened

Critical habitat areas for the Humpback chub, Bonytail chub, Razorback sucker, and Colorado pikeminnow are found within the Green River, in a reach of the river situated roughly 30 miles to the east of the site, at its closest point with respect to the site. Critical habitat areas for Mexican spotted owl are found near the Book Cliffs, situated roughly 25 miles east of the site. As such, due to the significant distance of the site with respect to these critical habitat areas, it is apparent that the proposed action would not result in destruction or adverse modification of a critical habitat area established for any of these species.

ENDANGERED, THREATENED, AND CANDIDATE SPECIES THAT MAY OCCUR ON THE PROJECT SITE AND WITHIN THE GENERAL PROJECT AREA

Canyon Environmental consulted with the USFWS and Utah Division of Wildlife Resources (DWR) by obtaining information and lists of threatened, endangered, and candidate species that may occur in, or may be affected by, projects in Carbon County and at the project site. These species are designated as 'high value' species and are afforded specific protections by Federal statute. The species are listed below and an analysis of these species, including their general habitat requirements, with respect to habitat present at the subject property and within Carbon County, is found below and in Appendix B (Table B-1). Species lists were obtained from the appropriate agencies are found in Appendix C.

Table 1. Federal Threatened and Endangered Species and Utah State Sensitive Species in Carbon County and the Site Vicinity

Common Name	Scientific Name	Status
Uinta Basin hookless cactus	<i>Scierocactus glaucus</i>	Threatened
Clay phacelia	<i>Phacelia argillacea</i>	Endangered
Humpback chub	<i>Gila cypha</i>	Endangered
Bonytail	<i>Gila elegans</i>	Endangered
Colorado pikeminnow	<i>Ptychocheilus lucius</i>	Endangered
Razorback sucker	<i>Xyrauchen texanus</i>	Endangered
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Endangered
Black-footed ferret	<i>Mustela nigrapes</i>	Endangered / Extirpated
White-tailed prairie dog	<i>Cynomys leucurus</i>	State Sensitive
Burrowing owl	<i>Athene cunicularia</i>	State Sensitive
Bluehead sucker	<i>Catostomus discobolus</i>	State Sensitive

Species Outside of Their Known Range or Lacking Suitable Habitat

The following federally protected species and State of Utah sensitive species are categorized as lacking suitable habitat, being outside of their known range, or undocumented in the site vicinity:

Clay phacelia	(<i>Phacelia argillacea</i>)	Endangered
Humpback chub	(<i>Gila cypha</i>)	Endangered
Bonytail	(<i>Gila elegans</i>)	Endangered
Colorado pikeminnow	(<i>Ptychocheilus lucius</i>)	Endangered
Razorback sucker	(<i>Xyrauchen texanus</i>)	Endangered
Southwestern willow flycatcher	(<i>Empidonax traillii extimus</i>)	Endangered
Uinta Basin hookless cactus	(<i>Scierocactus glaucus</i>)	Threatened

Summary of Species with Occupied Habitat within the Area

Based upon a site inspection, habitat characterization, and review of database information including a site-specific species list provided by the DWR regarding known species occurrences near the site, the following species could potentially occupy the site (species profiles obtained from the DWR):

Black-footed Ferret

"The black-footed ferret, *Mustela nigripes*, is sometimes called "the rarest mammal in North America." In fact, the black-footed ferret was believed to be extinct for quite some time until a wild population of the species was found near Meeteetsee, Wyoming in the early 1980s. When that population was threatened by canine distemper in the mid-1980s, the last surviving eighteen individuals were taken into captivity and used to start a captive breeding program. Descendants of those individuals have been released at several sites in the western United States, including the Coyote Basin area of Uintah County, Utah in late 1999. Although the black-footed ferret is a federally listed endangered species, the re-introduced populations have been classified as "nonessential-experimental" by the U.S. Fish and Wildlife Service. In addition to Utah's re-introduced black-footed ferret population, unconfirmed sightings of naturally occurring ferrets persist throughout eastern Utah."

"Black-footed ferrets live in underground prairie dog burrows and eat prairie dogs as their primary food source. The black-footed ferret is, therefore, closely associated with prairie dog towns. For this reason, the major threat to the species is the decimation of prairie dog colonies through plague, poisoning, and habitat loss. The black-footed ferret breeds from March to April, and young are born in about six weeks; average litter size is three. The black-footed ferret is nocturnal."

Due to the presence of a chain link fence surrounding the site, and limitations imposed on personnel at the site that would restrict access to areas outside the fenced site boundaries, it is unlikely that ferrets would be impacted by activities on the project area. Furthermore, no apparent burrows were observed within the site boundaries or in the immediate vicinity about the site.

Burrowing Owl

"The burrowing owl, *Athene cunicularia*, breeds in southwestern Canada, the western United States, northern Mexico, Florida, and parts of the West Indies. It winters from the southwestern United States to Honduras, northern populations being migratory. In Utah, it is uncommon during summer in proper habitat throughout the state. Its habitats are open grassland and prairies, but it also utilizes other open situations, such as golf courses, cemeteries, and airports. It eats mainly terrestrial invertebrates, but also consumes a variety of small vertebrates, including small mammals, birds, frogs, toads, lizards, and snakes."

"The nest is in a mammal burrow, usually that of a prairie dog, ground squirrel, badger, or armadillo; if a mammal burrow is not available the owls will sometimes excavate their own nest burrow. Three to eleven (usually five to nine) eggs are incubated by the female parent, who is fed by the male, for 27 to 30 days. The young are tended by both parents and fledge after about 40 to 45 days."

Burrowing owls are known to inhabit portions of Carbon County. Presently Burrowing owls do not appear to be utilizing the site or surrounding area; therefore, any activities at the site are unlikely to result in adverse impacts to Burrowing owls. However, due to the presence of suitable breeding habitat in the site vicinity, Burrowing owls could move in and inhabit surrounding areas in the future; therefore, in the future if land-disturbing activities occur during the breeding season (February – August), a preconstruction survey should be completed in order to determine whether or not Burrowing owls are present. In the event that Burrowing owls are found at the site, construction activities should be postponed until the non-nesting season, when all of the chicks have fledged the burrow, or until the adults have vacated the site.

No Burrowing owls or burrows potentially used by Burrowing owls were noted during the site inspection, which occurred on September 25, 2008. The actual site is contained within a chain link fence and operations occurring on-site are restricted to the enclosed area. No burrows were observed during a survey of the area surrounding the site. Soils on the site and in the general area are typically hard and rocky, with little to no ground cover. It is unlikely that activities conducted on the site would adversely affect any Burrowing owls.

White-tailed Prairie Dog

“The white-tailed prairie-dog, *Cynomys leucurus*, is one of three prairie-dog species found in Utah, occurring in the northeastern part of the state. The species is also found in parts of Colorado, Wyoming, and Montana.”

“Similar to other prairie-dogs, white-tailed prairie-dogs form colonies and spend much of their time in underground burrows, often hibernating during the winter. The species breeds in the spring, and young can be seen above ground in early June. The white-tailed prairie-dog's diet is composed of grasses and bulbs. In turn, the white-tailed prairie-dog is the main food source of the Utah population of the endangered black-footed ferret.”

No animal burrows were identified within the fenced, site boundary, nor were any burrows observed in the immediate surrounding area about the site. However, burrows were observed along Ridge Road at distances of about 0.5 miles east of the site. The identification of burrows along the nearby road indicates that prairie dogs could be present in the surrounding area. However, due to the developed nature of the site, fencing, and access restrictions, and lack of identified burrows within the site, it is not expected that site activities would adversely impact any prairie dog colonies that may be present in the surrounding area.

Bluehead Sucker

“The bluehead sucker, *Catostomus discobolus*, is native to parts of Utah, Idaho, Arizona, New Mexico, and Wyoming. Specifically, the species occurs in the upper Colorado River system, the Snake River system, and the Lake Bonneville basin. In Utah, bluehead suckers have been reduced in numbers and distribution due to flow alteration, habitat loss/alteration, and the introduction of nonnative fishes. Consequently, the bluehead sucker is included on the *Utah Sensitive Species List*.”

“The bluehead sucker is a benthic (bottom dwelling) species with a mouth modified to scrape algae (the primary food of the bluehead sucker) from the surface of rocks. Members of the species spawn in streams during the spring and summer. Fast flowing water in high gradient reaches of mountain rivers has been identified as important habitat for bluehead sucker.”

The Bluehead sucker is potentially present in Miller Creek, which is located about 0.25 miles to the south. As such, activities at the site involving diverting or removing water, or discharging substances including water or other effluent into Miller Creek could result in adverse impacts to the Bluehead sucker; therefore, any such activities that occur at the site should involve consultation with the Utah Division of Wildlife Resources as it is a state sensitive species.

MIGRATORY BIRDS

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA; 16 U.S.C., §703, Supp. I, 1989). The MBTA prohibits killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. There are a number of migratory birds that likely forage at the Project Site and potentially nest in the riparian corridor to the south; therefore, in order to avoid impacts to migratory birds protected under the MBTA including the removal of trees at the site during the nesting season (February – September), a preconstruction survey should be completed in order to determine whether or not nesting birds are present. In the event that migratory birds are found nesting at the site in trees that would be removed, construction activities should be postponed until the non-nesting season or until all of the chicks have fledged the nest.

It also noted that various prey species for numerous raptors are also present in the area. Some of these prey species include cottontail rabbit (*Sylvilagus audubonii*), jack-rabbit (*Lepus* species), and white-tailed prairie dog (*Cynomys leucurus*). As such, care should be taken to avoid contact with any raptors that may migrate and/or hunt through the general area.

METHODS

The site was surveyed by Mr. Chris Jensen, Project Biologist at Canyon Environmental, on September 25, 2008. The site was surveyed on foot by walking 10-15 foot transects across the enclosed project area and the surrounding site vicinity. The survey was conducted in accordance with U.S. Fish and Wildlife protocols for identifying habitat and species that may potentially inhabit the general area. The area was traversed in order to identify any burrows or signs and/or indications of prairie dogs, burrowing owls, or other species of significance. Vegetation was identified and habitat characterized within the fenced area, and in the area immediately about the site for a distance of approximately 800 feet around the subject property. The riparian area to the south was also surveyed to identify any species that may occur along Miller Creek and nearby drainages.

Although many states have established definitive methods and requirements for the identification of burrowing owls, Utah currently does not enforce any one specific protocol. However, the methodologies established for Arizona, California, and Colorado were deemed appropriate for use here in Utah by Anthony Wright, the Regional Sensitive Species Biologist for the DWR (personal communication, June 26, 2009). These methods were followed to identify any burrowing owls on the site and within the site vicinity. Borrowing owl survey methodology included a walking survey of the project area in an attempt to identify any burrows. Recorded owl calls were also played near the southeast and southwest corners of the project area to verify if any owls were present in the surrounding areas.

FINDINGS AND RECOMMENDATIONS

Canyon Environmental performed a site inspection, reviewed database information, and obtained lists of special status species from the appropriate agencies in order to ascertain the potential for presence of special status or high value species on a roughly 30-acre area of land in unincorporated Carbon County, Utah. Having performed these tasks we offer the following conclusions and recommendations:

- No listed species or suitable habitat for any listed or special status species was identified within the immediate project area. The project area is encompassed by a chain link fence and site activities are restricted to the enclosed facility within the existing fence.
- No listed species or special status species were identified within the area immediately surrounding the enclosed project area.
- The following special status species possesses suitable habitat within Miller Creek that is located about 0.25 miles south of the site, and are, therefore, potentially present within Miller Creek, to the south of the site:

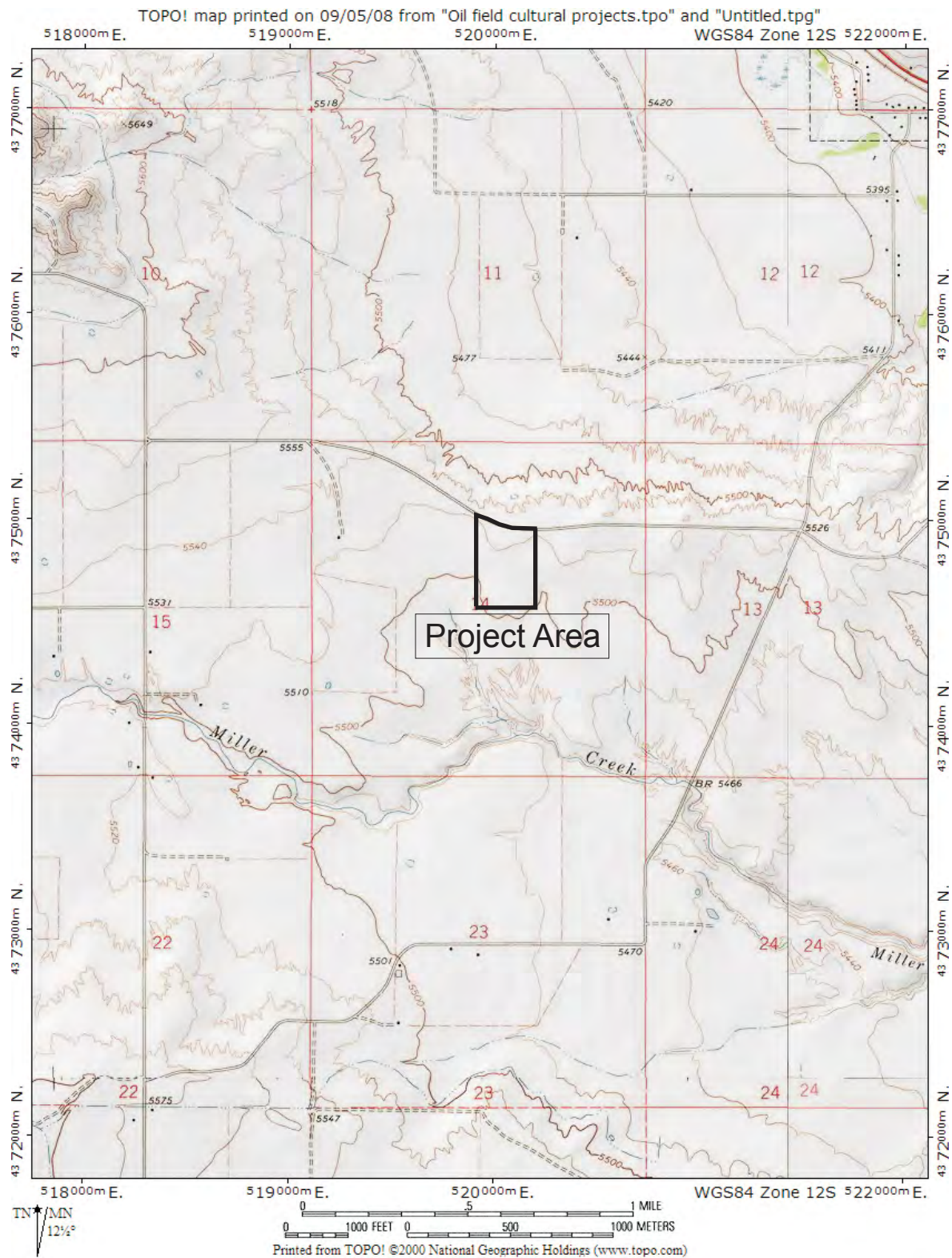
- Bluehead sucker (*Catostomus discobolus*) State Sensitive

Activities at the site involving diverting or removing water or discharging substances including water or other effluent into Miller Creek could result in adverse impacts to this species; therefore, any such activities that occur at the site should involve consultation with Utah Division of Wildlife Resources since it is a state sensitive, and not a federally protected species.

- No Burrowing owls or burrows potentially used by Burrowing owls were noted during the site inspection, which occurred on September 25, 2008. The actual site is contained within a chain link fence and operations occurring on-site are restricted to the enclosed area. No burrows were observed during a survey of the area surrounding the site. Soils on the site and in the general area are typically hard and rocky, with little to no ground cover. Based upon soil conditions, the lack of identified burrows, and proposed site activities being contained within the fenced enclosure, it is unlikely that activities conducted on the site would adversely affect any Burrowing owls.

- Migratory birds are protected under the Migratory Bird Treaty Act (MBTA; 16 U.S.C., §703, Supp. I, 1989). The MBTA prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, bird nests, and eggs. There are a number of migratory birds that likely forage at the Project Site and potentially nest in the riparian corridor to the south; therefore, in order to avoid impacts to migratory birds protected under the MBTA, including the removal of trees at the site during the nesting season (February – September), a preconstruction survey should be completed in order to determine whether or not nesting birds are present. In the event that migratory birds are found nesting at the site in trees that would be removed, construction activities should be postponed until the non-nesting season or until all of the chicks have fledged the nest.
- Various prey species for numerous raptors are also present in the general surrounding area. Some of these prey species include cottontail rabbit (*Sylvilagus audubonii*), jack-rabbit (*Lepus californicus*), and white-tailed prairie dog (*Cynomys leucurus*). Raptors may perch on facility equipment and machinery at times throughout the year. As such, care should be taken to avoid contact with any raptors that may migrate through and/or hunt in the general area.

APPENDIX A
(Project Area Map and Habitat Maps)



TOPOGRAPHIC MAP

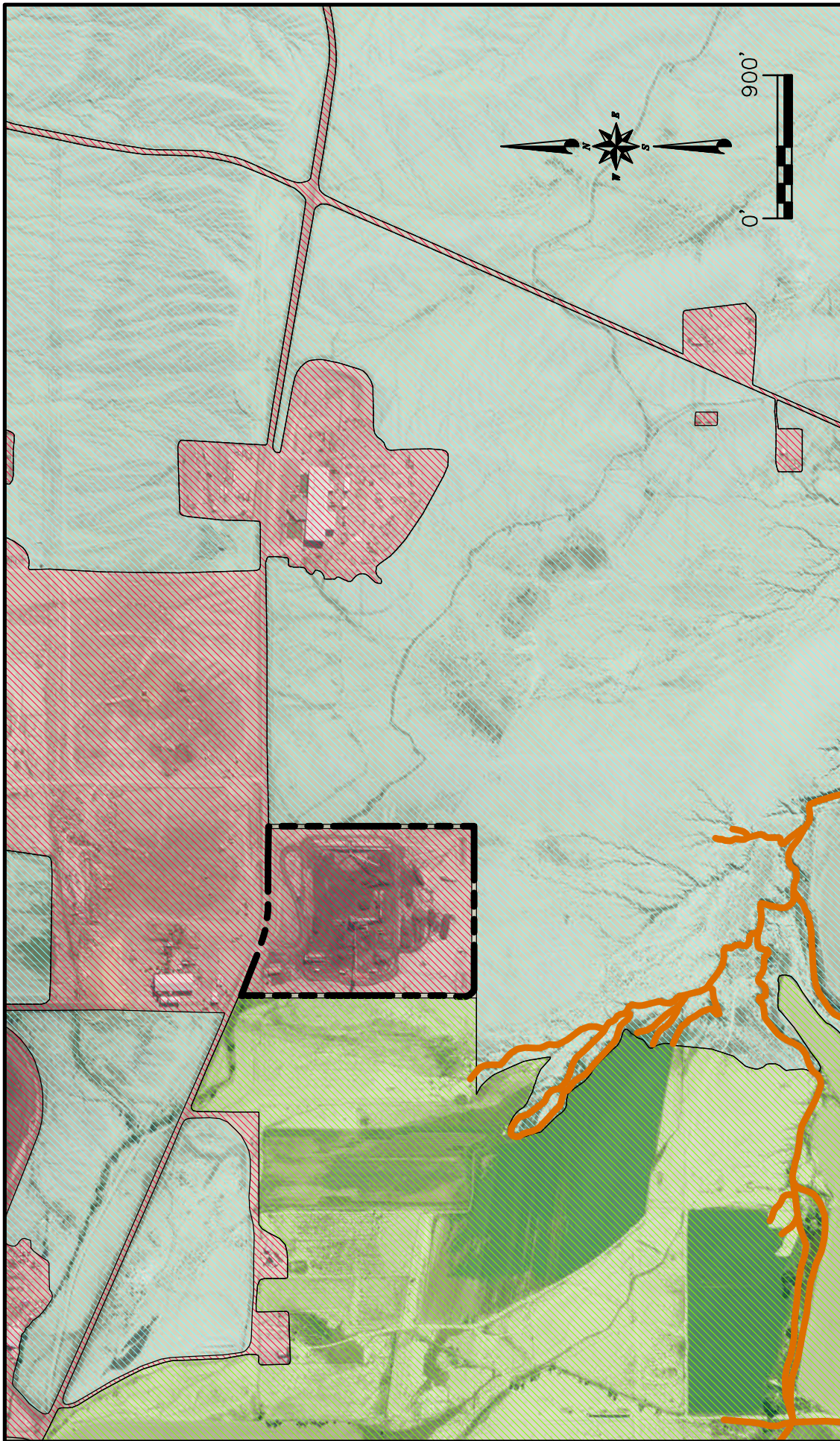
Wellington Dry-Coal Cleaning Facility
Section 14, Township 15 South, Range 10 East

USGS TOPOGRAPHIC MAP:
Price, Utah 7.5 Min Quadrangle



Figure 1

Job No. C080001



BASE MAP: UTAH GEOGRAPHICAL INFORMATION
SYSTEM, NAD 2006 CARBON COUNTY, UTAH



- LEGEND**
- AGRICULTURAL USE
 - DISTURBED AREAS
 - GREASEWOOD/RABBITBUSH
 - PERMIT AREA
 - RIPARIAN ZONE

FIGURE 2. VEGETATIVE COMMUNITIES

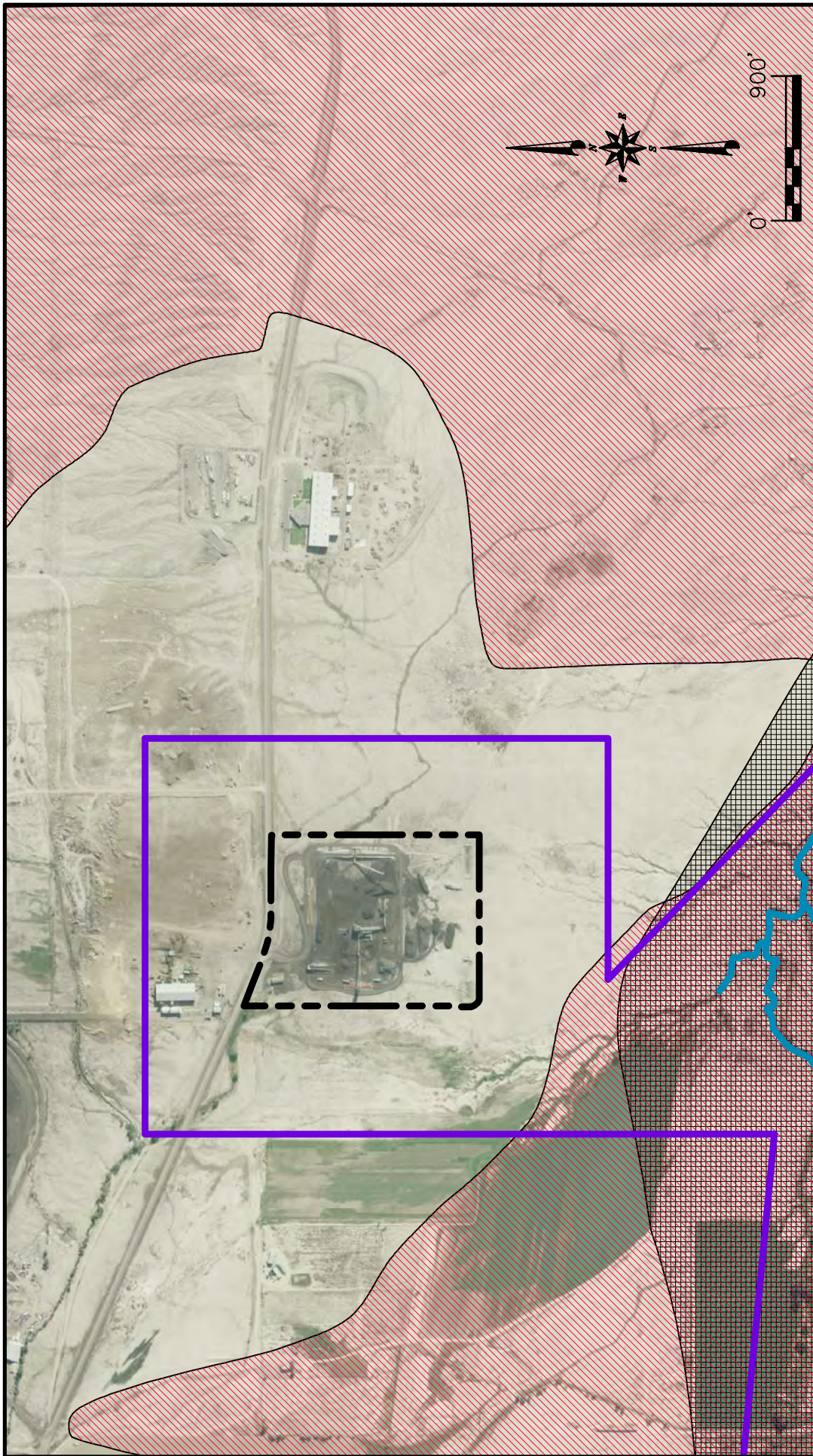


FIGURE 3. WILDLIFE HABITAT



APPENDIX B

(Federally Listed Threatened, Endangered, and Candidate Species for Carbon County, Utah)

Table B-1. Federally Listed Species for Carbon County, Utah

Common/Scientific Name	Status	Suitable Habitat	Habitat Present
Uinta Basin Hookless Cactus <i>Sclerocactus glaucus</i>	Threatened	Uinta Basin hookless cactus is found on river benches, valley slopes, and rolling hills of the Duchesne River, Green River, and Mancos formations. It is found in xeric, fine textured soils overlain with cobbles and pebbles, growing in salt desert shrub and pinyon-juniper communities, at elevations ranging from 1360 to 2000 meters.	No
Clay Phacelia <i>Phacelia argillacea</i>	Endangered	Clay phacelia is found in fine textured soil and fragmented shale derived from the Green River Formation. It grows on barren, precipitous hillsides in sparse pinyon-juniper and mountain brush communities, at elevations ranging from 1840 to 1881 meters.	No
Humpback Chub <i>Gila cypha</i>	Endangered	The humpback prefers deep, fast-moving, turbid waters often associated with large boulders and steep cliffs in the Colorado River.	No
Bonytail <i>Gila elegans</i>	Endangered	Large, fast-flowing waterways of the Colorado River system.	No
Colorado Pikeminnow <i>Ptychocheilus lucius</i>	Endangered	The Colorado pikeminnow thrives in swift flowing muddy rivers with quiet, warm backwaters.	No
Razorback Sucker <i>Xyrauchen texanus</i>	Endangered	Reproducing populations remain only in the middle Green River in Utah and in an off-channel pond in the Colorado River near Grand Junction. The razorback is most often found in quiet, muddy backwaters along the river.	No
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i>	Endangered	Dense riparian habitats with high canopies comprised of willow and cottonwoods.	No
Black-footed Ferret <i>Mustela nigripes</i>	Endangered Extirpated	Usually found on shortgrass and midgrass prairies in close association with prairie dogs	No

County Lists of Utah's Federally Listed Threatened(T), Endangered(E), and Candidate(C) Species

Disclaimer: This list was compiled using known species occurrences and species observations from the Utah Natural Heritage Program's Biodiversity Tracking and Conservation System (BIOTICS); other federally listed species likely occur in Utah Counties. This list includes both current and historic records. (Last updated on July 1, 2008).

Beaver County

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	E
Utah Prairie-dog	<i>Cynomys parvidens</i>	T

Box Elder County

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Fat-whorled Pondsail	<i>Stagnicola bonnevillensis</i>	C
Lahontan Cutthroat Trout	<i>Oncorhynchus clarkii henshawii</i>	T
June Sucker	<i>Chasmistes liorus</i>	E
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	C
Gray Wolf	<i>Canis lupus</i>	E Extirpated

Cache County

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Maguire Primrose	<i>Primula maguirei</i>	T
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	C
Brown (Grizzly) Bear	<i>Ursus arctos</i>	T Extirpated
Canada Lynx	<i>Lynx canadensis</i>	T

Carbon County

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Uinta Basin Hookless Cactus	<i>Sclerocactus glaucus</i>	T
Clay Phacelia	<i>Phacelia argillacea</i>	E
Humpback Chub	<i>Gila cypha</i>	E
Bonytail	<i>Gila elegans</i>	E
Colorado Pikeminnow	<i>Ptychocheilus lucius</i>	E
Razorback Sucker	<i>Xyrauchen texanus</i>	E
Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	E
Black-footed Ferret	<i>Mustela nigripes</i>	E Extirpated

Daggett County

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Ute Ladies'-tresses	<i>Spiranthes diluvialis</i>	T
Humpback Chub	<i>Gila cypha</i>	E
Colorado Pikeminnow	<i>Ptychocheilus lucius</i>	E
Razorback Sucker	<i>Xyrauchen texanus</i>	E
Black-footed Ferret	<i>Mustela nigripes</i>	E Extirpated
Brown (Grizzly) Bear	<i>Ursus arctos</i>	T Extirpated
Canada Lynx	<i>Lynx canadensis</i>	T

Cache County (con't)

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
WESTERN TOAD	BUFO BOREAS	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

Carbon County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BLACK-FOOTED FERRET	MUSTELA NIGRIPES	S-ESA
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BONYTAIL	GILA ELEGANS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
COLORADO PIKEMINNOW	PTYCHOCEILUS LUCIUS	S-ESA
COLORADO RIVER CUTTHROAT TROUT	ONCORHYNCHUS CLARKII PLEURITICUS	CS
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FLANNELMOUTH SUCKER	CATOSTOMUS LATIPINNIS	CS
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	SPC
HUMPBACK CHUB	GILA CYPHA	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
RAZORBACK SUCKER	XYRAUCHEN TEXANUS	S-ESA
ROUNDTAIL CHUB	GILA ROBUSTA	CS
SMOOTH GREENSNAKE	LIOCHLOROPHIS VERNALIS	SPC
SOUTHWESTERN WILLOW FLYCATCHER	EMPIDONAX TRAILLII EXTIMUS	S-ESA
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
WESTERN RED BAT	LASIURUS BLOSSEVILLII	SPC
WESTERN TOAD	BUFO BOREAS	SPC
WHITE-TAILED PRAIRIE-DOG	CYNOMYS LEUCURUS	SPC

Daggett County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BEAR LAKE SCULPIN	COTTUS EXTENSUS	SPC
BLACK-FOOTED FERRET	MUSTELA NIGRIPES	S-ESA
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BROWN (GRIZZLY) BEAR	URSUS ARCTOS	S-ESA
CANADA LYNX	LYNX CANADENSIS	S-ESA
COLORADO PIKEMINNOW	PTYCHOCEILUS LUCIUS	S-ESA
COLORADO RIVER CUTTHROAT TROUT	ONCORHYNCHUS CLARKII PLEURITICUS	CS
FLANNELMOUTH SUCKER	CATOSTOMUS LATIPINNIS	CS
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	SPC
HUMPBACK CHUB	GILA CYPHA	S-ESA
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
RAZORBACK SUCKER	XYRAUCHEN TEXANUS	S-ESA
ROUNDTAIL CHUB	GILA ROBUSTA	CS
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC

APPENDIX C
(Correspondence with Utah DWR)

Chris Jensen

From: Anthony Wright [tonywright@utah.gov]
Sent: Friday, June 26, 2009 2:37 PM
To: Joe Helfrich
Cc: cjensen@canyonenvironmental.com
Subject: BUOW, Coval

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: Red Category

Joe,

I talked with Chris Jensen today about the burrowing owl surveys they did at Coval. It sounded to me like the protocol they used was very close the State of Colorado's protocol which I think is well suited to Utah as far as dates and procedures.

He said they searched for burrows within the fenced area and found none. Also, they did call response surveys and got no birds calling back. These surveys are pretty effective out to about 800 m as long as they are done when the wind is not high. It is a good idea to repeat this procedure on a couple different days as the owls do not always respond. I assume they did this although I did not specifically ask. So if they played calls out around the periphery and heard no response, that should have established an adequate buffer. I am concerned about repeated deposition of coal dust out 400 m or so from a pile, but I don't know if this is an issue at Coval. Anyway, absence of a response from a couple repetitions of the call playback surveys gives a pretty good assurance that there are no owls on the nearby private lands where they could not search on foot for burrows.

From my conversation with Chris it appears to me that the burrowing owl issue has been adequately addressed by the surveys they have done.

I will be hard to reach for several more weeks, but feel free to give me a call if you have questions or further ideas.

Thanks,

Tony

Anthony Wright
Sensitive Species Biologist
319 N. Carbonville Rd.
Price, UT 84501
(435) 613-3716



JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Wildlife Resources

JAMES F. KARPOWITZ
Division Director

September 23, 2008

Chris Jensen
Canyon Environmental
326 Stadium Avenue
Provo, Utah 84604

Subject: Species of Concern Near the Dry-Coal Cleaning Facility Near Wellington, Utah

Dear Chris Jensen:

I am writing in response to your email dated September 23, 2008 regarding information on species of special concern proximal to the dry-coal cleaning facility located in Section 14 of Township 15 South, Range 10 East, near Wellington, Carbon County, Utah.

The Utah Division of Wildlife Resources (UDWR) does not have records of occurrence for any threatened, endangered, or sensitive species within the project area noted above. However, in the vicinity there are recent records of occurrence for burrowing owl, bluehead sucker and white-tailed prairie-dog. All of the aforementioned species are included on the *Utah Sensitive Species List*.

The information provided in this letter is based on data existing in the Utah Division of Wildlife Resources' central database at the time of the request. It should not be regarded as a final statement on the occurrence of any species on or near the designated site, nor should it be considered a substitute for on-the-ground biological surveys. Moreover, because the Utah Division of Wildlife Resources' central database is continually updated, and because data requests are evaluated for the specific type of proposed action, any given response is only appropriate for its respective request.

In addition to the information you requested, other significant wildlife values might also be present on the designated site. Please contact UDWR's habitat manager for the southeastern region, Chris Wood, at (435) 613-3709 if you have any questions.

Please contact our office at (801) 538-4759 if you require further assistance.

Sincerely,

A handwritten signature in black ink that reads "Sarah Lindsey".

Sarah Lindsey
Information Manager
Utah Natural Heritage Program

cc: Chris Wood, SERO



APPENDIX D

(Site photos)

SITE: Wellington Dry-Coal Cleaning Facility
Project: Earthfax 08-007

Photograph 1

North view of site.



Photograph 2

East view along south edge of the site.



Photograph 3

West view along south edge of site.



SITE: Wellington Dry-Coal Cleaning Facility

Project: Earthfax 08-007

Photograph 4

North view along east edge of site.



Photograph 5

Northwest view of the northwest corner of site.



Photograph 6

South view along west edge of site.



SITE: Wellington Dry-Coal Cleaning Facility
Project: Earthfax 08-007
Photograph 7

East view of site.



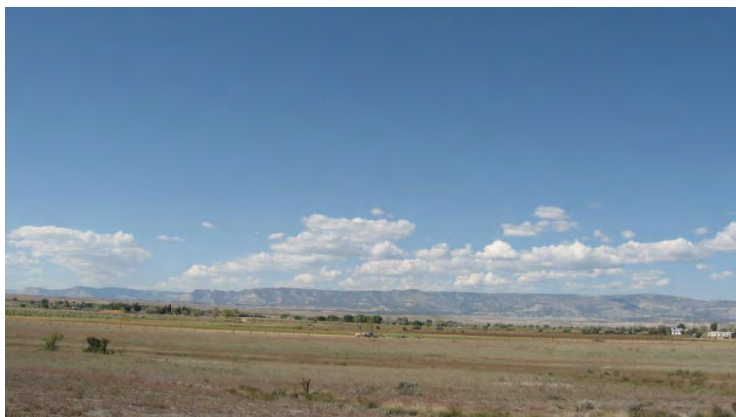
Photograph 8

South view of site.



Photograph 9

Southwest view from site.



BRC Wellington LLC
Dry-Coal Cleaning Facility

Permit Application
October 2013

APPENDIX 3-2

Resume of Project Biologist

Christopher T. Jensen
326 Stadium Avenue
Provo, Utah 84604
801-602-6883
cjensen@canyonenvironmental.com

Mr. Jensen is an environmental professional with over ten years experience in the industry. Due to his unique educational and professional background, Mr. Jensen is qualified to conduct numerous aspects of environmental consultation ranging from Cultural Resource (archaeological) evaluations, Biological Assessments, soils evaluations, carbon analyses, and contaminant characterization and remediation. By combining these elements during project planning and permitting, Mr. Jensen delivers quality, cost-effective environmental services for many clients.

EDUCATION

Master of Science Degree in Agronomy with Archaeological Science and Soil Chemistry emphasis. Brigham Young University, Provo, Utah. August 2003.

Relevant course work includes: Maya Archaeology, Case Studies in Environmental Policy, Water/Environment, Environmental Issues, Soil and Plant Analyses, Rangeland Plants, Range Management, Laboratory Safety, Soil Physics, Soil Taxonomy, Statistics, and GIS mapping

Bachelor Degree in Anthropology with a minor in Geography. Brigham Young University, Provo, Utah. December 2001.

Relevant course work includes: Geology, Seminar in Environmental Policy, Maps and Air Photos, Physical Geography, Cultural Geography, Human Osteology, Archaeological Methods, and Historic Archaeology

RESEARCH PROJECTS

Urban and rural planning studies of Indonesia. 1999.
Soil chemical investigations of Kay's Cabin archaeological site. 2000-2003.
Soil evaluations and environmental changes at Motul de San Jose, Guatemala. 2001-2007.
Soil chemical studies at Chunchucmil, Mexico and Antigua, Guatemala. 2001-2007.
Marketplace studies and environmental soils analysis in Antigua, Guatemala. 2002.
Design of a constructed wetland to treat agricultural run-off in Spanish Fork, Utah 2001.
Application of oily waste to arid agricultural fields in the West Desert, Utah. 2002.
GIS planning for a new park location for Orem City, Utah. 2003.
Nitrogen fixation studies of compost media for UDOT freeway interchanges, Utah County, Utah. 2003.
Soil chemical procedures as a viable alternative in Cultural Resource Management. 2002 – present.

EMPLOYMENT

President, Canyon Environmental, Provo, Utah. August 2008 – Present

I currently own Canyon Environmental and oversee business development, operations, and services. Canyon Environmental specializes in a multi-disciplinary approach to environmental services. The

company conducts biological assessments, cultural resource inventories, environmental site assessments, carbon credit analyses and verification services, and focuses on cost-effective strategies to improve efficiencies and coordinate project developments for our clients. Clientele ranges from energy companies, financial institutions, development corporations, holding companies, and governmental and non-governmental organizations.

Senior Scientist, Miller Brooks Environmental, American Fork, Utah. January 2008 – August 2008

I oversaw business operations for Miller Brooks in Utah and throughout the Intermountain West. I oversaw environmental site assessments, NEPA project development, Cultural Resource Inventories and permitting, biological evaluations, and assisted in the development of Environmental Impact Statements, and other associated projects. I was responsible for assisting clients in developing projects under the auspices of the National Environmental Policy Act (NEPA), and conducted cultural resource inventories, biological inventories, and regulatory assessments in connection with those policies.

Southwest Regional Director, AEI Consultants, Phoenix, Arizona. October 2006 – January 2008

I managed the Southwest Regional Office in Phoenix and oversaw business operations in Arizona, Nevada, Southern Utah, and New Mexico. I began the development of NEPA training for the company including; cultural resource inventories, biological assessments, 404 permitting, and other similar projects. I conducted and oversaw site assessments, subsurface investigations, media sampling, and Property Condition and Safety Assessments for various clients. Project experience includes Phase I and Phase II assessments on tire re-tread facilities, printing facilities, plating and powder coating facilities, commercial office buildings, medical offices, hotels, and apartment complexes. I was responsible for advising clients on 'Best Management Practices' pertaining to Hazardous Waste storage, transport, and removal; and in identifying potential safety concerns and proposing methods and procedures to decrease risks within industrial and commercial settings. I was also responsible for overseeing and training staff members, business development, budgeting and minor accounting, and client relationships within the southwest region.

Environmental Scientist/ Archaeologist, Earthtouch, Inc., Layton, Utah. October 2003 – October 2006.

I conducted Phase I site assessments and NEPA analyses in California, Oregon, Washington, Idaho, Utah, Nevada, Arizona, Oklahoma, and other locations throughout the United States. I authored Environmental Site Assessment (ESA) reports, soil analyses reports, archaeological inventories, Phase I assessments, and Phase II assessments for Federal and State agencies, commercial clients, financial lending institutions and wireless telecommunications providers. I categorized waste materials and identified potential environmental and safety hazards for industrial and commercial properties. I was responsible for designing sample strategies for various sites and implementing soil and groundwater testing. I prepared samples for transport and reported on laboratory results. I also helped resolve concerns between clients and various government and state agencies in order to expedite project completion and insure the proper implementation of proposed developments.

I conducted numerous cultural resource inventories and biological assessments throughout Utah, Idaho, Arizona, California, Washington, and Oregon. Project experience includes; fiber optic lines, road expansion developments, utility permitting, fuels surveys, historic building and feature recordation, cellular tower development, rock shelter monitoring, and other projects.

Graduate Research Assistant, BYU Soils Laboratory, Provo, Utah. January 2002 – August 2003.

I planned, organized, and conducted independent studies of soils, plants, and geography; and documented environmental changes in areas of Mexico, Guatemala, and Utah. The majority of my research focused on using soil chemical analyses for archaeological prospecting and site evaluation. I conducted surveys and assisted in excavations and used soil chemical techniques to delineate and study site specific characteristics and to developed data to identify sub-surface cultural deposits. I developed sample strategies, organized and managed work crews, and supervised student volunteers for two years in Guatemala , Mexico, and Utah. I established contacts with government agency personnel, and worked with local Maya indigenous groups to evaluate agricultural practices and forest management issues. I oversaw sample analysis at the BYU soils laboratory, organized data, and prepared manuscripts for publication. I presented research findings at professional meetings and consulted as an environmental soils expert with various projects in Guatemala and Mexico. I also participated in local research projects in Utah and helped in the development of wetlands to treat agricultural run-off, the development of soil chemical analysis techniques to prospect for archaeological deposits, and monitoring stream flow on the Provo River. Other research projects include; the testing various composting materials for use on I-15 freeway interchanges, identifying Nitrogen fixation of crypto-biotic soils in southern Utah, and the application of oily waste products in areas of the West Desert to improve soil structure and increase agricultural output.

Archaeological Contractor, EarthTouch Inc., Layton, Utah. March 2001 – January 2002.

I assessed historic properties and archaeological sites for National Register of Historic Places status for government agencies and private companies. I evaluated sites and properties for various private and government entities. I conducted archaeological surveys and excavations and reported results to clients and government agency personnel. I participated in extensive research to document historic uses of properties included in land exchanges, road construction, and other infrastructure improvements. I worked with clients and government agency personnel through the NEPA process to resolve concerns and develop project initiatives for a positive outcome for all interested parties.

Archaeologist, JBR Environmental Consultants, Inc. Springville, Utah. September 2000 – March 2001.

I conducted archaeological surveys and assessments of proposed project areas. I recorded archaeological sites, mapped landscape features and excavated sites for governmental and private contractors. I prepared reports and data to be included in Environmental Assessments (EAs) and Environmental Impact Statement (EIS) documentation. I edited reports, prepared artifacts for storage, and assisted other professionals within the company.

Student Volunteer, Brigham Young University Archaeological Field School, Austin, Texas and Utah County, Utah. May - August 2000.

I excavated Paleo-Indian sites in Texas and Utah with other student volunteers. I collected and described artifacts, kept field notes, and prepared artifacts for analysis. I analyzed stone and bone artifacts, prepared reports and reported findings to other students in a forum. I also participated in project planning, and logistical support to provide students and faculty personnel with food, water and sanitary facilities.

On the Kay's Cabin archaeological site, I conducted soil chemical sampling for phosphates and trace elements to assist in the delineation of sub-surface features and potential cultural resources. The soil investigations identified an additional Fremont Indian pit-house, and other features that provided crucial data for understanding the site. These findings are currently under review, pending additional data prior to publication.

Volunteer Archaeological Lab Assistant, BYU Piedras Negras Project. Guatemala. April - May 2000.

I helped assess, organize, and conduct archaeological investigations of various structures within the site of Piedras Negras during the summer field season. I organized work crews for the field laboratory and conducted analysis of micro and macro-botanical samples from archeological sites. I organized artifact collection and storage while overseeing the field laboratory, and maintained necessary camp equipment such as water pumps, water filters, generators, and other electronic and mechanical equipment.

SELECTED ARCHAEOLOGICAL PROJECT EXPERIENCE

Oil field leases and access permits (cultural and biological clearances) Tribal and Federal lands
Beehive Fiber Optic Line – Wendover to Baker, archaeological survey and testing
Evaluation of historic structures in Gold Hill, Utah – Tooele County
Mills Junction near Lakepoint, survey and testing
Historical documentation of the Handy Corner Gas Station on the Historic Lincoln Highway
Monitoring for wireless telecommunications service (WTS) facility installation – various locations
Nextel Communications, surveys and evaluations throughout western United States
Cultural Resource Assessment and site recordation on US Naval Oil Preserve
10400 South Street – Salt Lake City, archaeological survey and historic building assessment
SUFCO Subsidence Mine Monitoring and Survey – Southern Wasatch Plateau
Hinckley Drive Road Improvement Project (SR 79), survey and collection
Joe’s Valley Road Improvement Project – San Rafael Swell, survey and analyses
Martin Quarry Project – Central Utah, survey and testing
Nevada Automotive Testing Center proving Grounds, survey and analyses
Skull Valley Land Exchange, survey and testing
Survey and Testing in Red Cliffs Desert Reserve – St. George, survey and testing
Carbonville Road Project – Carbonville, Inventory
Mona Ridge BLM Fuels Inventory

SELECTED BIOLOGICAL PROJECT EXPERIENCE

Threatened and Endangered Species evaluations for telecom projects throughout California, Nevada, Arizona, Washington, Oregon, and Utah
Wetland and Sensitive Habitat evaluation for the Red-Legged Frog in the Sacramento Valley, California
Biological Inventory of the proposed ACDC gravel pit lease on the Uinta-Ouray Reservation
Biological Inventory of proposed French Drain locations along the White River
Biological Inventory for the proposed Wellington, Utah Walking Trail

KNOWLEDGE AND SKILLS

Public Lands Policy Coordination Office (PLPCO) Archaeological Permit # 177
AHERA Building Inspector (#D10620)
National Environmental Policy Act (NEPA) regulations.
Soil chemical prospecting techniques for archaeological sites.
C13/C14 carbon analyses for identifying early agricultural corn production.
Carbon sequestration verification services.
RCRA regulations and procedures.
40-Hour HAZWOPER Training.
Plant and soil analysis.
Stream flow monitoring and water testing procedures.

Soil and plant sampling and analysis procedures.
Mapping programs including; Arch View, Arch Map and Surfer.
Soil map generation and evaluation.
TOPCON total station mapping and various GPS mapping techniques.
ICP/AES analysis procedures.
Atomic Absorption analysis procedures.
Fluent Spanish (speaking, reading, writing).

AWARDS

Recipient of the 2003 BYU Graduate Student Association Research Presentation Award
Graduate Student Assistantship 2001-2003
Tuition Scholarship 2001-2003

AFFILIATIONS

Member of the Society of American Archaeologists
Member of the Association of American Geographers

SELECTED PUBLICATIONS AND PRESENTATIONS

First Author

Soil Resources of the Motul de San Jose Maya: Correlating soil taxonomy and modern Itza Maya soil classification within a Classic Maya archaeological zone. Christopher T. Jensen, Matthew D. Moriarti, Kristofer D. Johnson, Richard E. Terry, Kitty Emery, and Sheldon D. Nelson. *Geoarchaeology: An International Journal*, Volume 22, No. 3, 337-357 (2007).

Soil Chemical Investigations of agricultural resource control and distribution in Chunchucmil, Mexico and Motul de San Jose, Guatemala. Christopher T. Jensen. A thesis presented to the Brigham Young University Department of Plant and Animal Sciences in fulfillment of a Master of Science Degree. 2003.

The use of soil chemical analysis and ethnographic studies to define marketplace activities in the site of Chunchucmil, Mexico. Christopher Jensen, Richard E. Terry, Bruce Dahlin. A manuscript submitted to *Science*. 2004.

Connections between settlement patterns and soil types in the close-periphery of Motul de San José, Guatemala. Christopher Jensen, Kristoffer Johnson, Richard Terry, Matt Moriarti. A manuscript submitted to *Geoarchaeology*, an international journal. 2003.

Soil typologies and connections between agriculture and settlement at Motul de San Jose, Guatemala. Christopher Jensen, Matthew Moriarti, Richard E. Terry, Kitty Emery. Paper presented at the 2003 Society of American Archaeologists in Milwaukee, MI.

Soil chemistry of ancient and modern Maya marketplaces. Christopher Jensen, Richard E. Terry, David R. Wright. Paper presented at the 2003 American Association of Geographers meetings in New Orleans, LA.

Soil chemical signatures at Motul de San Jose, Guatemala. Christopher Jensen, Kris Johnson, Richard E. Terry. Paper presented at the 2002 Society of American Archaeologists meetings in Denver, Colorado.

The Pakbeh regional economy program. Report of the 2001 field season: Chemical analysis of soils at Chunchucmil. Chris Jensen, Bruce Dahlin, Richard E. Terry.

Proyecto Arqueologico Motul de San Jose. Informe #4, Temporada de campo 2001: Analisis quimico de suelos en Motul de San Jose. Chris Jensen, Kris Johnson, Richard E. Terry.

Second Author

In Search of an Ancient Maya Market. Bruce H. Dahlin, Christopher T. Jensen, Richard E. Terry, David R. Wright, and Timothy Beach. *Latin American Antiquity*, 18(3), 2007 pp 121-143.

Interpreting ancient Maya behavior through soil chemical analysis of activity areas in Chunchucmil, Mexico. Travis L. Thomason, Christopher Jensen, Richard E. Terry. Presentation at the 2002 American Society of Agronomy meetings in Indianapolis, IN.

Soil chemical signatures and Classic Maya land use at Motul de San Jose, Guatemala. Richard E. Terry, Christopher Jensen, Kris Johnson. Presentation at the 2001 American Society of Agronomy meetings in Charlotte, NC.

Chris Jensen – Environmental Consultant

Summation of Training and Project Experience Pertaining to Burrowing Owls

Mr. Jensen initially undertook direction for burrowing owl identification from personnel within the California Department of Fish and Game in 2001. Working in connection with Mason Holmes and others at Earthtouch, LLC; Mr. Jensen assisted in the development of FCC regulated wireless tower facilities. A number of these facilities were to be located within the range of the burrowing owl. As such, personnel with the California Department of Fish and Game directed Mr. Jensen and Mr. Holmes to conduct burrowing owl surveys. There was no specifically regulated training at the time (only recommendations) and direction was provided verbally or through email. The direction outlined the protocol for burrowing owl surveys, which was to first identify burrows within and about the project area, and then to use the approved methods for determining the absence or presence of individuals.

Additional in-field and pre-field instruction has occurred under the direction of personnel from Nevada Division of Wildlife (NDOW) for telecom projects on an as-needed basis in 2003 and again in 2006.

The following selected wireless telecommunications projects were assessed for burrowing owl using the aforementioned protocols:

NX-CA-1147C (2001)
NX-CA-1174B (2001)
NX-CA-1192 (2001)
NX-CA-059TA (2002)
NX-CA-2276A (2002)
NX-NV-1233A (2003)
AZ-11276B (2003)
NX-CA-2687C (2003)
NX-CA-3325A (2005)
NX-CA-1284C (2005)
RS-LA-0550A (2006)
NX-NV-2231B (2006)
SC-13371A (2006)
TM-SF-15140A (2006)
TM-SF-15990A (2006)
SC-12734A (2007)

Other selected projects:

Evaluation of the Proposed Cinder Pit Extension near Flagstaff, Arizona (2007)
Biological Inventory for the Proposed Gravel Pit Location near Ouray, Utah (2008)
Biological Inventory of Two French Drain Locations along the White River, Utah (2008)
Evaluation of Seismic locations for Veritas in Utah (2008)
Inventory of the Wellington, Utah Walking Path (2008)
UTE 3-1B3 Well Pad, Roosevelt, UT (2009)
UTE 4-35A3 Well Pad, Roosevelt, UT (2009)

CHAPTER 4

LAND USE AND AIR QUALITY

4.10 Land Use

4.1.1 Environmental Description

4.1.1.1 Premining Land Use

The northern 10 acres within the permit area were purchased by COVOL Engineered Fuels, LC from Terra Systems Inc. in 2003. The southern 20 acres within the permit area were sold to COVOL Engineered Fuels, LC in 2005 by Price City. The entire site was purchased in 2013 by Bowie Refined Coal and/or its subsidiaries and/or affiliates (see Chapter 1). Due to its high alkaline and saline content, the land is poorly suited for agriculture. Construction of the facility was initiated in July 2005, and limited operations began in January 2006.

Land Use Map. Zoned land use in the vicinity of the site is indicated on Figure 4-1.

Land Capability. The land capability of the permit and adjacent areas is suited to its current industrial zoning status. The soils are composed primarily of alkaline, saline, weathered shale that do not readily support agricultural activities. The Natural Resources Conservation Service indicates that these soils have a poor revegetation potential due to the lack of precipitation and infertile soil properties (Jensen and Borchert, 1988). The native vegetation consists of a salt desert community that is poorly suited for wildlife and livestock use.

Land Use Description. According to the development code of Carbon County, Utah (Carbon County, 2003), the surface lands are zoned I-2 (General Industrial) as follows:

“The I-2 General Industrial zone has been established for the purpose of providing a place where firms engaged in mining and related activities, and/or heavy manufacturing, processing and fabrication of goods and materials, can locate with minimum conflict or deleterious effect on surrounding properties and the natural environment, and with a high degree of protection from encroachment of residential and commercial uses. It is also the intent of this zone to promote the economic well being of the people within the County and to broaden the tax base.”

The land has also been zoned by Wellington City as M-1 (light industrial). Permitted uses under this zoning classification include a variety of industrial and manufacturing operations (see Appendix 1-4).

BRC Wellington (“BRCW”) operates a dry coal cleaning facility at the site, separating coal from waste rock using a dry (air-enhanced) process. This work is done on a toll basis, with BRCW not having ownership of the coal. All material is shipped off site in accordance with client contracts once processing is completed. Activities at the site are in accordance with the I-2 and M-1 zoning as described above.

Cultural and Historic Resources Information. A Class I cultural resource inventory of the area surrounding the Wellington facility was conducted from the records of the Utah State Historical Preservation Office (“SHPO”). The results of this survey are provided in Appendix 4-1. The qualifications of the individual who conducted the records search are provided in the resume contained in Appendix 4-3. As indicated, 10 inventories have extended to areas within 1 mile of the BRCW facility, with only one cultural resource site identified within this 1-mile radius. This site was an insignificant lithic scatter located more than 500 feet from the BRCW site. Its location with respect to the BRCW facility is not shown in Appendix 4-1 due to SHPO data restrictions. No cultural resource sites have been identified within the BRCW facility boundaries.

4.1.1.2 Previous Mining Activity

No previous mining activity occurred in the permit area.

4.1.2 Reclamation Plan

4.1.2.1 Postmining Land Use Plan

As indicated in Section 2.2.2.2 of this application, the soil at the BRCW facility is poorly suited for agricultural use. Furthermore, native vegetation in the area is poorly suited for rangeland use of the site (see Section 3.2.1). Hence, in accordance with R645-301-413.120, rather than restoring the land to its pre-disturbance use it will be restored to a higher or better post-operations industrial land use consistent with the current zoning of the site and adjacent areas. The extent of site restoration following operations is discussed more fully in Section 5.40 of this permit application.

The land occupied by the Wellington Dry Coal Cleaning Facility will adequately support future industrial land uses after operations are complete. The Applicant intends that the post-operational land uses will be consistent with the industrial land use plans approved by Carbon County and Wellington City. Final reclamation activities will be completed in a manner consistent with that intended post-operation industrial land use and in accordance with Carbon County and Wellington City zoning ordinances. Given its excellent access via Ridge Road, its gentle terrain, and the existence of utilities, the land will have value as an industrial site following closure of the BRCW facility.

4.1.2.2 Land Owner or Surface Manager Comments

BRCW owns and operates the facility. Thus, surface land owner comments are not required. All operations will be conducted in accordance with applicable local, State, and Federal regulations.

4.1.2.3 Suitability and Capability

Final fills will not contain excess spoils.

4.1.3 Performance Standards

4.1.3.1 Postmining Land Use

The proposed post-operations land uses will be industrial. The land is capable of supporting such a land use.

4.1.3.2 Determining Premining Uses of Land

The post-operations land use is the same as that which existed before the operation began.

4.1.3.3 Criteria for Alternative Postmining Land Uses

No alternative post-operations land uses are anticipated.

4.1.4 Alternative Land Use

No alternative post-operations land uses are anticipated.

4.20 Air Quality

This section includes descriptions of plans to comply with the Clean Air Act and applicable Utah or federal statutes and regulations pertaining to air quality standards.

4.2.1 Air Quality Standards

BRCW's operations are being conducted in compliance with the requirements of the Clean Air Act and the Utah Air Quality Regulations.

4.2.2 Compliance Efforts

Air emissions from the facility comply with applicable local, state, and federal standards, and are permitted with the Utah Division of Air Quality (DAQ) under Approval Order (AO) DAQE#AN2952001-05 issued on June 30, 2005. Under the permit, the facility qualifies as a minor source of particulate emissions. Controls at the facility include dust suppression of the roadways with water, a telescoping drop chute on the primary stacking conveyor, enclosed screen and crusher, and fixed discharge chutes on the stacking conveyors and at the truck loadout stations. A copy of the AO is included in Appendix 4-2. A copy of a letter from the prior owner to DAQ concerning the onset of production is also included in Appendix 4-2. This permit allows for 7.12 tons of PM₁₀ emissions per year, provided that BRCW complies with the stipulations of the permit. These stipulations are summarized in the following paragraphs.

Fabric Filter Baghouses. All of the exhaust from the air cleaning tables is channeled through baghouses before being discharged to the atmosphere. The fabric filters used in each baghouse will comply with the specifications for porosity and differential pressure as specified in the AO.

Opacity. Visible emissions from the components of the facility are restricted to the following opacity limits:

- Crushers: 15%
- Screens: 10%

- Conveyor Transfer Points: 10%
- Baghouse Exhaust Stacks: 10%
- Haul Road Traffic/Vehicles: 20%
- All other points: 20%

Process Limitations. The facility is limited to processing no greater than 1,500,000 tons of coal per rolling 12-month period.

Fugitive Dust Controls. Standard procedures, including water and/or chemical treatment of roads and other areas with vehicle traffic, will be followed in accordance with the AO. Storage piles will also be sprayed with water as necessary. In-plant haul roads will be limited to a total length of 0.69 miles, with a speed limit of 10 miles per hour. They will be paved and swept as needed, as per the AO.

Other Controls. Conveyors and stackers are covered or enclosed. Discharge chutes have been installed on radial stacker conveyor drops and truck loadouts at the alternate product loading hopper and the product storage silo.

4.2.3 Monitoring Program

DOGM does not require an air monitoring program for the Wellington Dry-Coal Cleaning Facility at this time. A monitoring program has been established with the DAQ under AO# AN2952001-05. The program includes the installation of manometers to measure the differential pressures across the filters in the baghouses, a protocol for measuring opacity from fugitive dust road emissions, and specifies the types of records to be maintained for control measures that are applied. Additional details for the DAQ air monitoring program are included in the AO document, which is included in Appendix 4-2.

REFERENCES

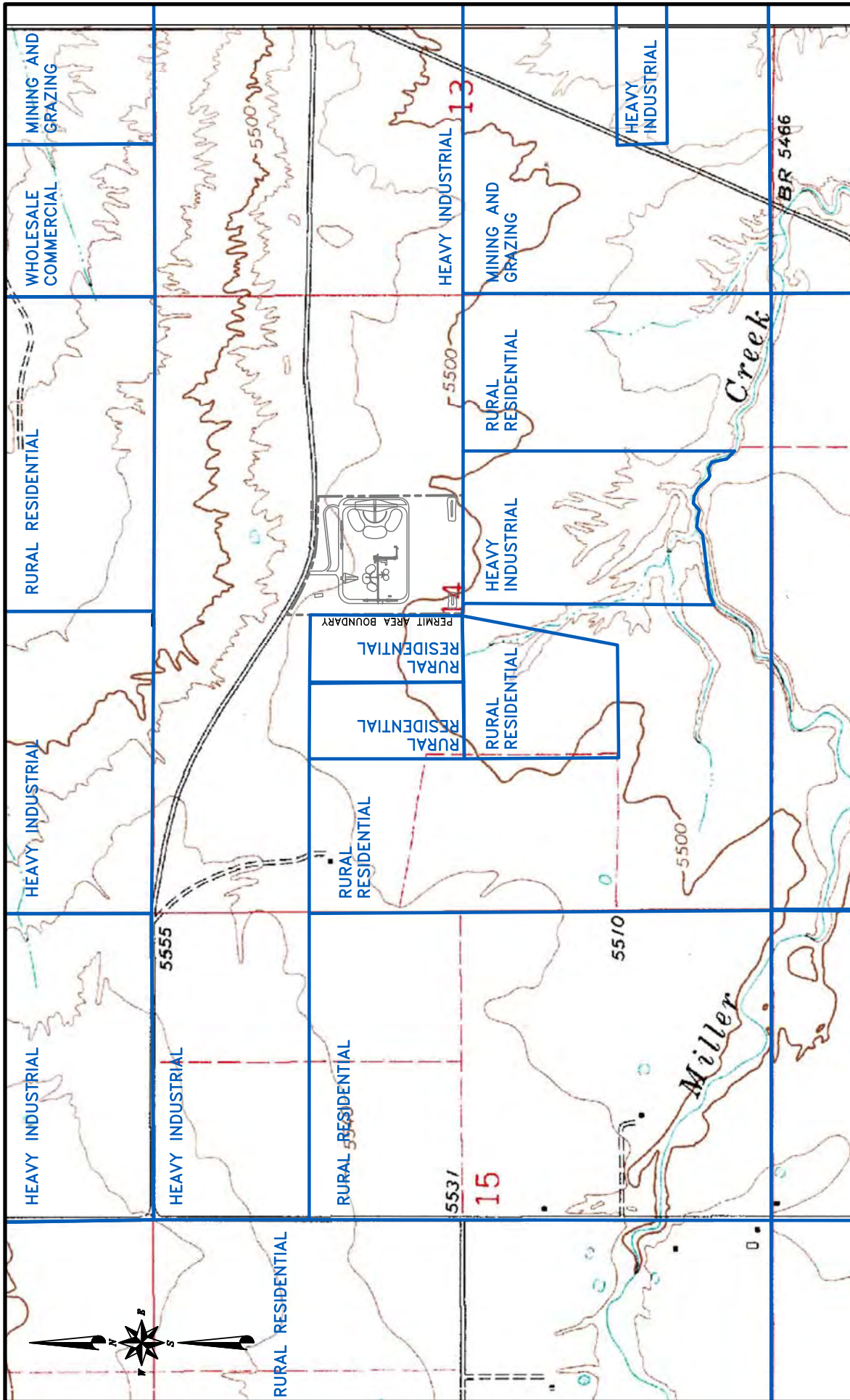
Carbon County, 2003. The Development Code for Carbon County, Utah. Revised March 2003.

Jensen, Earl H. and James W. Borchert, 1988. Soil Survey of Carbon Area, Utah. U.S.
Department of Agriculture Soil Conservation Service. 294 pp.



FIGURE 4-1. LAND USE MAP

BASE MAP: 7.5' USGS QUADRANGLE
PRICE, UTAH 1972
LAND USE INFORMATION TAKEN FROM THE CARBON
COUNTY GEOGRAPHIC INFORMATION SYSTEM, ACCESSED
OCTOBER 2007



BRC Wellington LC
Dry-Coal Cleaning Facility

Permit Application
October 2013

APPENDIX 4-1

Class I Cultural Resource Inventory



Canyon Environmental
326 East Stadium Avenue
Provo, UT 84604
Phone: 801.602.6883 Fax: 801.341.0005
www.canyonenvironmental.com

September 5, 2008

Rich White
EarthFax Engineering, Inc.
7324 South Union Park Ave.
Suite 100
Midvale, UT 84047

Subject: Class I File Cultural Resources File Search for the Wellington Dry-Coal Cleaning Facility on behalf of COVOL Engineered Fuels, LC

Address: Section 14, Township 15 South, Range 10 East

Dear Mr. White:

Canyon Environmental has conducted a Class I Literature Search for the above mentioned site at the Utah State Historic Preservation Office (SHPO) on behalf of COVOL Engineered Fuels, LC. The Class I was conducted in order to comply with requirements set forth by the Utah Division of Oil, Gas, and Mining (DOGM).

The proposed Dry-Coal Cleaning Facility will comprise approximately 30 acres and will be developed on lands that have been previously disturbed (Figure 1). DOGM has requested that a File Search be conducted to determine the extent and disposition of any cultural resources that have been previously identified in the surrounding area.

The file search was conducted on September 3, 2008 at the Utah State Historic Preservation Office in Salt Lake City, Utah. The file search identified 10 previously conducted inventories and one cultural resource site within a one-mile radius of the proposed project area. According to the information obtained from SHPO, the proposed project area has not been previously surveyed for cultural resources. The file search results are described in the Table 1.1.

Table 1.1 Previous Cultural Resource Inventories Conducted in the Vicinity of the Project Area and Applicable Findings

Project No.	Company Name	Project Name	Findings ¹
U-77-UA-0318b,f,s	U of U	Green River Reservoirs / Plants/ pipeline / Transmission Lines	42CB130, 42EM969-974 & 976-990
U-78-UA-0245b,s	U of U	Denver and Rio Grande Spur Line	42EM1072-1079, 42CB336-340, 733
U-80-UB-0722p	UTARC	Coal Plant in Castle Valley	None

Table 1.1 Previous Cultural Resource Inventories Conducted in the Vicinity of the Project Area and Applicable Findings

Project No.	Company Name	Project Name	Findings¹
U-81-FS-0945f	USFS	Ira Holley Phosphate Development, Little Diamond Creek	None
U-84-SJ-448b,s	Sagebrush	Cultural Resource Survey of Several GEO Seismic Services; Geophysical Transects in Southern Carbon County	42CB491
U-87-BL-0332b	BLM	Wellington land Sale	None
U-89-AF-301b,s	AERC	CRE of Proposed Ridge Road Development in Carbon County	42CB577
U-96-BS-0186b,s	Baseline	CRI of Emery Telephone Fiber Optic Line in Emery and Carbon Counties	42EM2440-2441
U-04-BE-1098p	BOR	North Creek Lateral	None
U-05-PD-0052b,p,s	PIII Assoc.	Carbon Canal	42CB 571, 1040, 1270, 1356, 2321-2322, 3376-3377

Ten cultural resource inventories have been conducted within a one-mile radius of the proposed project area. The proposed project area was not included in any of the previously conducted inventories.

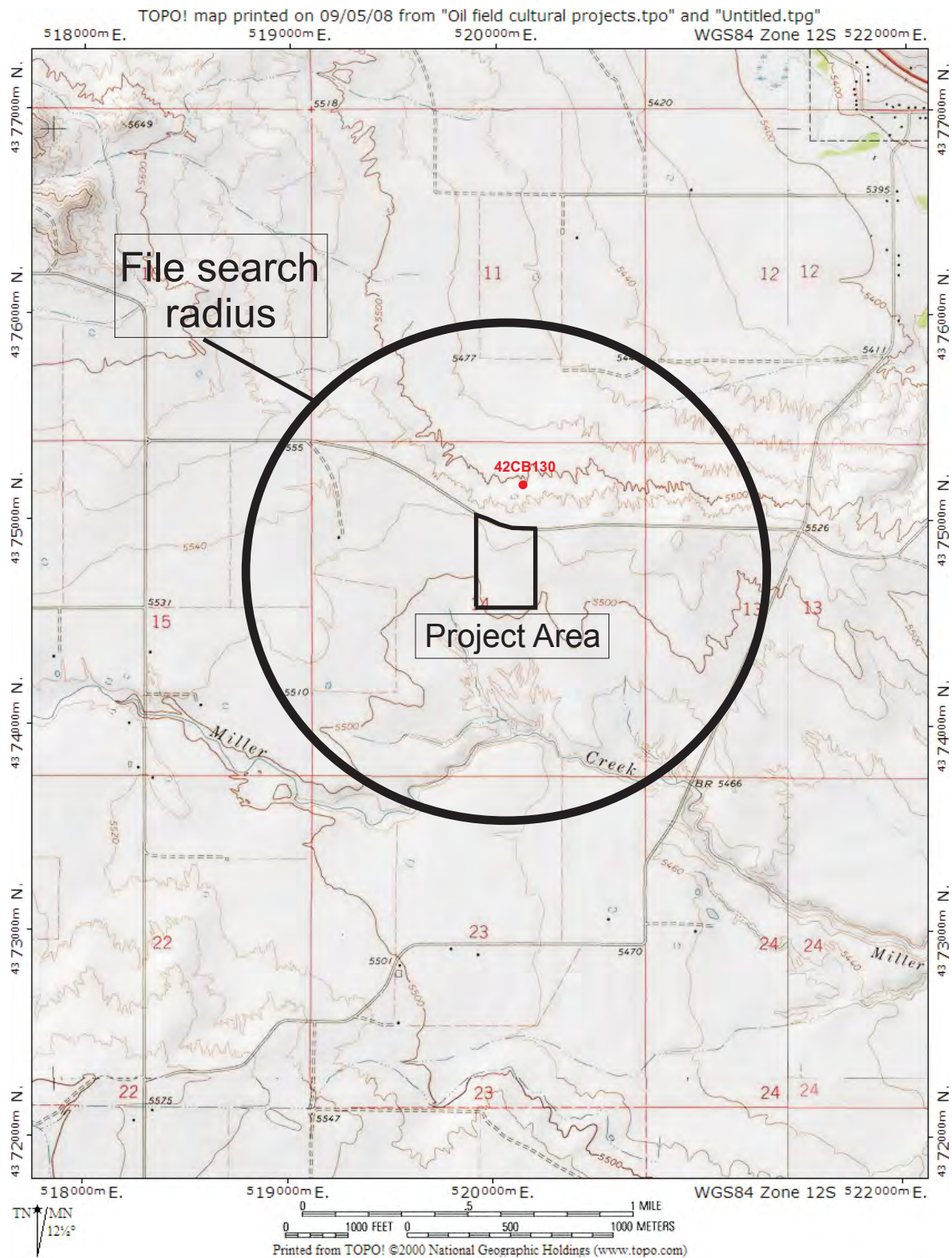
One previously identified cultural resource site (42CB130) was identified within a one-mile radius of the proposed project area. The site was identified as an historic site with no determination of eligibility. The previously identified site is located more than 500 feet in distance from the proposed project area.

Based upon the findings of the Class I inventory, no cultural resource sites have been identified within the proposed project area boundaries. Nor have any sites been identified in the immediate vicinity about the proposed project area.

Please review the above cultural resource file search results and if you have any questions, contact me at 801-602-6883.

Sincerely,

Chris Jensen
Archaeologist
Canyon Environmental



TOPOGRAPHIC MAP

Wellington Dry-Coal Cleaning Facility
Section 14, Township 15 South, Range 10 East

USGS TOPOGRAPHIC MAP:
Price, Utah 7.5 Min Quadrangle



Figure 1

Job No. C080001

BRC Wellington LC
Dry-Coal Cleaning Facility

Permit Application
October 2013

APPENDIX 4-2

Utah Division of Air Quality
Approval Order



State of Utah

Department of
Environmental Quality

Dianne R. Nielson, Ph.D.
Executive Director

DIVISION OF AIR QUALITY
Richard W. Sprott
Director

JON M. HUNTSMAN, JR.
Governor

GARY HERBERT
Lieutenant Governor

DAQE-AN2952003-05

June 30, 2005

Keith Thompson
COVOL Engineered Fuels LLC
10653 South Riverfront Parkway, Suite 300
Sandy, Utah 84095

Dear Mr. Thompson:

Re: Approval Order: Modification of Approval Order DAQE# AN2952001-03, by Adding
Equipment and Increasing Blended Coal Production, Carbon County – CDS B ATT; NSPS;
TITLE V Minor Project Code: N2952-003

The attached document is the Approval Order (AO) for the above-referenced project.

Future correspondence on this Approval Order should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. Please direct any technical questions you may have on this project to Mr. Tim De Julis. He may be reached at (801) 536-4012.

Sincerely,

Richard W. Sprott, Executive Secretary
Utah Air Quality Board

RWS:TD:re

cc: Southeastern Utah District Health Department
Mike Owens, EPA Region VIII

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

**APPROVAL ORDER: Modification of Approval Order
DAQE# AN 2952001-03 by Adding Equipment**

**Prepared By: Tim De Julis, Engineer
(801) 536-4012
tdejulis@utah.gov**

APPROVAL ORDER NUMBER

DAQE-AN2952003-05

Date: June 30, 2005

COVOL Engineered Fuels LLC

**Source Contact
Keith Thompson
(801) 984-9400**

**Richard W. Sprott
Executive Secretary
Utah Air Quality Board**

Abstract

Covol Engineered Fuels, LC (CEF), proposes to modify the existing, blended coal preparation plant in Wellington, Carbon County, by adding equipment items, and increasing annual production. The plant will process as much as 1,500,000 tons of coal per year, utilizing crushers, screens, and air tables to create three different quality, blended coal products. Carbon County is an attainment area of the National Ambient Air Quality Standards (NAAQS) for all pollutants. New Source Performance Standards (NSPS) apply to this source (40 CFR 60 Subpart A, and Subpart Y). National Emission Standards for Hazardous Air Pollutants (NESHAP) and Maximum Available Control Technology (MACT) regulations do not apply to this source. Title V of the 1990 Clean Air Act applies to this minor source. This source does not require a Title V operating permit.

The emissions, in tons per year, will change as follows: PM_{10} (+ 7.12).

The changes in emissions will result in the following, in tons per year, potential to emit totals: PM_{10} = 7.91

The project has been evaluated and found to be consistent with the requirements of the Utah Administrative Code Rule 307 (UAC R307). A public comment period was held in accordance with UAC R307-401-4 and no comments were received. This air quality Approval Order (AO) authorizes the project with the following conditions, and failure to comply with any of the conditions may constitute a violation of this order.

General Conditions:

1. This Approval Order (AO) applies to the following company:

Corporate Office Location

Covol Engineered Fuels, LC
10653 South Riverfront Parkway, Suite 300
Sandy, Utah 84095

Phone Number (801) 984-9400

Fax Number (801) 984-9460

The equipment listed in this AO shall be operated at the following location:

1865 West Ridge Road, Wellington, Carbon County

Universal Transverse Mercator (UTM) Coordinate System: UTM Datum NAD27
4,374.55 kilometers Northing, 520.27 kilometers Easting, Zone 12

2. All definitions, terms, abbreviations, and references used in this AO conform to those used in the Utah Administrative Code (UAC) Rule 307 (R307), and Title 40 of the Code of Federal Regulations (40 CFR). Unless noted otherwise, references cited in these AO conditions refer to those rules.
3. The limits set forth in this AO shall not be exceeded without prior approval in accordance with R307-401.

4. Modifications to the equipment, or processes approved by this AO that could affect the emissions covered by this AO must be reviewed, and approved in accordance with R307-401-1.
5. All records referenced in this AO, or in applicable NSPS, which are required to be kept by the owner/operator, shall be made available to the Executive Secretary or Executive Secretary's representative upon request, and the records shall include the two-year period prior to the date of the request. Records shall be kept for the following minimum periods:
 - A. Emission inventories Five years from the due date of each emission statement or until the next inventory is due, whichever is longer.
 - B. All other records Two years
6. CEF shall install the various coal preparation equipment items listed in condition 8, and shall conduct its operations of the coal preparation plant in accordance with the terms, and conditions of this AO, which was written pursuant to CEF's Notice of Intent submitted to the Division of Air Quality (DAQ) on February 9, 2005, and additional information submitted to the DAQ on February 17, 2005, March 4, 2005, March 7, 2005, March 9, 2005, March 11, 2005, March 15, 2005, April 8, 2005, April 13, 2005, April 15, 2005, and April 19, 2005.
7. This AO shall replace the AO (DAQE-AN2952001-03) dated December 18, 2003.
8. The approved installations shall consist of the following equipment (or equivalent*):
 - A. Coal handling/ Preparation Equipment 40 CFR 60 Subpart Y
 One (1) Crusher
 One (1) Screen
 Two (2) Feed Hoppers
 Three (3) Air Tables
 Various Conveyor Belts, or Radial Stacking Devices
 - B. Three (3) Fabric Filter Baghouses
 - C. One (1) Material Storage Silo
 Capacity: 200 tons
 - D. Various Off-highway Equipment items **
 Front-end Loaders

* Equivalency shall be determined by the Executive Secretary.

** This equipment is listed for informational purposes only.
9. The three baghouses shall control process streams from the air cleaning tables. All exhaust air from the air cleaning tables shall be routed through one of the three baghouses before being vented to the atmosphere. All filtered material collected within each

baghouse shall discharge to an enclosed conveyance device. The fabric filters installed in each baghouse shall have porosity of 0.5 micrometers, or use equivalent technology as determined by the Executive Secretary.

10. A manometer or magnehelic pressure gauge shall be installed to measure the differential pressure across the fabric filters in each baghouse. Static pressure differential across the fabric filter shall be between 1.5 to 6.0 inches of water column. The pressure gauge shall be located such that an inspector /operator can safely read the indicator at any time. The reading shall be accurate to within plus or minus 1.0 inches water column. The instrument shall be calibrated according to the manufactures instructions at least once every 12 months. Intermittent recording of the reading is required on a once per operational day basis.
11. CEF shall notify the Executive Secretary in writing when the installation of the equipment listed in Condition #8 has been completed and is operational, as an initial compliance inspection is required. To insure proper credit when notifying the Executive Secretary, send your correspondence to the Executive Secretary, attn: Compliance Section.

If construction and/or installation has not been completed within eighteen months from the date of this AO, the Executive Secretary shall be notified in writing on the status of the construction and/or installation. At that time, the Executive Secretary shall require documentation of the continuous construction and/or installation of the operation and may revoke the AO in accordance with R307-401-11.

Limitations and Tests Procedures

12. Visible emissions from the following emission points shall not exceed the following values:
 - A. All crushers - 15% opacity
 - B. All screens - 10% opacity
 - C. All conveyor transfer points - 10% opacity
 - D. All baghouse exhaust stacks - 10% opacity
 - E. All other points - 20% opacity

Opacity observations of emissions from stationary sources shall be conducted according to 40 CFR 60, Appendix A, Method 9.

For sources that are subject to NSPS, opacity shall be determined by conducting observations in accordance with 40 CFR 60.11(b) and 40 CFR 60, Appendix A, Method 9.

13. The following limit shall not be exceeded:

1,500,000 tons of coal processed per rolling 12-month period

To determine compliance with a rolling 12-month total the owner/operator shall calculate a new 12-month total by the twentieth day of each month using data from the previous 12

months. Records of production shall be kept for all periods when the plant is in operation. Coal production shall be determined by examination of CEF billing records, and/or weight receipts. The records of coal production shall be kept on a daily basis.

Roads, and Fugitive Dust

14. The facility shall abide by all applicable requirements of R307-205 for Fugitive Emission and Fugitive Dust sources.
15. Visible fugitive dust emissions from haul-road traffic and mobile equipment in operational areas shall not exceed 20% opacity. Visible emissions determinations for traffic sources shall use procedures similar to Method 9. The normal requirement for observations to be made at 15-second intervals over a six-minute period, however, shall not apply. Six points, distributed along the length of the haul road or in the operational area, shall be chosen by the Executive Secretary, or the Executive Secretary's representative. An opacity reading shall be made at each point when a vehicle passes the selected points. Opacity readings shall be made 1/2 vehicle length, or greater behind the vehicle, and at approximately 1/2 the height of the vehicle, or greater. The accumulated six readings shall be averaged for the compliance value.
16. All unpaved operational areas that are used by mobile equipment shall be water sprayed, and/or chemically treated to control fugitive dust. An application of water, or chemical treatment shall be used. Treatment shall be of sufficient frequency, intensity, and duration to maintain the surface material in a damp/moist condition unless it is below freezing. The opacity shall not exceed 20% during all times the areas are in use. If chemical treatment is to be used, the plan must be approved by the Executive Secretary. Records of water, and/or chemical treatment shall be kept for all periods when the plant is in operation. The records shall include the following items:
 - A. Date
 - B. Number of treatments made, dilution ratio, and quantity
 - C. Rainfall received, if any, and approximate amount
 - D. Time of day treatments were made
 - E. Records of temperature if the temperature is below freezing.
17. The in-plant haul roads shall be paved, and shall be periodically swept, or sprayed clean as dry conditions warrant, or as determined necessary by the Executive Secretary. Records of cleaning paved roads shall be kept for periods the plant is in operation. The records shall include the following items:
 - A. Date of cleaning(s)
 - B. Time of day cleaning(s) were performed
18. The haul road shall not exceed 0.69 miles in combined length, and the vehicle speed along the haul road shall not exceed 10 miles per hour.

19. The storage piles shall be watered to minimize generation of fugitive dusts, as dry conditions warrant, or as determined necessary by the Executive Secretary. Records of water, and/or chemical treatment shall be kept for all periods when the plant is in operation.
20. All conveyors, and radial stacking devices shall be covered, or enclosed along their length. The radial stacker conveyor drop, the truck loading chutes at the product storage silo, and the alternate product loading hopper shall be equipped with telescoping discharge tubes.

Federal Limitations and Requirements

21. In addition to the requirements of this AO, all applicable provisions of 40 CFR 60, New Source Performance Standards (NSPS) Subpart A, 40 CFR 60.1 to 60.18, and Subpart Y, 40 CFR 60.250 to 60.254 (Standards of Performance for Coal Preparation Plants) apply to this installation.

Records & Miscellaneous

22. At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this Approval Order including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Executive Secretary which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded.
23. The owner/operator shall comply with R307-150 Series. Inventories, Testing and Monitoring.
24. The owner/operator shall comply with R307-107. General Requirements: Unavoidable Breakdowns.

The Executive Secretary shall be notified in writing if the company is sold or changes its name.

This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including R307.

A copy of the rules, regulations and/or attachments addressed in this AO may be obtained by contacting the Division of Air Quality. The Utah Administrative Code R307 rules used by DAQ, the Notice of Intent (NOI) guide, and other air quality documents and forms may also be obtained on the Internet at the following web site:

<http://www.airquality.utah.gov/>

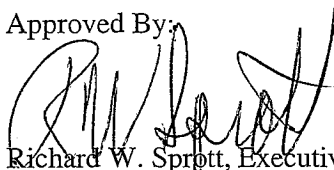
The annual emissions estimations below include point source, fugitive dust, and road dust emissions, and do not include fugitive emissions, tail pipe emissions, or grandfathered emissions. These emissions are for the purpose of determining the applicability of Prevention of Significant Deterioration, non-attainment

area, maintenance area, and Title V source requirements of the R307. They are not to be used for determining compliance.

The Potential To Emit (PTE) emissions for CEF's Wellington coal preparation plant are currently calculated at the following values:

<u>Pollutant</u>	<u>Tons/yr</u>
PM ₁₀	7.91

Approved By:



Richard W. Sprott, Executive Secretary
Utah Air Quality Board



November 21, 2006

Mr. Tim De Julis
Utah Division of Air Quality
150 North 1950 West
P.O. Box 144820
Salt Lake City, Utah 84114-4820

Re: Completion of Construction
Covol Engineered Fuels, LLC Wellington, Utah Facility; AO# DAQE-AN2952003-05

Dear Tim:

The above referenced Approval Order (AO) was issued to the Covol Engineered Fuels, LLC (Covol) Wellington Coal Cleaning Facility on June 30, 2005. Condition 11 of this AO requires that construction is completed within 18 months. Condition 11 also provides that if construction is not completed in 18 months, Covol must notify the Utah Division of Air Quality (UDAQ) Executive Secretary in writing of the circumstances surrounding the inability to complete construction. Covol is submitting this letter to notify UDAQ that construction will not be completed by December 30, 2006.

Since the permit was issued on June 30, 2006 Covol has installed the operating equipment listed in the AO and has had considerable success in "shaking down" the operation. The primary remaining construction that is required to complete the facility is the installation of paved roads (required by Condition 17 of the AO). However, this last phase of construction has been delayed. Over the past months, Covol has had increasing difficulties obtaining adequate and sustained coal supplies to operate the facility on a continuous basis or at or near capacity. Reasons for this include:

- Providers that were counted on for supplies have less cleanable coal available.
- Certain providers are undergoing internal commercial changes that have impacted the amount of coal available and/or the timing of availability.
- Contracts with additional providers are being pursued; however, the available material must be tested for suitability to the Wellington process before it can be supplied in bulk.

Covol does not wish to invest in paving the roads at the facility until the certainty of the coal supply is assured. The plan going forward is to attempt to secure the required ongoing supply. When an adequate operating supply is secured, the roads will be paved to complete construction. At that time Covol will notify UDAQ that construction is complete.

I appreciate the discussion with you last week concerning this matter and the guidance you provided. Please do not hesitate to call me at (801) 984-3777 if you have any questions.

Sincerely,


Steven P. Van Ootegham
Regional Environmental Manager

cc: Keith Thompson/Covol
Jeff Hayden/Covol
Mike Gipson/Covol - Wellington Facility

APPENDIX 4-3

Resume of Individual Conducting the
Cultural Resource Evaluation

Christopher T. Jensen
326 Stadium Avenue
Provo, Utah 84604
801-602-6883
cjensen@canyonenvironmental.com

Mr. Jensen is an environmental professional with over ten years experience in the industry. Due to his unique educational and professional background, Mr. Jensen is qualified to conduct numerous aspects of environmental consultation ranging from Cultural Resource (archaeological) evaluations, Biological Assessments, soils evaluations, carbon analyses, and contaminant characterization and remediation. By combining these elements during project planning and permitting, Mr. Jensen delivers quality, cost-effective environmental services for many clients.

EDUCATION

Master of Science Degree in Agronomy with Archaeological Science and Soil Chemistry emphasis. Brigham Young University, Provo, Utah. August 2003.

Relevant course work includes: Maya Archaeology, Case Studies in Environmental Policy, Water/Environment, Environmental Issues, Soil and Plant Analyses, Rangeland Plants, Range Management, Laboratory Safety, Soil Physics, Soil Taxonomy, Statistics, and GIS mapping

Bachelor Degree in Anthropology with a minor in Geography. Brigham Young University, Provo, Utah. December 2001.

Relevant course work includes: Geology, Seminar in Environmental Policy, Maps and Air Photos, Physical Geography, Cultural Geography, Human Osteology, Archaeological Methods, and Historic Archaeology

RESEARCH PROJECTS

Urban and rural planning studies of Indonesia. 1999.
Soil chemical investigations of Kay's Cabin archaeological site. 2000-2003.
Soil evaluations and environmental changes at Motul de San Jose, Guatemala. 2001-2007.
Soil chemical studies at Chunchucmil, Mexico and Antigua, Guatemala. 2001-2007.
Marketplace studies and environmental soils analysis in Antigua, Guatemala. 2002.
Design of a constructed wetland to treat agricultural run-off in Spanish Fork, Utah 2001.
Application of oily waste to arid agricultural fields in the West Desert, Utah. 2002.
GIS planning for a new park location for Orem City, Utah. 2003.
Nitrogen fixation studies of compost media for UDOT freeway interchanges, Utah County, Utah. 2003.
Soil chemical procedures as a viable alternative in Cultural Resource Management. 2002 – present.

EMPLOYMENT

President, Canyon Environmental, Provo, Utah. August 2008 – Present

I currently own Canyon Environmental and oversee business development, operations, and services. Canyon Environmental specializes in a multi-disciplinary approach to environmental services. The

company conducts biological assessments, cultural resource inventories, environmental site assessments, carbon credit analyses and verification services, and focuses on cost-effective strategies to improve efficiencies and coordinate project developments for our clients. Clientele ranges from energy companies, financial institutions, development corporations, holding companies, and governmental and non-governmental organizations.

Senior Scientist, Miller Brooks Environmental, American Fork, Utah. January 2008 – August 2008

I oversaw business operations for Miller Brooks in Utah and throughout the Intermountain West. I oversaw environmental site assessments, NEPA project development, Cultural Resource Inventories and permitting, biological evaluations, and assisted in the development of Environmental Impact Statements, and other associated projects. I was responsible for assisting clients in developing projects under the auspices of the National Environmental Policy Act (NEPA), and conducted cultural resource inventories, biological inventories, and regulatory assessments in connection with those policies.

Southwest Regional Director, AEI Consultants, Phoenix, Arizona. October 2006 – January 2008

I managed the Southwest Regional Office in Phoenix and oversaw business operations in Arizona, Nevada, Southern Utah, and New Mexico. I began the development of NEPA training for the company including; cultural resource inventories, biological assessments, 404 permitting, and other similar projects. I conducted and oversaw site assessments, subsurface investigations, media sampling, and Property Condition and Safety Assessments for various clients. Project experience includes Phase I and Phase II assessments on tire re-tread facilities, printing facilities, plating and powder coating facilities, commercial office buildings, medical offices, hotels, and apartment complexes. I was responsible for advising clients on 'Best Management Practices' pertaining to Hazardous Waste storage, transport, and removal; and in identifying potential safety concerns and proposing methods and procedures to decrease risks within industrial and commercial settings. I was also responsible for overseeing and training staff members, business development, budgeting and minor accounting, and client relationships within the southwest region.

Environmental Scientist/ Archaeologist, Earthtouch, Inc., Layton, Utah. October 2003 – October 2006.

I conducted Phase I site assessments and NEPA analyses in California, Oregon, Washington, Idaho, Utah, Nevada, Arizona, Oklahoma, and other locations throughout the United States. I authored Environmental Site Assessment (ESA) reports, soil analyses reports, archaeological inventories, Phase I assessments, and Phase II assessments for Federal and State agencies, commercial clients, financial lending institutions and wireless telecommunications providers. I categorized waste materials and identified potential environmental and safety hazards for industrial and commercial properties. I was responsible for designing sample strategies for various sites and implementing soil and groundwater testing. I prepared samples for transport and reported on laboratory results. I also helped resolve concerns between clients and various government and state agencies in order to expedite project completion and insure the proper implementation of proposed developments.

I conducted numerous cultural resource inventories and biological assessments throughout Utah, Idaho, Arizona, California, Washington, and Oregon. Project experience includes; fiber optic lines, road expansion developments, utility permitting, fuels surveys, historic building and feature recordation, cellular tower development, rock shelter monitoring, and other projects.

Graduate Research Assistant, BYU Soils Laboratory, Provo, Utah. January 2002 – August 2003.

I planned, organized, and conducted independent studies of soils, plants, and geography; and documented environmental changes in areas of Mexico, Guatemala, and Utah. The majority of my research focused on using soil chemical analyses for archaeological prospecting and site evaluation. I conducted surveys and assisted in excavations and used soil chemical techniques to delineate and study site specific characteristics and to developed data to identify sub-surface cultural deposits. I developed sample strategies, organized and managed work crews, and supervised student volunteers for two years in Guatemala , Mexico, and Utah. I established contacts with government agency personnel, and worked with local Maya indigenous groups to evaluate agricultural practices and forest management issues. I oversaw sample analysis at the BYU soils laboratory, organized data, and prepared manuscripts for publication. I presented research findings at professional meetings and consulted as an environmental soils expert with various projects in Guatemala and Mexico. I also participated in local research projects in Utah and helped in the development of wetlands to treat agricultural run-off, the development of soil chemical analysis techniques to prospect for archaeological deposits, and monitoring stream flow on the Provo River. Other research projects include; the testing various composting materials for use on I-15 freeway interchanges, identifying Nitrogen fixation of crypto-biotic soils in southern Utah, and the application of oily waste products in areas of the West Desert to improve soil structure and increase agricultural output.

Archaeological Contractor, EarthTouch Inc., Layton, Utah. March 2001 – January 2002.

I assessed historic properties and archaeological sites for National Register of Historic Places status for government agencies and private companies. I evaluated sites and properties for various private and government entities. I conducted archaeological surveys and excavations and reported results to clients and government agency personnel. I participated in extensive research to document historic uses of properties included in land exchanges, road construction, and other infrastructure improvements. I worked with clients and government agency personnel through the NEPA process to resolve concerns and develop project initiatives for a positive outcome for all interested parties.

Archaeologist, JBR Environmental Consultants, Inc. Springville, Utah. September 2000 – March 2001.

I conducted archaeological surveys and assessments of proposed project areas. I recorded archaeological sites, mapped landscape features and excavated sites for governmental and private contractors. I prepared reports and data to be included in Environmental Assessments (EAs) and Environmental Impact Statement (EIS) documentation. I edited reports, prepared artifacts for storage, and assisted other professionals within the company.

Student Volunteer, Brigham Young University Archaeological Field School, Austin, Texas and Utah County, Utah. May - August 2000.

I excavated Paleo-Indian sites in Texas and Utah with other student volunteers. I collected and described artifacts, kept field notes, and prepared artifacts for analysis. I analyzed stone and bone artifacts, prepared reports and reported findings to other students in a forum. I also participated in project planning, and logistical support to provide students and faculty personnel with food, water and sanitary facilities.

On the Kay's Cabin archaeological site, I conducted soil chemical sampling for phosphates and trace elements to assist in the delineation of sub-surface features and potential cultural resources. The soil investigations identified an additional Fremont Indian pit-house, and other features that provided crucial data for understanding the site. These findings are currently under review, pending additional data prior to publication.

Volunteer Archaeological Lab Assistant, BYU Piedras Negras Project. Guatemala. April - May 2000.

I helped assess, organize, and conduct archaeological investigations of various structures within the site of Piedras Negras during the summer field season. I organized work crews for the field laboratory and conducted analysis of micro and macro-botanical samples from archeological sites. I organized artifact collection and storage while overseeing the field laboratory, and maintained necessary camp equipment such as water pumps, water filters, generators, and other electronic and mechanical equipment.

SELECTED ARCHAEOLOGICAL PROJECT EXPERIENCE

Oil field leases and access permits (cultural and biological clearances) Tribal and Federal lands
Beehive Fiber Optic Line – Wendover to Baker, archaeological survey and testing
Evaluation of historic structures in Gold Hill, Utah – Tooele County
Mills Junction near Lakepoint, survey and testing
Historical documentation of the Handy Corner Gas Station on the Historic Lincoln Highway
Monitoring for wireless telecommunications service (WTS) facility installation – various locations
Nextel Communications, surveys and evaluations throughout western United States
Cultural Resource Assessment and site recordation on US Naval Oil Preserve
10400 South Street – Salt Lake City, archaeological survey and historic building assessment
SUFCO Subsidence Mine Monitoring and Survey – Southern Wasatch Plateau
Hinckley Drive Road Improvement Project (SR 79), survey and collection
Joe’s Valley Road Improvement Project – San Rafael Swell, survey and analyses
Martin Quarry Project – Central Utah, survey and testing
Nevada Automotive Testing Center proving Grounds, survey and analyses
Skull Valley Land Exchange, survey and testing
Survey and Testing in Red Cliffs Desert Reserve – St. George, survey and testing
Carbonville Road Project – Carbonville, Inventory
Mona Ridge BLM Fuels Inventory

SELECTED BIOLOGICAL PROJECT EXPERIENCE

Threatened and Endangered Species evaluations for telecom projects throughout California, Nevada, Arizona, Washington, Oregon, and Utah
Wetland and Sensitive Habitat evaluation for the Red-Legged Frog in the Sacramento Valley, California
Biological Inventory of the proposed ACDC gravel pit lease on the Uinta-Ouray Reservation
Biological Inventory of proposed French Drain locations along the White River
Biological Inventory for the proposed Wellington, Utah Walking Trail

KNOWLEDGE AND SKILLS

Public Lands Policy Coordination Office (PLPCO) Archaeological Permit # 177
AHERA Building Inspector (#D10620)
National Environmental Policy Act (NEPA) regulations.
Soil chemical prospecting techniques for archaeological sites.
C13/C14 carbon analyses for identifying early agricultural corn production.
Carbon sequestration verification services.
RCRA regulations and procedures.
40-Hour HAZWOPER Training.
Plant and soil analysis.
Stream flow monitoring and water testing procedures.

Soil and plant sampling and analysis procedures.
Mapping programs including; Arch View, Arch Map and Surfer.
Soil map generation and evaluation.
TOPCON total station mapping and various GPS mapping techniques.
ICP/AES analysis procedures.
Atomic Absorption analysis procedures.
Fluent Spanish (speaking, reading, writing).

AWARDS

Recipient of the 2003 BYU Graduate Student Association Research Presentation Award
Graduate Student Assistantship 2001-2003
Tuition Scholarship 2001-2003

AFFILIATIONS

Member of the Society of American Archaeologists
Member of the Association of American Geographers

SELECTED PUBLICATIONS AND PRESENTATIONS

First Author

Soil Resources of the Motul de San Jose Maya: Correlating soil taxonomy and modern Itza Maya soil classification within a Classic Maya archaeological zone. Christopher T. Jensen, Matthew D. Moriarti, Kristofer D. Johnson, Richard E. Terry, Kitty Emery, and Sheldon D. Nelson. *Geoarchaeology: An International Journal*, Volume 22, No. 3, 337-357 (2007).

Soil Chemical Investigations of agricultural resource control and distribution in Chunchucmil, Mexico and Motul de San Jose, Guatemala. Christopher T. Jensen. A thesis presented to the Brigham Young University Department of Plant and Animal Sciences in fulfillment of a Master of Science Degree. 2003.

The use of soil chemical analysis and ethnographic studies to define marketplace activities in the site of Chunchucmil, Mexico. Christopher Jensen, Richard E. Terry, Bruce Dahlin. A manuscript submitted to *Science*. 2004.

Connections between settlement patterns and soil types in the close-periphery of Motul de San José, Guatemala. Christopher Jensen, Kristoffer Johnson, Richard Terry, Matt Moriarti. A manuscript submitted to *Geoarchaeology*, an international journal. 2003.

Soil typologies and connections between agriculture and settlement at Motul de San Jose, Guatemala. Christopher Jensen, Matthew Moriarti, Richard E. Terry, Kitty Emery. Paper presented at the 2003 Society of American Archaeologists in Milwaukee, MI.

Soil chemistry of ancient and modern Maya marketplaces. Christopher Jensen, Richard E. Terry, David R. Wright. Paper presented at the 2003 American Association of Geographers meetings in New Orleans, LA.

Soil chemical signatures at Motul de San Jose, Guatemala. Christopher Jensen, Kris Johnson, Richard E. Terry. Paper presented at the 2002 Society of American Archaeologists meetings in Denver, Colorado.

The Pakbeh regional economy program. Report of the 2001 field season: Chemical analysis of soils at Chunchucmil. Chris Jensen, Bruce Dahlin, Richard E. Terry.

Proyecto Arqueologico Motul de San Jose. Informe #4, Temporada de campo 2001: Analisis quimico de suelos en Motul de San Jose. Chris Jensen, Kris Johnson, Richard E. Terry.

Second Author

In Search of an Ancient Maya Market. Bruce H. Dahlin, Christopher T. Jensen, Richard E. Terry, David R. Wright, and Timothy Beach. *Latin American Antiquity*, 18(3), 2007 pp 121-143.

Interpreting ancient Maya behavior through soil chemical analysis of activity areas in Chunchucmil, Mexico. Travis L. Thomason, Christopher Jensen, Richard E. Terry. Presentation at the 2002 American Society of Agronomy meetings in Indianapolis, IN.

Soil chemical signatures and Classic Maya land use at Motul de San Jose, Guatemala. Richard E. Terry, Christopher Jensen, Kris Johnson. Presentation at the 2001 American Society of Agronomy meetings in Charlotte, NC.

CHAPTER 5

ENGINEERING

5.10 Introduction

This chapter provides a discussion of general engineering aspects, an operation plan, a reclamation plan, design criteria, and performance standards related to the Wellington Dry-Coal Cleaning Facility. The existing and proposed facilities have been or will be designed, located, constructed, maintained, and reclaimed in accordance with the operation and reclamation plans.

It should be noted that this facility is used for coal cleaning and is not a coal mine. Thus, several of the sections in this chapter that refer to mining operations are not applicable and have been noted as such.

5.1.1 General Requirements

This permit application includes descriptions of the proposed coal cleaning and facility reclamation operations together with the appropriate maps, plans, and cross sections. Methods and calculations utilized to achieve compliance with the design criteria are also presented.

5.1.2 Certification

Where required by the regulations, cross sections and maps in this permit application have been prepared by or under the direction of, and certified by, qualified registered professional engineers or land surveyors. As appropriate, these persons were assisted by experts in the fields of hydrology, geology, biology, etc.

5.1.2.1 Cross Sections and Maps

Previously Mined Areas. There are no previously mined areas near the facility.

Surface Facilities. A general site map showing the locations of structures, coal cleaning equipment, conveyors, and piles in addition to surface drainage is shown on Plate 5-1. This map includes the locations of topsoil and coal material stockpiles, runoff control structures, and sedimentation ponds. Except for the sedimentation ponds, no other water treatment facilities exist at the site. Plate 5-1 also shows the locations of air pollution control equipment.

The following facilities or activities do not exist or occur within the permit area:

- Coal mining,
- Excess spoil,
- Durable rock fills,
- Storage/disposal of coal mine waste,
- Coal processing waste banks, dams, or embankments, and
- Disposal of non-coal (non-waste rock) waste

It should be noted that, since BRC Wellington (“BRCW”) toll processes material received from off-site clients, some of this material may have been classified at those off-site operations as coal mine waste or coal processing waste. However, this material is received and processed by BRCW as coal. Prior to receipt within the permit area, BRCW will evaluate the material to ensure that it can be economically processed. If BRCW cannot economically process the material, the material will be rejected and not allowed on site. Material that is accepted by BRCW is processed to generate one of two (or both) products: high-quality coal and/or low-quality (low-BTU) coal. This coal is then shipped off site in accordance with contract requirements. None of the material processed or generated within the permit area is considered coal mine waste or coal processing waste.

Surface Configurations. The topography noted on Plate 5-1 is based on a survey of the site performed in September 2008. Site grading at the facility has been minimal, and there are a handful of material stockpiles as shown on Plate 5-1. Site reclamation is expected to involve only minor amounts of earthwork.

Hydrology. Certified maps and cross sections associated with the hydrology of the Wellington Dry-Coal Cleaning Facility area are provided in Chapter 7.

Geology. Certified maps and cross sections associated with the geology of the Wellington Dry-Coal Cleaning Facility area are provided in Chapter 6.

5.1.2.2 Plans and Engineering Designs

All plans and engineering designs presented in this permit application were prepared by or under the direction of and certified by a qualified registered professional engineer.

Excess Spoil. No excess spoil will be generated from the permit area.

Durable Rock Fills. No durable rock fills will exist in the permit area.

Coal Mine Waste. No coal mine waste will be stored in the permit area.

Impoundments. Two impoundments are present at the site – one in the southeast corner and one in the southwest corner (see Plate 5-1). They are intended to temporarily contain runoff from the disturbed areas of the site. They were designed and certified by a professional engineer using current, prudent, engineering practices.

Primary Roads. All roads within the permit area are considered primary roads as defined in R645-301-527.120. These roads have been certified by a professional engineer as meeting the requirements of R645-301-534.200 and R645-301-742.420 (see Appendix 5-1).

Variance from Approximate Original Contour. There has been no significant variance from the original contour at this facility. Thus, no variance from the approximate original contour of the site is being requested. Since the facility is located on land zoned for heavy industrial use, future industrial uses of the property will benefit from any site grading which has already been performed.

5.1.3 Compliance with MSHA Regulations and MSHA Approvals

5.1.3.1 Coal Processing Waste Dams and Embankments

No coal processing waste dams or embankments exist within the permit area.

5.1.3.2 Impoundments and Sedimentation Ponds

No impoundments or sedimentation ponds in the permit area meet the size criteria of 30 CFR 77.216(a).

5.1.3.3 Underground Development Waste, Coal Processing Waste, and Excess Spoil

No underground development waste, coal processing waste, or excess spoil is disposed of in the permit area.

5.1.3.4 Refuse Piles

There is no coal refuse stored in the permit area.

5.1.3.5 Underground Openings to the Surface

There are no underground openings within the permit area.

5.1.3.6 Discharges to Underground Mines

No discharges occur from the surface to underground mine workings in the permit area.

5.1.3.7 Surface Coal Mining and Reclamation Activities

No surface coal mining and reclamation activities occur in the permit area.

5.1.3.8 Coal Mine Waste Fires

No coal mine waste will be stored in the permit area. If any coal-related fires occur within the permit area, these will be reported immediately to MSHA and DOGM. Immediate remedial action will be taken as deemed necessary by BRCW to protect public health and safety as well as the environment. Following initial remedial efforts, a long-term plan will be formulated in discussion with MSHA and DOGM to extinguish any existing fires and prevent future fires.

5.1.4 Inspections

5.1.4.1 Excess Spoil

Excess spoil is not generated at the Wellington Dry-Coal Cleaning Facility.

5.1.4.2 Refuse Piles

No refuse piles will be located in the permit area.

5.1.4.3 Impoundments

Inspections of the sedimentation ponds associated with the Wellington Dry-Coal Cleaning Facility will be made at least quarterly. A report of inspection will be prepared by a qualified individual and maintained on site after each inspection.

No new impoundments are planned for construction at the site. If new impoundments are constructed, they will be inspected during and after construction in accordance with R645-301-514.300.

All sedimentation ponds associated with the Wellington Dry-Coal Cleaning Facility will be inspected annually by a registered professional engineer. A certified report will be prepared by a registered professional engineer and submitted to DOGM shortly after each inspection. This report will indicate whether or not the impoundment has been constructed and maintained as designed and in accordance with the approved plan and the R645 rules. The report will also include a discussion of any apparent instability, structural weakness or other hazardous conditions, depth and elevation of any impounded waters, existing storage capacity, existing or required monitoring procedures and instrumentation, and any other aspects of the structure affecting stability, as noted during the inspection. A copy of the inspection report will be maintained at the facility office.

No impoundments that are subject to 30 CFR 77.216 currently exist or are planned within the permit area. If impoundments subject to 30 CFR 77.216 are constructed in the future, these impoundments will be inspected in accordance with 30 CFR 77.216-3.

5.1.5 Reporting and Emergency Procedures

5.1.5.1 Slides

Due to the relatively level plant site, the potential for slides is essentially nonexistent. However, if a slide occurs within the permit area that may have a potential adverse effect on the public, property, health, safety, or the environment, BRCW will notify DOGM by the fastest available means following discovery of the slide and will comply with any remedial measures required by DOGM.

5.1.5.2 Impoundment Hazards

If any examination or inspection of an impoundment discloses that a potential hazard is associated with that impoundment that may have an adverse effect on the public, property, health, safety, or the environment, the person who examined the impoundment will promptly inform DOGM of the finding and of the emergency procedures formulated for public protection and

remedial action. If adequate procedures cannot be formulated or implemented, DOGM will be notified immediately.

5.1.5.3 Temporary Cessation of Operations

Prior to a temporary cessation of operations within the permit area that will last for a period of 30 days or more or as soon as it is known that a temporary cessation will extend beyond 30 days, BRCW will submit to DOGM a notice of intention to cease or abandon operations. This notice will include the following:

- A statement of the exact tonnage of coal which has been cleaned by the facility prior to cessation of operations,
- A discussion of the extent and kind of reclamation activities which will have been accomplished prior to cessation of operations, and
- An identification of the regrading, revegetation, environmental monitoring, and water treatment activities that will continue during the temporary cessation.

During the temporary cessation, BRCW will support and maintain all surface access and will also secure all facilities. The exterior fence surrounding the operations will be maintained and all gates will be closed and locked to prevent unauthorized access to the site by humans and animals, including access to subsurface bins and reclaim tunnels.

5.20 Operation Plan

5.2.1 General

5.2.1.1 Cross Sections and Maps

Previously Mined Areas. There are no active, inactive, or abandoned underground workings, including openings to the surface, within the permit and adjacent areas. No previously surface-mined areas exist within the permit area.

Existing Surface and Subsurface Facilities and Features. Plate 5-1 depicts the following information:

- The location of surface and subsurface features within, passing through, or passing over the permit area, including major electric transmission lines and pipelines (no agricultural drainage tile fields exist within the permit area),
- Each public road located in or within 100 feet of the permit area, and
- The location of each sedimentation pond within the permit area (there are no permanent water impoundments, coal processing waste dams, or coal processing embankments within the permit area).

Buildings located in the permit area are noted on Plate 5-1, while those within 1,000 feet of the permit area are noted on Figure 5-1, including an identification of the current use of the buildings.

Landowner, Right-of-Entry, and Public Interest. Figure 5-2 shows the boundaries of lands and the names of present owners of record of those lands, both surface and subsurface, included in or contiguous to the permit area. BRCW is the owner of all lands within the permit area, as indicated on the legal description provided on the warranty deeds in Appendix 1-3. The permit area consists of 30 fee acres. No Federal or State land exists within the permit area. As the owner of the property, BRCW has a legal right to operate on all of the lands within the permit area. Operations are conducted within 100 feet of a public road as indicated on Plate 5-1.

Mining Sequence and Planned Subsidence. No mining will occur at this facility. Therefore, no subsidence is anticipated.

Land Surface Configuration. Only minor grading of the site has occurred from its pre-operations condition. Original site elevations across the facility dropped approximately 30 feet from north to south, resulting in an average slope of approximately 2% (see Plate 5-1).

Surface Facilities. Plate 5-1 shows the locations of the following surface facilities:

- Buildings, utility corridors, and facilities to be used,
- Coal weighing, unloading, separating, stacking, and loading facilities,
- Air emissions controls,
- Sedimentation ponds,
- Roads, and
- Stockpile areas.

The fenced area shown on Plate 5-1 is the same as the land area for which a performance bond or other guarantee has been posted.

It should be noted that the size and location of coal stockpiles shown on Plate 5-1 are correct based on the survey date of September 2008. However, these piles are dynamic in their configuration, changing in size based on processing requirements. Although the pile sizes may change from time to time, the piles will remain generally as located on Plate 5-1.

The location of the topsoil stockpiles are shown on Plate 5-1. No coal processing waste banks, dams, or embankments exist in the permit area. Similarly, no spoil or coal preparation waste sites exist in the permit area.

General refuse that is generated on site is stored in dumpsters at the location indicated on Plate 5-1. This waste consists predominantly of paper, cardboard, and miscellaneous garbage. This non-hazardous, non-toxic, non-coal, non-waste rock refuse is disposed of periodically at the East Carbon Development Company landfill.

Transportation Facilities. Roads that have been constructed, used, or maintained by BRCW in the permit area for the mining and reclamation operations are shown on Plate 5-1. All of the conveyors in the permit area are also shown. Drainage structures associated with the roads are discussed in Section 7.5.2.2. A standard road cross section is provided on Figure 5-3.

As indicated on Plate 5-1, roads within the permit area consist of the following:

- Access road
- Loop road
- Scale road
- Scale bypass road
- Dump bin road
- Loading silo road

These roads are all constructed with the typical cross section shown in Figure 5-3. Road widths vary from 12 to 40 feet within the permit area, depending on the type of vehicle and purpose of the road. The gradient of the access road is approximately 4%. Gradients of the remaining roads are generally 1 to 2% except in short reaches to access loading/unloading areas (where gradients of up to 5% are achieved). The road surface throughout the permit area consists of minus 2-inch material that has been compacted in place. No significant cuts were made during construction of any of the roads. Fill embankments, constructed of the same materials used for the road surface, are located primarily along the Dump bin road and the Loading bin road, as shown on Plate 5-1. The locations of culverts and drainage ditches associated with the permit-area roads are also noted on Plate 5-1.

5.2.1.2 Signs and Markers

Permit Identification Signs. A permit identification sign has been placed so that it is visible from where the facility access road joins Ridge Road. The sign measures 4 feet by 8 feet and contains the following information:

- The name, business address, and telephone number of the permittee and
- The permanent program permit number as obtained from DOGM.

The sign will be retained and maintained until after the release of all bonds for the permit area.

Perimeter Markers. The perimeter of the facility (disturbed area boundary) is marked with a fence.

Buffer Zone Markers. Since the facility is not located near a perennial or intermittent stream channel, there are no stream buffer zone markers at the site.

Topsoil Markers. A marker will be placed on each topsoil stockpile indicating that it contains topsoil.

5.2.2 Coal Recovery

Coal recovery at the Wellington Dry-Coal Cleaning Facility is performed using air and vibratory methods to derive useable grades of coal from high-ash coal delivered from nearby coal mining operations.

5.2.3 Mining Methods

No mining occurs at this facility. This is a dry-coal cleaning facility in which coal is brought from off-site mine sources and processed into a value-added product.

5.2.4 Blasting and Explosives

Blasting and explosives will not be stored or used at the site.

5.2.5 Subsidence

There will be no underground mining or subsidence at this facility. Hence, no pre-subsidence survey will be conducted, no areas need to be protected from subsidence, no subsidence control plan will be developed, no subsidence control measures will be implemented, no subsidence damage repair will be performed, and no public notice of underground mining activities will be required.

5.2.6 Mine Facilities

Although the Wellington Dry-Coal Cleaning Facility is not a mine, it contains coal processing equipment that is detailed in the following sections.

5.2.6.1 Mine Structures and Facilities

The Wellington Dry-Coal Cleaning Facility was constructed from July 2005 to January 2006. The facility layout is noted on Plate 5-1. Table 5-1 lists the existing structures at the facility. All structures are actively maintained and are in good functional condition. All of the structures were constructed specifically for use as coal cleaning facilities, have been used and maintained since construction, and are considered adequate to meet the requirements of R645-301.

Selected structures and facilities will be removed following operations in accordance with the reclamation plan discussed in Section 5.40.

5.2.6.2 Utility Installation and Support Facilities

Utility Installations. All operations will be conducted to prevent damage, destruction, or disruption of services provided by electric lines, telephone transmission stations, water lines, and sewer lines which pass over, under, or through the permit area. Since there is no planned subsidence on site, all utilities are located within non-subsidence zones.

Support Facilities. Support facilities at the Wellington Dry-Coal Cleaning Facility will be operated in accordance with the permit issued for the facility. Support facilities will be located, maintained, and used in a manner that:

- Prevents or controls erosion and siltation, water pollution, and damage to public or private property,

- To the extent possible, using the best technology currently available, minimizes damage to fish, wildlife, and related environmental values, and
- Minimizes additional contributions of suspended solids to stream flow or runoff outside the permit area.

All support facilities will be removed following operations in accordance with the reclamation plan discussed in Section 5.40.

Water Pollution Control Facilities. Water pollution control facilities at the Wellington Dry-Coal Cleaning Facility consist of two sedimentation ponds and the appurtenant structures associated with them. Also, a septic system handles sanitary waste from the site office building. The sedimentation ponds and the septic system will remain intact for the next land user following operations. A discussion of the ability of these ponds to meet the permanent impoundment criteria of R645-301-733.220 through 733.226 is provided in Section 7.3.3.2 of this permit application. Site reclamation is discussed in Section 5.40.

The sedimentation ponds and appurtenant structures have been constructed as discussed in Chapter 7 and are used and maintained as discussed in Section 5.3.3.7.

5.2.7 Transportation Facilities

5.2.7.1 Road Classification

The access road that leads to the facility from Ridge Road is used to transport coal and is classified as a primary road. Interior roads at the facility are also used to transport coal and classified as primary.

5.2.7.2 Description of Transportation Facilities

No surface conveyors (other than those used to transfer and temporarily stockpile coal and byproduct) or rail systems have been or will be constructed, used, or maintained within the permit area.

Road Specifications. Cross sections and profiles of roads that are used or maintained by BRCW are provided in Figure 5-3. Information regarding road drainage is presented in Chapter 7. Additional information regarding permit-area roads is provided in Section 5.2.1.1.

Ridge Road is a paved county road that extends from State Highway 10, just south of Price, Utah to U.S. Highway 191 in Wellington, Utah (a distance of approximately 7 miles). The facility loop road encircles the facility which includes a broad area in which materials are stockpiled (see Plate 5-1). Once full operations commence and are sustained, the loop road will be paved pursuant to the Utah Division of Air Quality Approval Order for the operation.

Roads within the permit area are maintained and repaired as needed using a front-end loader to remove wash-board bumps and fill potholes. This maintenance work is performed at least once per month (more often, if needed). At least once each year a grader is brought on site to rework the road surfaces as needed and clean roadside ditches. After the loop road is paved, maintenance of this surface will include repairs to potholes and other defects that affect the normal operability of the road. This maintenance will occur as needed to ensure the safety and proper functioning of trucks and equipment. Any roads within the permit area that are damaged by a catastrophic event, such as a flood or earthquake, will be repaired as soon as practical after the damage has occurred.

Drainageway Alterations. No alterations or relocations of natural drainageways are required within the permit area to accommodate the needs of transportation systems.

5.2.8 Handling and Disposal of Coal, Excess Spoil, and Coal Mine Waste

5.2.8.1 Coal Handling and Transportation

No coal is mined at the site. All coal is trucked to the site, where it is weighed, cleaned, temporarily stockpiled, and trucked off site to its end-use destination.

5.2.8.2 Overburden

No overburden is removed, handled, stored, or transported within the permit area.

5.2.8.3 Spoil, Coal Processing Waste, Non-Coal Waste, and Mine Development Waste

Excess Spoil. No spoil is generated at the Wellington Dry-Coal Cleaning Facility.

Coal Processing Waste. As indicated in Section 5.1.2.1, BRCW processes all material on site as coal, even if some of this material was classified by client facilities as coal processing waste. Hence, this material is considered a product and not a waste. The facility is operated so that all of the coal cleaning products are marketable either as high-quality coal or low-quality coal. This is accomplished by blending various grades of coal so that they satisfy the ash requirements of its customers. Thus, the plant will not generate coal processing waste.

Non-Coal Mine Waste. Non-coal waste generated in the permit area is temporarily stored in dumpsters and is regularly collected to be disposed of at the East Carbon Development Company landfill. No non-coal waste is disposed of within the permit area. No non-coal waste that is defined as hazardous in 40 CFR 261 is currently generated at the facility. If such waste is generated in the future, it will be handled in accordance with the requirements of Subtitle C of the Resource Conservation and Recovery Act and any implementing regulation.

Underground Development Waste. No underground development waste is generated at the Wellington Dry-Coal Cleaning Facility.

Minimization of Acid, Toxic, and Fire Hazards. The sources of coal at the Wellington Dry-Coal Cleaning Facility are located in the Book Cliffs, Wasatch Plateau, and Emery Coal Fields, which historically have not produced acid or toxic coals. Furthermore, coal is only temporarily stored at this facility, the native soils in the permit area are alkaline (see Section 2.2.2.2), and sediment and precipitation runoff is controlled by drainage ditches and sedimentation ponds. Thus, hazards due to acid or toxic coal are either non-existent or greatly minimized by the lack of deleterious materials in the parent product, the temporary nature of on-site storage prior to processing, and the alkaline nature of the native soils at the site that serves to neutralize the effects of potential acidity.

Because coal that is cleaned in the permit area is only temporarily stored at the facility, there is no significant potential for this coal to spontaneously combust. Any coal fires that do occur will be handled as outlined in Section 5.1.3.8. No waste materials that constitute a fire hazard (i.e. grease, lubricants, paints, and flammable liquids) are accumulated where the temporary stockpiles are located.

5.2.8.4 Dams, Embankments, and Impoundments

No dams, embankments, or impoundments are used for the handling or disposal of coal, overburden, excess spoil, or coal mine waste in the permit area.

5.2.9 Management of Mine Openings

There are no mine openings at the Wellington Dry-Coal Cleaning Facility.

5.30 Operational Design Criteria and Plans

5.3.1 General

This application contains a general plan for each sedimentation pond within the permit area. No other water impoundments or coal processing waste banks, dams, or embankments exist in the permit area. Since subsidence will not occur at the site, and no underground mining has occurred beneath the site, no damage will result to facility structures due to subsidence.

5.3.2 Sediment Control

Sediment-control measures for the Wellington Dry-Coal Cleaning Facility are described in Section 7.3.2. The sedimentation structures at the facility consist of two sedimentation ponds on the southeast and southwest corners of the yard, and a system of drainage ditches that report to them. Runoff-control structures have been designed to convey runoff in a non-erosive manner.

In addition to the use of sedimentation ponds and properly designed runoff-control facilities, sediment yields in the permit area are minimized by disturbing the smallest practicable area during the construction or modification of surface facilities, and contemporaneously reclaiming areas suitable for such reclamation.

5.3.3 Impoundments

5.3.3.1 Slope Stability

Except for small berms along the crests, the sedimentation ponds are constructed below grade. Slope stability analyses are, therefore, not necessary.

5.3.3.2 Foundation Considerations

The sedimentation ponds are constructed below grade in stable, natural soil. Cross sections of the sedimentation ponds are presented in Chapter 7 of this document.

5.3.3.3 Slope Protection

The outslopes and inslopes of the sedimentation ponds are periodically inspected for signs of surface erosion. The inlets and outlets of the ponds are armored with rip rap.

5.3.3.4 Embankment Faces

Sedimentation pond inslopes will be revegetated to protect erosion. Riprap has also been placed to protect pond slopes and embankments near the discharge structures.

5.3.3.5 Highwalls

No highwalls are located within the permitted boundary.

5.3.3.6 MSHA Criteria

No sedimentation ponds in the permit area meet the size criteria of 30 CFR 216(a).

5.3.3.7 Pond Operation and Maintenance Plans

Each sedimentation pond is designed in accordance with R645-301-740. Details of these designs are presented in Chapter 7.

The sedimentation ponds are operated as containment structures, with spillways to discharge water during a storm that exceeds the design capacity. Excess water following a runoff event is held in the ponds until the suspended sediment settles. Water then evaporates, soaks into

the ground, or is decanted using a portable pump. Water that is pumped from the ponds will be used for dust suppression at the site.

Inspections of the sedimentation ponds are conducted on a quarterly basis (see Section 5.1.4.3). Maintenance that is required to keep the ponds in good working condition is performed on an as-needed basis.

Sediment is removed from the ponds when it accumulates to 60 percent of the design sediment storage volume. If coal collects in the ponds, this coal will be processed in the coal cleaning facility. Non-coal sediment will be blended with the byproduct material.

5.3.4 Roads

5.3.4.1 Location, Design, Construction, Reconstruction, Use, Maintenance, and Reclamation

Control of Damage to Public or Private Property. All roads used by BRCW were designed in accordance with applicable county and facility-use requirements. By designing according to these standards, damage to public or private property has been minimized.

Road Surfacing. The surface of the facility access road from Ridge Road to the office trailer and the loop road within the permit area is currently surfaced with gravel and is maintained to minimize ruts and pot holes (see Section 5.2.7.2). Once full operations have commenced and are sustained, all roads within the facility will be paved. No acid- or toxic-forming materials have been or will be used in the road surfaces.

Slope Stability. There are two road embankments within the permit area (the dump bin road and the loading silo road). No road slope stability issues have been noted at the site. Given the low profile of these structures and their historic stability, no slope stability analyses of road embankments are considered necessary.

5.3.4.2 Environmental Protection and Safety

Safety and environmental protection were primary concerns during the design and construction of the access road. The grade, width, and surface materials used for the roads were selected to be appropriate for the planned duration and use of the roads.

5.3.4.3 Primary Roads

All facility roads have been designed, constructed, and will be maintained to meet the requirements of Utah Administrative Rules R645-301-358, R645-301-527.100, R645-301-527.230, R645-301-534.100, R645-301-534.200, R645-301-542.600, R645-301-542.600, and R645-301-762. Furthermore, the roads have the following characteristics:

- They are located on a stable surface,
- They have been constructed with a sufficiently durable surface for the traffic volume and vehicle speeds on the road,
- They are routinely maintained, and
- Culverts have been designed, constructed, and are maintained to withstand the loads imparted by the vehicle traffic on the road.

5.3.5 Spoil

No spoil is generated in the permit area.

5.3.6 Coal Mine Waste

Since there is no coal mining at this facility, there is no generation of coal mine waste. The Wellington Dry-Coal Cleaning Facility has been designed to operate so that all material brought on site is converted into a marketable product. Therefore, this material is considered a product, not a

waste. This is accomplished by blending various grades of coal products for use at client locations. Although some of the material that is temporarily stockpiled at the site may have been considered coal processing waste at the off-site location from which it is shipped, the material is considered coal prior to receipt on site by BRCW (see Section 5.1.2.1). Since coal storage piles in the permit area are frequently disturbed, no compaction is necessary.

5.3.7 Regraded Slopes

Given the relatively flat nature of the site, reclamation of this facility will not involve significant regrading of slopes.

5.40 Reclamation Plan

5.4.1 General

As indicated in Section 2.2.2.2 of this application, the soil at the BRCW facility is poorly suited for agricultural use. Furthermore, native vegetation in the area is poorly suited for rangeland use of the site (see Section 3.2.1). Hence, in accordance with R645-301-413.120, rather than restoring the land to its pre-operations use it will be restored to a higher or better post-operations industrial land use consistent with the current zoning of the site and adjacent areas. Since the future owner of the site has not yet been identified, the specific industrial use of the site cannot yet be established. This use will, of necessity however, be consistent with the land-use zoning of the site or such variances to that zoning as permitted by the zoning authority at the time. The extent of site restoration following operations will be determined in consultation with the future land owner. At the end of BRCW operations at the site, BRCW will provide the following to DOGM:

- The name of the entity responsible for post-mining land use,
- A statement from that entity identifying their needs for the property, and
- A right of entry agreement between BRCW and the site user if other than BRCW.

Alternatively, if this information cannot be provided, BRCW will provide DOGM with a clear and concise description of methods to be used for reclamation of the site.

Under the industrial post-operation land-use scenario, the extent of future site reclamation is not currently known. However, the following minimum conditions will be met at the end of BRCW operations at the site:

- All coal product piles or other created stockpiles will be cleaned up to a reasonable level and the site will be graded to the extent required by the future land-owner agreement,
- Permanent structures will be removed unless their continued presence is consistent with the post-operations land use, and
- No physical hazards (e.g., exposed wiring, trip/fall/trap hazards, etc.) will be left in place.

For the sake of developing a reclamation cost estimate, it is assumed in this permit application that the 9.7-acre area south of the facility loop road will be revegetated, with the runoff- and sediment-control structures being retained for use by the future landowner. This area is noted on Plate 5-2. It is also assumed for the sake of reclamation cost estimating that all surface structures will be removed from the remaining areas and, given the economic value of the material, that all coal will have been sold and removed from the area prior to reclamation. As noted in several sections of this Chapter, no coal mine waste exists or is generated at the site. It is furthermore assumed that all coal, trash, and toxic materials will be removed or reclaimed and the ground will be regraded upon site closure as indicated on Plate 5-2. Items assumed to remain following closure of the site include site roads, parking areas, utilities, the septic system, drainage-control structures, the exterior fence, and ramps (see Plate 5-2).

5.4.1.1 Commitment

Upon the permanent cessation of operations at the Wellington Dry-Coal Cleaning Facility, BRCW will reclaim the site so that it is compatible with future industrial uses for which the property is zoned. This will include removal of remaining coal stockpiles and coal processing structures and equipment. Stockpiled topsoil will be redistributed over the 9.7-acre area south of the facility loop road and this area will be revegetated using the approved seed mix. Since future

uses of the property are expected to benefit from existing site improvements, much of the site, including roads, parking areas, ramps, utilities, fencing, drainage control structures, and the septic system will be left in place.

5.4.1.2 Surface Coal Mining and Reclamation Activities

No surface coal mining and reclamation activities will be conducted in the permit area.

5.4.1.3 Underground Coal Mining and Reclamation Activities

No underground coal mining and reclamation activities will be conducted in the permit area.

5.4.1.4 Environmental Protection Performance Standards

The plan presented herein is designed to meet the requirements of R645-301 and the environmental protection performance standards of the State Program.

5.4.2 Narratives, Maps, and Plans

5.4.2.1 Reclamation Timetable

A timetable for the completion of each major step in the reclamation plan is presented in Table 5-2.

5.4.2.2 Plan for Backfilling, Soil Stabilization, Compacting, and Grading

Since reclamation is intended to restore the site for future industrial use, no significant backfilling, soil stabilization, compacting, or grading will occur. Any remaining coal piles will be removed and either sold as a product or returned to the original owner. After the coal processing equipment is removed, stockpiled topsoil will be redistributed over the disturbed areas not intended

for re-disturbance by the future site owner and these areas will be revegetated using the approved seed mix. The sedimentation ponds and appurtenant ditches will be left in place for the next landowner. A discussion of the ability of these ponds to meet the permanent impoundment criteria of R645-301-733.220 through 733.226 is provided in Section 7.3.3.2 of this permit application.

As has been mentioned previously, the site needs of an as-yet undefined future landowner have not yet been determined. It is assumed for bonding purposes that the roadways and their associated fill areas, as well as the runoff control ditches and sedimentation ponds, will be needed to support the site uses of future landowner following closure of the BRCW facility. If the roadways, fill areas, bin/reclaim tunnels, and drainage structures are not needed by the future landowner, the responsibility to remove these structures will be subject of contract arrangements between BRCW and the future landowner.

5.4.2.3 Final Surface Configuration Maps and Cross Sections

It is intended that the final surface configuration will be very similar to the current site. The site office and processing structures will be removed. However, no extensive site regrading is anticipated. The anticipated final surface configuration is shown on Plate 5-2.

5.4.2.4 Removal of Temporary Structures

Coal processing equipment and structures will be removed during reclamation. To the extent possible, these structures and facilities will be salvaged. Those materials requiring off-site disposal will be placed in a licensed landfill. Final decisions regarding salvage or disposal of structures and equipment will be made just prior to reclamation following an assessment of the salvageability of the structures and equipment.

To support the continuing industrial use of the site, several structures will be left in place. These structures include the following:

- Septic system,
- Roads and parking areas,
- Truck dump and loadout hopper embankments,
- Diversions, culverts, and sedimentation ponds, and
- Perimeter fence

5.4.2.5 Removal of Sedimentation Ponds

The sedimentation ponds will be left in place for the future landowner. A discussion of the ability of these ponds to meet the permanent impoundment criteria of R645-301-733.220 through 733.226 is provided in Section 7.3.3.2 of this permit application.

5.4.2.6 Roads

All roads and parking areas within the permit area will be left in place for the future landowner.

5.4.2.7 Final Abandonment of Mine Openings and Disposal Areas

There are no mine openings or disposal areas within the permit area.

5.4.2.8 Estimated Cost of Reclamation

The estimated cost to reclaim the Wellington Dry-Coal Cleaning Facility is provided in Chapter 8. Estimated quantities of materials involved in reclamation are also provided in Chapter 8.

5.50 Reclamation Design Criteria and Plans

5.5.1 Casing and Sealing of Underground Openings

There are no underground openings within the permit area.

5.5.2 Permanent Features

5.5.2.1 Small Depressions

Site reclamation will be performed to restore the facility for future industrial use. Roads and diversions will be left in place. Due to the low slope angles present at the site and the presence of roads and diversions to intercept surface runoff, small depressions will not be necessary.

5.5.2.2 Permanent Impoundments

No coal or coal waste impoundments exist within the permitted boundary. The two sedimentation ponds will be left intact for the future landowner. A discussion of the ability of these ponds to meet the permanent impoundment criteria of R645-301-733.220 through 733.226 is provided in Section 7.3.3.2 of this permit application.

5.5.3 Backfilling and Grading

Plans for backfilling and grading of the site upon reclamation have been presented in Section 5.4.2.2. This plan was designed to comply with the applicable requirements of R645-301-500 and R645-301-700. As indicated in Section 5.4.2.2, backfilling and grading operations will be conducted in a controlled manner.

5.5.3.1 Disturbed Area Backfilling and Grading

Approximate Original Contour. The disturbed area will not be significantly altered from the approximate original contour.

Elimination of Highwalls, Spoil Piles, and Depressions. No highwalls or spoil piles exist at the site. Two depressions that serve as sedimentation ponds will be left intact for the future

landowner. A discussion of the ability of these ponds to meet the permanent impoundment criteria of R645-301-733.220 through 733.226 is provided in Section 7.3.3.2 of this permit application.

Slope Stability. No significant slopes exist within the permitted boundary that will require regrading.

Erosion and Water Pollution. Existing sediment-control structures will be left in place to minimize water pollution and erosion. Additional water-quality concerns do not exist at the site (see Chapter 7).

Post-Mining Land Use. The disturbed area will be backfilled and regraded in a manner that supports the post-mining industrial land use.

5.5.3.2 Spoil and Waste

Spoil. No spoil is generated within the permit area.

Refuse Piles. No refuse piles exist within the permit area.

Coal Processing Waste. No coal processing waste exists within the permit area. It is possible that small quantities (less than 1,500 tons) of coal will exist on site prior to reclamation. If so, this coal will be sold or returned to the original owner prior to reclamation of the site.

5.5.3.3 Exposed Coal Seams, Acid- and Toxic-Forming Materials, and Combustible Materials

Exposed Coal Seams. No coal seams will be exposed as part of this operation.

Acid- and Toxic-Forming Materials. No acid-forming materials exist at the site.

Combustible Materials. No combustible materials will be exposed as part of coal cleaning operations. All combustible materials that are used or produced during operations will be disposed of off site at a proper disposal facility.

5.5.3.4 Cut-and-Fill Terraces

No cut and fill terraces are present at the facility.

5.5.3.5 Highwalls From Previously Mined Areas

No highwalls exist within the permit area.

5.5.3.6 Approximate Original Contour

The facility has been constructed in a relatively flat area, part of which was previously disturbed. Only minor alterations have been made to the original contour to level the site and to achieve proper drainage of storm water runoff. Since the site remains relatively level, the existing contour approximates the original contour. In addition, the site will be used for industrial purposes following reclamation of the facility; therefore, no substantial regrading of the site is needed during reclamation.

5.5.3.7 Backfilling and Grading - Thin Overburden

No surface coal mining and reclamation activities involving thin overburden occur within the permit area.

5.5.3.8 Backfilling and Grading - Thick Overburden

No surface coal mining and reclamation activities involving thick overburden occur within the permit area.

5.5.3.9 Regrading of Settled and Revegetated Fills

No regrading of settled and revegetated fills is anticipated in the permit area.

5.60 Performance Standards

Coal mining and reclamation operations at the Wellington Dry-Coal Cleaning Facility will be conducted in accordance with the approved permit and the requirements of R645-301-510 through R645-301-553.

TABLE 5-1

Permit Area Structures

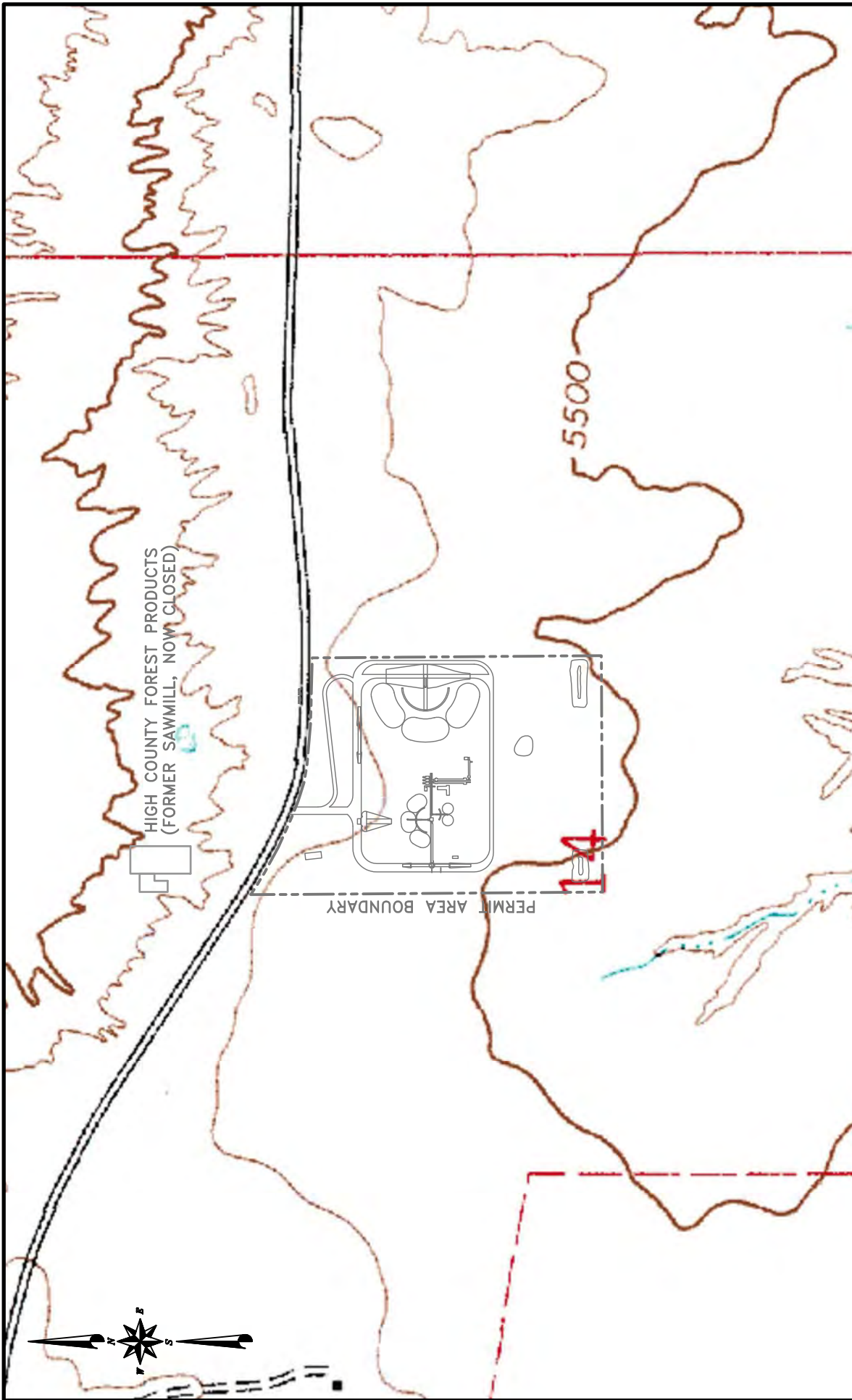
Structure ^(a)
Truck Scale (TS-1)
Truck Scale (TS-2)
Truck Dump Hopper
Blending Hopper
Plant Feed Hopper
Alternate Truck Loading Hopper
Radial Stacker Feed Conveyor (C-01)
Plant Feeder Conveyor (C-02)
Screen Feed Conveyor (C-03)
Fines Feed Conveyor (C-04)
Coarse Feed Conveyor (C-05)
By-Product Conveyor (C-06)
Product Conveyor (C-07)
200 Ton Bin Feed Conveyor
Self-Cleaning Belt Magnet
Screen with Support Structure
Crusher with Support Structure
Air Jigs with Fans and Support Structure
Bag Houses with Fans
Collected Dust Transport System
Raw Feed Radial Stacker (RS-01)
Product Radial Stacker (RS-02)
By-Product Radial Stacker (RS-03)
Diverter Gate
200 Ton Bin
Loading Chutes with Flow Control Gates

^(a) See Plate 5-1 for location within the facility

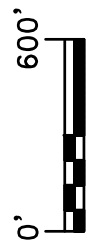
TABLE 5-2

Reclamation Timetable

Activity	Approximate Time
Stockpile residual coal-bearing materials on site	½ week
Process residual coal-bearing materials in facility	2 weeks
Remove coal and process byproduct	½ week
Remove coal-processing equipment <ul style="list-style-type: none"> • Conveyors C-1 through C-8 • Radial stackers RS-1 through RS-3 • Air jig/baghouse • Crusher • Truck dump • Silo • Plant feed hopper • Alternate loadout hopper • Truck scales TS-1 and TS-2 	4 weeks
Remove remaining structures to be retained	1 week
Grade minor areas and spread topsoil	½ week
Revegetate regraded areas	½ week
APPROXIMATE TOTAL TIME	9 weeks

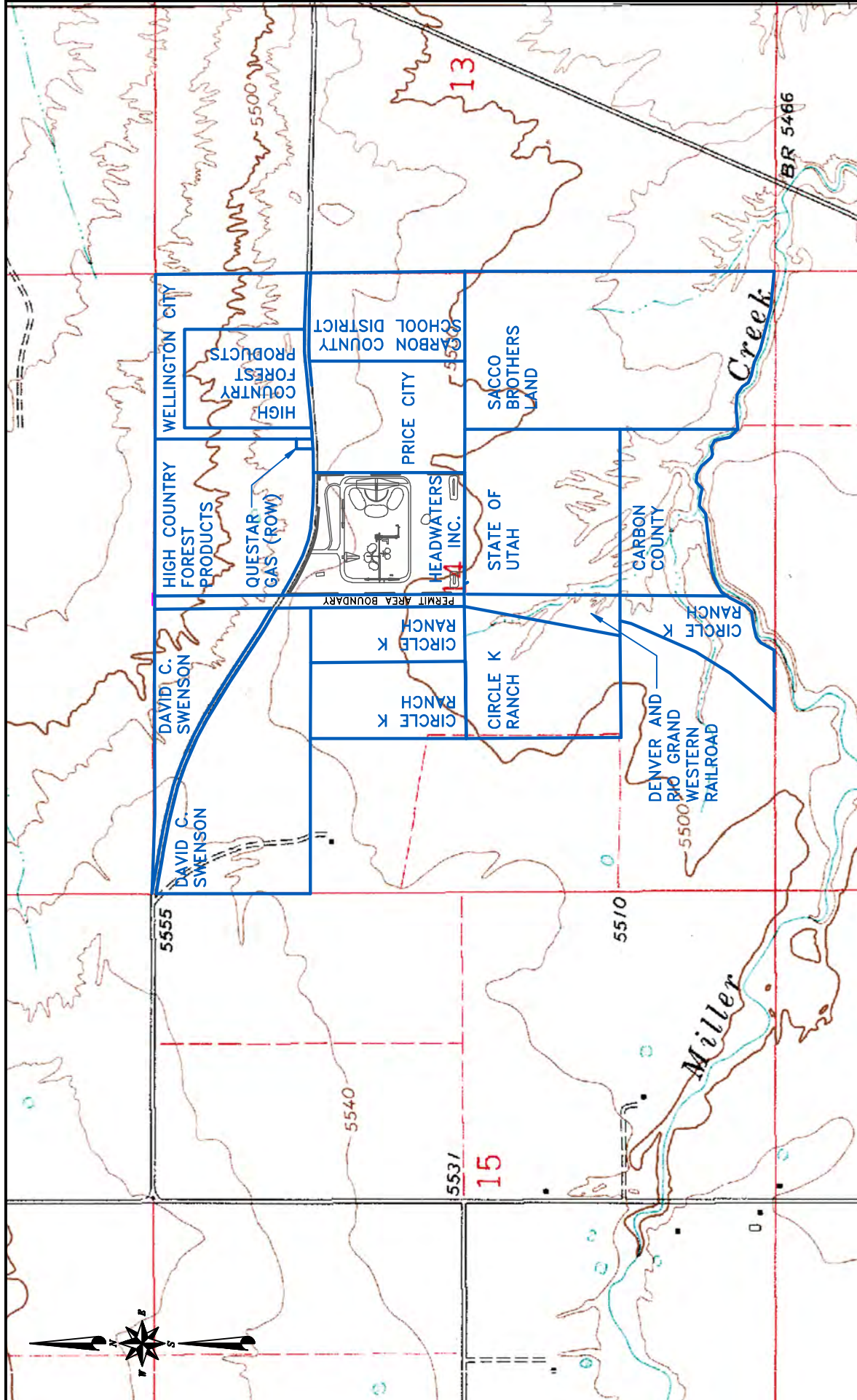


BASE MAP: 7.5' USGS QUADRANGLE
PRICE, UTAH 1972



EarthFax

FIGURE 5-1. BUILDINGS IN AND WITHIN 1000 FEET OF PERMIT AREA

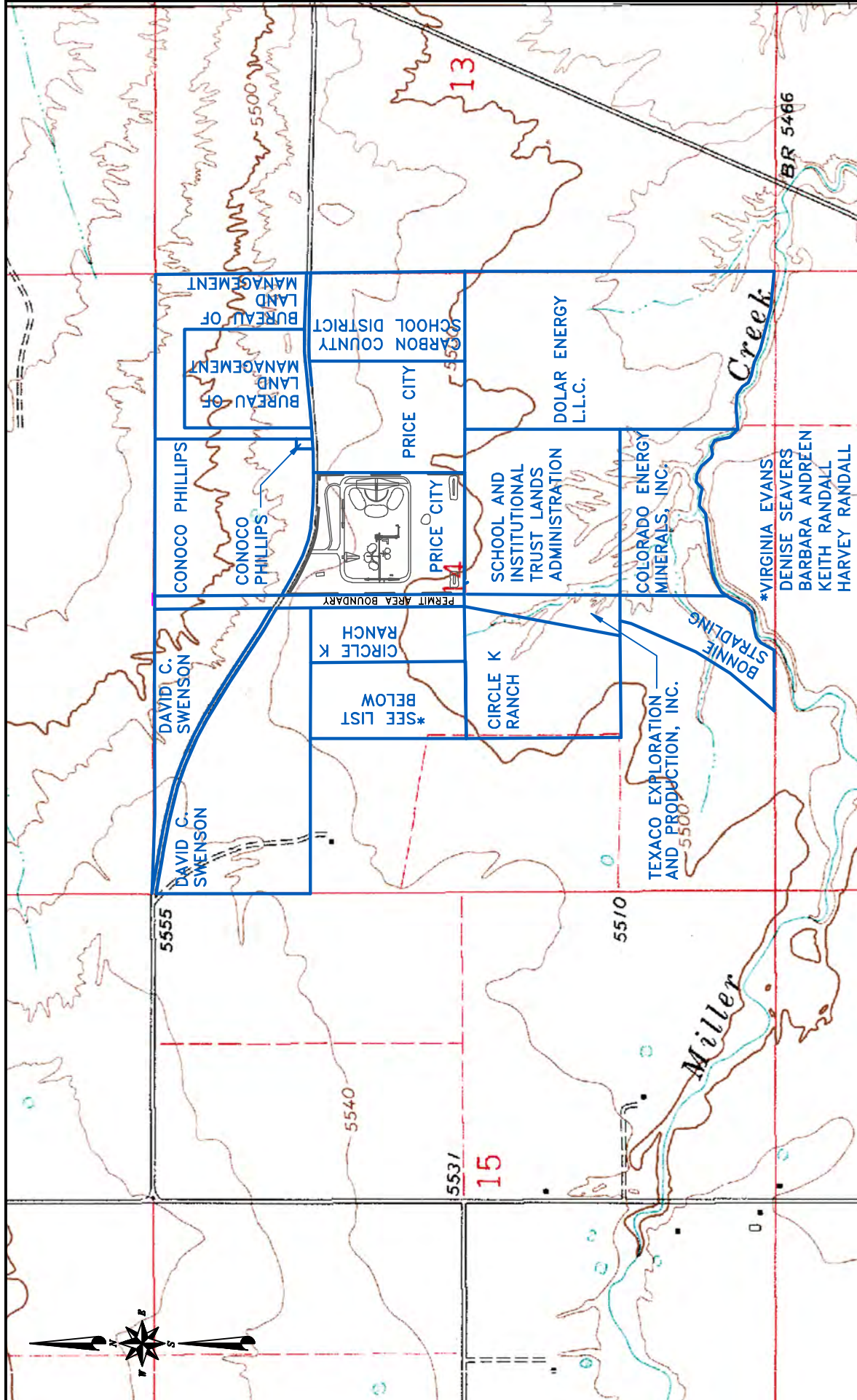


BASE MAP: 7.5' USGS QUADRANGLE
 PRICE, UTAH 1972
 OWNERSHIP: INFORMATION TAKEN FROM THE CARBON
 COUNTY GEOGRAPHIC INFORMATION SYSTEM



EarthFax

FIGURE 5-2A. LAND OWNERSHIP (SURFACE)

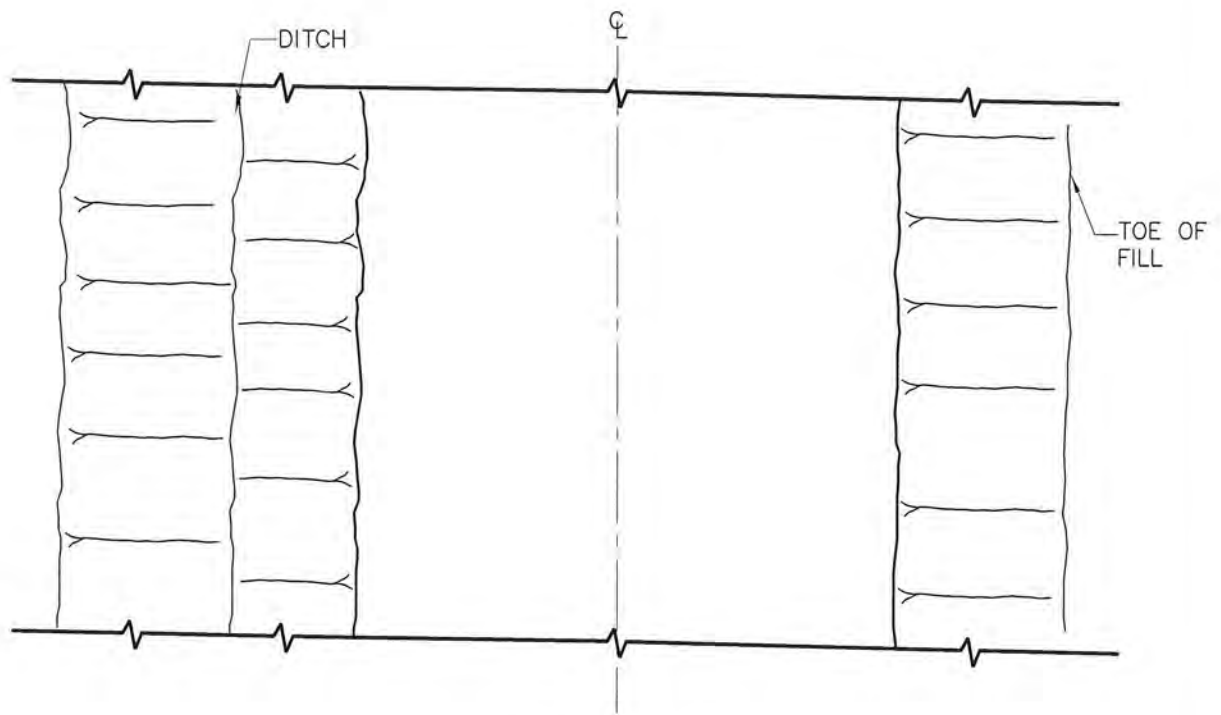


BASE MAP: 7.5' USGS QUADRANGLE
 PRICE, UTAH 1972
 OWNERSHIP: INFORMATION TAKEN FROM THE CARBON
 COUNTY RECORDERS OFFICE RECORDS

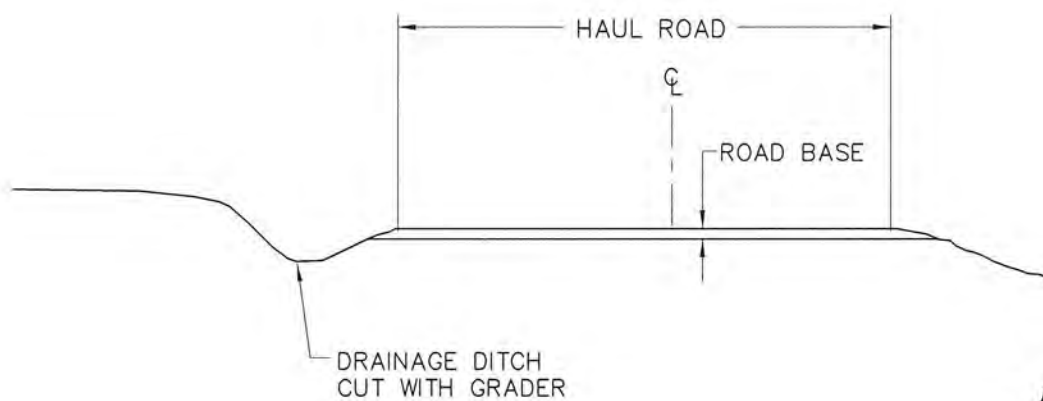


FIGURE 5-2B. LAND OWNERSHIP (SUBSURFACE)

EarthFax



PLAN VIEW
NTS



SECTION
NTS



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FIGURE 5-3. STANDARD ROAD CROSS-SECTION

BRC Wellington LLC
Dry-Coal Cleaning Facility

Permit Application
October 2013

APPENDIX 5-1

Road Certification



EarthFax

**EarthFax
Engineering, Inc.**
Engineers/Scientists
7324 So. Union Park Ave.
Suite 100
Midvale, Utah 84047
Telephone 801-561-1555
Fax 801-561-1861
www.earthfax.com

January 14, 2008

Ms. Gina Rau
Environmental Manager
COVOL Engineered Fuels, LC
10653 South River Front Parkway, Suite 300
South Jordan, Utah 84095

Subject: Wellington Dry-Coal Cleaning Facility
Road Certification

Dear Ms. Rau:

I have examined the roadways associated with the Wellington Dry-Coal Cleaning Facility of COVOL Engineered Fuels. Based on my field evaluation and understanding of operations at the site, it is my opinion that the roadways, as constructed, provide adequate environmental protection and safety appropriate for their planned life and use. If the type and size of equipment that is typically used at the site is operated in a safe manner, it is my opinion that the roadway grades, widths, and surface materials will adequately serve the facility's needs.

It is further my opinion that the roadways have been constructed to provide adequate drainage control through the use of ditches and culverts. I have reviewed the hydrologic calculations associated with these structures and believe that their design is sufficient to pass the peak runoff safely from the 100-year, 6-hour precipitation event.

Based on my review, I hereby certify that the roads meet the requirements of R645-301-534.200 and R645-301-742.420.

Please contact me if you have any questions.

Sincerely,

Richard B. White, P.E.
President
EarthFax Engineering, Inc.



CHAPTER 6

GEOLOGY

6.10 Introduction

This chapter presents a description of the geologic resources in the area of the Wellington Dry-Coal Cleaning Facility. Since no coal is being mined and no exploration activities are being conducted in the permit area, this chapter includes only general geologic information compiled from previously published documents.

6.1.1 General Requirements

The geologic resources in the Wellington Dry-Coal Cleaning Facility area are discussed in Sections 6.2.1 through 6.2.7 of this chapter.

6.1.2 Certification

All maps, plans, and cross-sections presented in this chapter, as required by the Utah Administrative Rules, have been certified by a professional engineer.

6.20 Environmental Description

This section presents a description of the geologic resources in the area of the Wellington Dry-Coal Cleaning Facility.

6.2.1 General Requirements

This section presents information concerning the regional and site-specific geology of the Wellington Dry-Coal Cleaning Facility area.

6.2.2 Cross Sections, Maps and Plans

Figure 6-1 presents a map and generalized stratigraphic section of the geology of the site area. Since there is no coal mining or exploration at the site, coal seam data such as outcrop lines, bedding plane orientations, and drillhole information are not shown.

No oil, gas, or water wells are known to exist within a quarter mile of the permit area.

6.2.3 Geologic Determinations

Since there is no mining at the site, no information has been provided concerning the acid or toxic forming characteristics of the site strata. The geologic information required by DOGM to make a determination as to whether the reclamation plan can be accomplished is presented in Section 6.2.4. Since no mining will occur at the site, no subsidence control program has been prepared.

6.2.4 Geologic Information

6.2.4.1 Regional Setting

The Wellington Dry-Coal Cleaning Facility is located in Castle Valley, about 3.5 miles west of the town of Wellington, Utah. Castle Valley is bordered on the north and east by the Book Cliffs, on the south by the San Rafael Swell, and on the west by the Wasatch Plateau. Castle

Valley is a broad plain dissected by several drainages. Elevations in Castle Valley range from about 5,300 feet in the drainage bottoms to about 6,300 feet near the foot of the Wasatch Plateau.

Stratigraphy. All rock units in the vicinity of the Wellington Dry-Coal Cleaning Facility are sedimentary (Figure 6-1). No igneous or metamorphic units are found in the area. The surficial strata in the area consist of the Mancos Shale, which was deposited during the Upper Cretaceous Age of the Mesozoic Era. The depositional history of this formation consisted of three marine transgressions (represented as shale in the rock record) separated by two major marine regressions (represented as sandstone deltaic deposits in the rock record – see Maxfield, 1976).

The Wellington Dry-Coal Cleaning Facility is constructed primarily on Quaternary slope wash and weathered material from the Blue Gate Shale Member of the Mancos Shale (Weiss et al., 1990). The Blue Gate Shale Member is underlain by the Ferron Sandstone Member at a depth of approximately 700 feet beneath the site, as indicated from a well log from a nearby gas production well (DOGM, 2007). A brief description of the geologic units that underlie the permit area is included below.

According to Weiss et al. (1990), Quaternary slope wash deposits in the area consist of light- to dark-gray, unconsolidated to weakly cemented, thin- to thick-bedded, and faintly cross-bedded detritus that form broad, gently sloping sheets. Clast sizes include clay, silt, sand, granules, and some pebbles. This unit ranges up to 25 feet thick.

The Blue Gate Member of the Mancos Shale consists of light bluish gray and gray thin- to medium-bedded shale and shaly siltstone with a few thin interlayered sandstone beds. This unit is relatively impermeable and contains a high gypsum content. It is up to 2,000 feet thick in the region, but is estimated to be approximately 700 feet thick beneath the permit area, as indicated above.

The Ferron Sandstone Member of the Mancos Shale consists of an upper and a lower sandstone unit separated by a middle unit of shale. It is estimated that the unit is approximately 55 feet thick beneath the permit area. The sandstones are typically light brown, thin- and even-bedded, cross-bedded, very fine grained to fine-grained sandstone and contain many large rounded concretions. The middle shale unit is light- to dark-gray, thin-to medium-bedded, even-bedded shale and shaly siltstone.

Structure. Stratigraphic units in the area dip 3 to 6 degrees to the northwest (Maxfield, 1976). There are no major faults in the vicinity of the permit area (Weiss et al., 1990).

Geomorphology. Castle Valley is described as a crescent-shaped series of interconnected lowlands along the northern and western border of the San Rafael Swell (Weiss et al., 1990). There is relatively little topographic relief in this lowland, but several erosional remnant pediment surfaces exist up to a few hundred feet above the surrounding topography. These pediment surfaces are capped by sandstone and limestone boulders and gravels derived from the Book Cliffs, and range up to dozens of feet in thickness.

Surface and Groundwater Impact. Surface and groundwater impacts are discussed in Chapter 7 of this document.

Coal Geology. No coal will be extracted by this operation. No coal-bearing units are known to exist at the site.

6.2.4.2 Test Boring and Drillhole Data (overburden removed)

No mining or coal exploration will occur in the permit area.

6.2.4.3 Test Boring and Drillhole Data (overburden not removed)

No mining or coal exploration will occur in the permit area.

6.2.5 Additional Geologic Information

It is not anticipated that any additional geologic data will need to be collected for this site.

6.2.6 Sampling Waivers

BRC Wellington does not request a sampling waiver for this site.

6.2.7 Description of the Overburden Thickness and Lithology

No mining or coal exploration will occur in the permit area.

6.30 Operation Plan

6.3.1 Casing and Sealing of Exploration Holes

No exploration holes will be drilled in the permit area.

6.3.2 Subsidence Monitoring

Since there will be no mining or exploration at this facility, subsidence will not occur as a result of facility operations. Therefore, a subsidence monitoring program is not required.

6.40 Performance Standards

6.4.1 Exploration and Drillholes

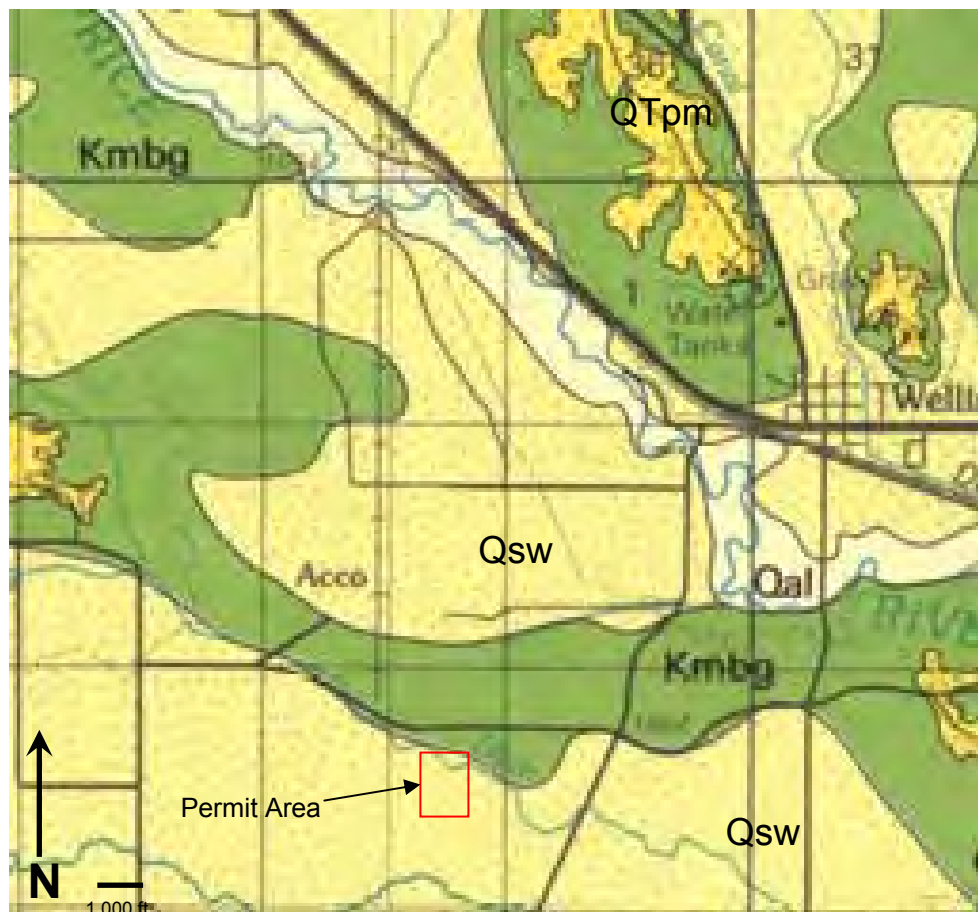
No coal exploration will occur in the permit area.

6.4.2 Monuments and Surface Markers of Subsidence Monitoring Points

Since there will be no mining or exploration at this facility, subsidence will not occur as a result of existing facility operations. Therefore, no subsidence monuments or surface markers are required.

REFERENCES

- Hintze, L.F. 1973. Geologic History of Utah. Brigham Young University Geology Studies, Vol. 20, Part 3, p 181.
- Maxfield, E.B., 1976. Foraminifera from the Mancos Shale of east central Utah, Brigham Young University Geology Studies, Vol. 23, Part 3. p. 67–162.
- Utah Division of Oil, Gas, and Mining, 2007. Online Oil and Gas Information System.
http://utstnrogmsql3.state.ut.us/UtahRBDMSWeb/main_menu.htm, accessed October 2007.
- Weiss, Malcolm P., Irving J. Witkind, and William R. Cashion, 1990. Geologic Map of the Price 30' X 60' Quadrangle, Carbon, Duchesne, Uintah, and Wasatch Counties, Utah. U.S. Geological Survey Miscellaneous Map Series I-1981. 1:100,000 scale.



Adapted from Geologic Map of the Price 30'X60' Quadrangle, Carbon, Duchesne, Uintah, Utah, and Wasatch Counties, Utah. By Malcolm P. Weiss et al., 1990. USGS Misc. Invest. Series Map I-1981. 1:100,000 scale

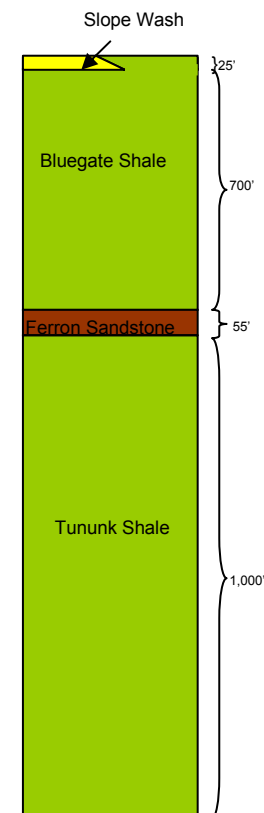
LEGEND

Qsw: Slope-wash deposits (Quaternary) – Light to dark- gray, unconsolidated to weakly cemented, thin- to thick-bedded faintly crossbedded detritus. Consists of clay, silt, sand, granules, and some pebbles. Forms broad, gently sloping sheets. Thicknesses range from a thin veneer to as much as 25 ft.

QTpm: Pediment mantle (Holocene to Miocene?) – Light-brown to brown, gray, or locally reddish brown, unconsolidated to well-cemented sediments of fluvial origin. Consists of a poorly bedded mixture of silt, sand, granules, pebbles, cobbles, and boulders. Chiefly siltstone and sandstone clasts. Unit ranges from about 10 ft to more than 150 ft thick.

Qal: Alluvium (Quaternary) – Dark brown to gray, thin to thick bedded, locally massive, crossbedded in places. Unconsolidated. Consists of clay, silt, sand, pebbles, and sparse cobbles of fluvial origin. Forms narrow to broad deposits. Thickness ranges widely, generally less than 50 ft.

Kmbg: Bluegate Member of Mancos Shale – Light-bluish-gray and gray, thin- to medium-bedded shale and shaly siltstone. Sparse interlayered thin sandstone beds. Up to 2,000 feet thick in some areas. Approx. 700 ft thick beneath the permit area.



Generalized Geologic Cross Section of Permit Area

FIGURE 6-1. AREA GEOLOGIC MAP AND STRATIGRAPHIC SECTION

CHAPTER 7

HYDROLOGY

7.10 Introduction

7.1.1 General Requirements

This chapter presents a description of:

- Existing hydrologic resources within the permit and adjacent areas;
- Proposed operations and the potential impacts to the hydrologic balance;
- Methods of compliance with design criteria;
- Applicable hydrologic performance standards; and
- Hydrologic reclamation plans for the Wellington Dry-Coal Cleaning Facility.

7.1.2 Certification

All appropriate maps, plans, and cross sections presented in this chapter have been certified by a qualified, registered professional engineer.

7.1.3 Inspection

Impoundments associated with the mining and reclamation operations will be inspected as described in Section 5.1.4.3 of this document.

7.20 Environmental Description

7.2.1 General Requirements

This section presents a description of the pre-operational hydrologic resources within the permit and adjacent areas that may be affected or impacted by the operation and reclamation of the facility and site.

7.2.2 Cross Sections and Maps

7.2.2.1 Location and Extent of Subsurface Water

According to Gloyn et al. (2003), groundwater in the general area occurs in shallow, discontinuous, perched Quaternary colluvial deposits above bedrock and in the Ferron Sandstone Member of the Mancos Shale, which is approximately 700 feet below the ground surface at the permit area. These two potential water-bearing units are separated by the Bluegate Shale Member of the Mancos Shale, which is highly impermeable. A generalized hydrostratigraphic cross section of the area is presented in Figure 7-1.

Shallow, perched groundwater may occur in the area in disconnected, unconsolidated materials that overly relatively impermeable bedrock. The primary sources of recharge to these layers are precipitation, infiltration from losing reaches of streams, irrigation, and groundwater discharge from bedrock. These water-bearing units generally range in thickness from a few feet to up to several tens of feet. Groundwater in these units generally contains high total dissolved solids (“TDS”) concentrations (Gloyn et al., 2003).

The prior owner installed a monitoring well in the permit area in December 2008. Since shallow groundwater generally follows the surface contour, the direction of shallow groundwater flow beneath the permit area was assumed to be toward the southeast. To monitor the effects, if

any, of facility operation, the well was installed near the southeast corner of the operating facility at the location indicated in Figure 7-2. This well was drilled using hollow-stem auger methods to a depth of 13 feet in the Mancos Shale, at which point refusal was encountered. The well was completed with 2-inch diameter PVC screen and casing, with a 20- to 40-mesh silica sand filter pack and a bentonite surface seal. Lithologic and completion logs for the well are provided in Appendix 7-1.

The monitoring well was sampled on December 24, 2008, with the data collected during that monitoring event presented in Table 7-1. As indicated, the depth to groundwater in December 2008 was 12.0 feet. The water had a temperature of 12.1°C, with a field pH of 7.40 and a field specific conductance of 9.900 μ S. The water is a sodium-sulfate type, with a total dissolved solids concentration of 11,000 mg/L. Total and dissolved iron concentrations were detected at 300 and <0.050 mg/L, respectively. Total and dissolved manganese concentrations were detected at 3.9 and 0.57 mg/L, respectively. Analyses of subsequent samples collected from this monitoring well show similar results (see Table 7-1).

The Ferron Sandstone consists of very fine-grained, silty sandstone with abundant interbedded carbonaceous shale. It is located about 700 feet below the ground surface of the permit area, and is approximately 80 feet thick in the region (Gloyn et al, 2003). A coal-bed methane well constructed in Township 14S Range 10E, SLBM (one township north of the permit area) and completed in the Ferron Sandstone contained 6,500 to 9,000 mg/L TDS (Gloyn et al, 2003). Another well drilled into the Ferron Sandstone about 0.3 mile north of the coal cleaning facility did not encounter any groundwater (source: DOGM Oil and Gas Well Database).

7.2.2.2 Location of Surface Water Bodies

A map showing the location of surface water bodies in the area is provided in Figure 7-3. A listing of water rights data is presented in Appendix 7-2. As indicated in that appendix, 69 point-of-use water rights exist in Section 14, T. 15 S., R. 10 E. (the section in which the permit area

is located). The vast majority of these rights are held by the Price River Water User's Association and represent water that is diverted remote from the permit area and delivered via distribution systems throughout the region for industrial use (as well as limited stockwatering and domestic use). The only point-of-diversion water rights filed in Section 14 are for stock watering on Miller Creek (see Figure 7-3). This map also shows the locations of the facility sedimentation ponds, which are the only permitted discharge locations at the site.

7.2.2.3 Locations of Monitoring Stations

As indicated in Section 7.4.2.2, all runoff from the permit area flows into sedimentation ponds located in the downstream portions of the site. These ponds were constructed to contain far more than the quantities of sediment and runoff required by the DOGM regulations. Hence, surface outflows from the permit boundary are not anticipated except under conditions of extreme precipitation. Since all surface runoff from the permit area will flow into the sedimentation ponds, no surface monitoring stations other than the pond outlets have been installed for this facility. The locations of these ponds are shown on Plate 5-1. BRC Wellington ("BRCW") is required to monitor the discharges from these ponds in accordance with UPDES discharge permit No. UTR000685 issued by the Utah Division of Water Quality.

The prior owner installed one monitoring well in December 2008 to monitor groundwater at the downgradient edge of the permit area. The location of this monitoring well, as shown on Figure 7-2, was selected in consultation with DOGM. Groundwater resources are not used at or near the site, and it is unlikely that they are impacted by activities within the permit area. The shallow groundwater beneath the site is not beneficially used and contains poor quality water, as indicated in Section 7.2.2.1.

The facility uses municipal water and site runoff is controlled in accordance with the R645 rules and a Storm Water Pollution Prevention Plan. No perennial water bodies occur within the permit area.

7.2.2.4 Location and Depth of Water Wells

No water-supply wells currently exist in the permit area. However, as noted above, a monitoring well was installed within the permit area in the fourth quarter of 2008. Stratigraphic and completion logs of this well are provided in Appendix 7-1.

7.2.2.5 Surface Topography

Surface topographic features in the permit and adjacent areas are shown on Plate 5-1. Note that, other than the sedimentation ponds, the topography shown on this map was surveyed prior to site grading at the facility. The size and locations of the sedimentation ponds are based on a survey performed in September 2008. The site is relatively flat and only minor site regrading was performed to facilitate the drainage of storm water runoff. Since the existing site contours approximate the original site contours and the sedimentation ponds have a great deal of extra capacity, the hydrology calculations discussed in this chapter should adequately represent site conditions.

7.2.3 Sampling and Analysis

A groundwater monitoring well was installed within the permit area during the fourth quarter of 2008. Water-level data and water-quality samples were collected in December 2008 and will be collected from this well on a quarterly basis for the first year following installation of the well and during the first year of reclamation after plant operations cease. Analytical parameters to be analyzed are listed in Table 7-1. These parameters were determined in consultation with DOGM.

As discussed in Section 7.2.2.3, all runoff from the permit area flows into sedimentation ponds located in the downstream (southern) portion of the site. Hence, surface water monitoring

will consist of sampling discharges (if any) from the sedimentation ponds in accordance with the UPDES permit.

7.2.4 Baseline Information

Surface water, groundwater, and climatic resource information is presented in this section to assist in determining the baseline hydrologic conditions which exist in the area of the facility. This information provides background data on the hydrologic balance of the area.

7.2.4.1 Groundwater Information

A brief discussion of groundwater information is included in section 7.2.2.1 of this document. Groundwater in the vicinity of the Wellington Dry-Coal Cleaning facility has been found in localized shallow, perched zones within unconsolidated surficial materials weathered from the Bluegate Shale and within the Ferron Sandstone. Based on the findings from a groundwater monitoring well drilled in the permit area, shallow groundwater is saline, contains high levels of dissolved solids, and is generally poorly suited for drinking or irrigation.

7.2.4.2 Surface Water Information

The Wellington Dry-Coal Cleaning Facility is located on land that drains to the south toward Miller Creek, located approximately 2000 feet south of the permit area. Drainage occurs as overland flow or in ephemeral washes that flow in direct response to precipitation events. Based on field observations of vegetation, geomorphic conditions, and the presence of some surface water in the late summer/early autumn of 2007 and 2008 as well as the late winter/early spring of 2009, it appears that Miller Creek is a perennial stream at its location south of the permit area. These observations are supported by the fact that Miller Creek appears on the USGS topographic map of the area as a solid line (the symbol used for perennial streams). Miller Creek feeds into the Price River in Wellington, Utah. The Price River is a tributary of the Green River. Stream gage data

collected from 1972 to 1986 shows that the average annual flow volume of the Price River just below its confluence with Miller Creek is 105,565 acre-feet (Utah Division of Water Resources, 2000). No historical stream gage data exist for Miller Creek.

Figure 7-3 shows a tributary to Miller Creek approximately 400 feet southwest of the southwest corner of the permit area. Based on field observations of vegetation, geomorphic conditions, the lack of surface water, and the lack of a well-defined surface flow path within the greater channel, this tributary appear to be an ephemeral channel that receives surface runoff in response to rainfall and snowmelt events. These observations are supported by the limited drainage area and the fact that this stream is represented on the USGS topographic map with a symbol other than a solid line. Irrigation return flow may also discharge into this channel 900 to 1000 feet south-southeast of the permit area.

As part of the UPDES permit, water samples will be collected from the sedimentation ponds before any impounded water is released. A copy of the UPDES Permit is included in Appendix 7-3. Published water quality data for the Price River show a decrease in water quality as it flows from the Wasatch Plateau toward the Green River. This decrease is attributed to the presence of soluble minerals in the surrounding rocks (principally the Mancos Shale), saline soils, and irrigation return flows. Typical TDS values are 400 mg/L in the upper reaches of the Price River, 600 to 2,400 mg/L near Wellington, and 2,000 to 4,000 mg/L at Woodside, which is several miles downstream (Mundorff, 1972).

7.2.4.3 Geologic Information

Geologic information related to the permit and adjacent areas is presented in Chapter 6 of this document.

7.2.4.4 Climatological Information

Based on regional data collected from June 1980 to January 2005, normal annual precipitation at the permit area is about 9.2 inches per year. Most of this precipitation occurs during July through September as a result of summer thunderstorms (Western Regional Climate Center - <http://www.wrcc.dri.edu/index.html>).

The station closest to the facility that reports wind data is located at the airport at Price, Utah (approximately 5 miles west of the facility). The average annual wind speed at this location between 1996 and 2006 was 6.8 mph (Western Regional Climate Center web site).

The normal annual temperature at the Price Warehouses, Utah station (located 5 miles west of the facility) is 49.9° F. Seasonally, this temperature varies from a normal monthly low of 13.4° F in January to a normal monthly high of 90.0° F in July (Western Regional Climate Center web site).

7.2.4.5 Supplemental Information

No supplemental information is required at this time.

7.2.4.6 Survey of Renewable Resource Lands

The existence and recharge of aquifers in the permit and adjacent areas is discussed in Sections 7.2.2.1 and 7.2.4.1 of this document.

7.2.4.7 Alluvial Valley Floor Requirements

Information regarding the presence or absence of alluvial valley floors in the permit and adjacent areas is presented in Chapter 9 of this document.

7.2.5 Baseline Cumulative Impact Area Information

Information concerning the hydrology of the region is available in various publications, including Mundorff (1972), Waddell et al. (1981), Waddell et al. (1982), Waddell et al. (1986), and Gloyn et al. (2003). Since the hydrologic impact of the operations will be insignificant, it is not anticipated that revisions will be needed to the Cumulative Hydrologic Impact Assessment of the area.

7.2.6 Modeling

No numerical groundwater or surface water modeling was conducted in support of this document.

7.2.7 Alternative Water Source Information

No surface mining has been or will be conducted in the permit and adjacent areas. Therefore, this section does not apply to the Wellington Dry-Coal Cleaning Facility.

7.2.8 Probable Hydrologic Consequences

This section addresses the probable hydrologic consequences of coal cleaning and reclamation operations in the permit and adjacent areas. Mitigating measures are discussed generally in this section and as well as in Section 7.3 of this document.

7.2.8.1 Potential Impacts to Surface and Groundwater

Potential impacts of coal cleaning on the quality and quantity of surface and groundwater flow are discussed in the facility's Storm Water Pollution and Prevention Plan and may include the following:

- Coal, equipment fuels and fluids from the truck dump and coal storage area;
- Equipment fuels and fluids from the front end loader;
- Coal and lubricant from the conveyor belt; and
- Coal and lubricant from the silo.

A copy of the SWP3 is included in Appendix 7-4. These potential impacts are addressed in the following sections of this document.

7.2.8.2 Baseline Hydrologic and Geologic Information

Baseline geologic information is presented in Chapter 6 of this document. Baseline hydrologic information is presented in Sections 7.2.4.1 and 7.2.4.2 of this document.

7.2.8.3 PHC Determination

Potential Impacts to the Hydrologic Balance. Potential impacts to the hydrologic balance are addressed in the following subsections of this document.

Acid- or Toxic- Forming Materials. As noted in Section 5.2.8.3, the coal processed in the permit area comes from coal fields that historically have not produced significant acid or toxic materials. This greatly minimizes the potential for acid- or toxic-forming materials to be present at the site. Furthermore, coal is only temporarily stored in the permit area, the native soils at the site are alkaline, and sediment and runoff are retained on site through the use of sedimentation ponds.

This further minimizes the potential for drainage from the site to adversely affect water quality, vegetation, public health, and safety of workers and the public.

Sediment Yield. The potential impact of mining and reclamation on sediment yield is an increase in sediment in the surface waters downstream from disturbed areas. Sediment-control measures (such as sedimentation ponds, drainage ditches, etc.) have been designed and constructed to minimize this impact. All runoff from the facility is directed toward one of two on-site sedimentation ponds that allow for sediment to settle. The ponds contain spillways to control discharge in the unlikely event that the ponds overflow. All runoff controls are regularly inspected (see Section 5.1.4) and maintained. The facility operates under UPDES Permit UTR000685, and also has a Storm Water Pollution Prevention Plan and a Spill Prevention Control and Countermeasure Plan. Copies of these permits are attached in Appendices 7-2, 7-3, and 7-4 respectively.

Acidity, Total Suspended Solids, and Total Dissolved Solids. Probable impacts of operations on the acidity and total suspended solids concentrations of surface and groundwater in the permit and adjacent areas were addressed previously in this section.

Flooding or Streamflow Alteration. The disturbed area is isolated from surrounding areas by runoff control structures such as earthen berms, diversion ditches, and sedimentation ponds. Runoff from all disturbed areas flows to sedimentation ponds prior to discharge to adjacent undisturbed drainages. Since no mining or exploration will occur at this site, there will be no impact on flooding or stream flows due to subsidence.

Groundwater and Surface Water Availability. Runoff controls at the site will minimize impacts to adjacent surface resources. As noted in Section 7.2.4.2, impacts to groundwater are also considered to be insignificant due to a combination of limited groundwater resources, poor groundwater quality, and relatively impermeable geologic materials at the site. Furthermore, the

coal cleaning facility uses limited amounts of water, thereby further minimizing potential adverse impacts to surface and groundwater.

Potential Hydrocarbon Contamination. Diesel fuel, oils, greases, and other hydrocarbon products are stored and used at the site for a variety of purposes. Diesel is stored in an above-ground tank that is provided with secondary containment. Spills onto the ground have the potential to occur during filling of the storage tank or filling of mobile equipment. Similarly, spills from drums containing greases and other oils may potentially occur during use at the site.

The probable future extent of the contamination caused by diesel and oil spillage is expected to be small for four reasons. First, all tanks and drums are stored in secondary containment structures that prevent leaks from reaching the ground. Second, spills caused by filling operations outside of the secondary containment structures will be minimized due to the economic value of the product. Third, because the tanks and drums are located above ground, leakage from the tanks can be readily detected and repaired. Finally, the Spill Prevention Control and Countermeasure Plan included in Appendix 7-5 mandates inspection, training, and operational measures to minimize the extent of contamination resulting from the use of hydrocarbons at the site.

Road Salting. No salting of the haul road occurs within the permit area. Hence, no impact will result from this action in the permit or adjacent areas.

Coal Haulage. Coal is hauled on the haul road within the permit area. Coal spillage will be promptly picked up. In addition to spills, wind may carry coal dust or small pieces of coal away from the open top of coal trucks. The impact from fugitive coal dust is considered to be insignificant due to the fugitive dust control measures implemented at the site.

7.2.9 Cumulative Hydrologic Impact Assessment (CHIA)

Information is provided in this application that will allow DOGM to update a Cumulative Hydrologic Impact Assessment if necessary.

7.30 Operation Plan

7.3.1 General Requirements

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

- Groundwater and Surface Water Protection and Monitoring Plan
- Design Criteria and Plans
- Performance Standards
- Reclamation Plan.

7.3.1.1 Hydrologic-Balance Protection

Groundwater Protection. As indicated in Section 7.2.8.3, no significant potential exists for acid- or toxic-forming materials to be present in the permit area. If these materials are found to be present, they will be handled in accordance with Section 7.3.1.3. In this manner, BRCW will manage operations to prevent or control discharges of pollutants to the groundwater.

Surface Water Protection. A runoff control plan has been implemented to minimize, to the extent possible, additional contributions of suspended solids to streamflow outside the permit area, and otherwise prevent water pollution. BRCW will maintain adequate runoff- and sediment-control facilities to protect local surface waters.

7.3.1.2 Water Monitoring

Groundwater Monitoring. The prior owner installed one groundwater monitoring well within the permit area during the fourth quarter of 2008. Monitoring of this well will occur as outlined in Section 7.2.3.

Surface Water Monitoring. No streams exist within permit area. The closest perennial stream (Miller Creek) is located about 2000 feet south of the permit area. Therefore, only storm water will be monitored where it discharges from the sedimentation ponds. Monitoring of these discharges will be conducted in accordance with the requirements of the UPDES permit.

7.3.1.3 Acid- and Toxic-Forming Materials

As noted in Section 7.2.8.3, no significant potential exists for acid- or toxic-forming materials to be present at the site or to adversely affect water quality, vegetation, public health, and safety of workers and the public. To further minimize the potential for surface- and groundwater contamination, BRCW will sample all coal and coal waste that remains on site after an inactive period of 30 days. BRCW will collect one sample for every 2,000 yd³ of the on-site material, composite these samples for the like material, and have this sample analyzed for acid-and toxic-forming materials in accordance with Tables 7 and 8 of DOGM's Guidelines for the Analysis of Topsoil and Overburden. Material that is verified to contain acid- and toxic-forming materials will be processed no longer than one month following the receipt of verifying analyses of the BRCW samples.

7.3.1.4 Transfer of Wells

No wells exist at the facility.

7.3.1.5 Discharges

Two UPDES discharges are associated with the Wellington Dry-Coal Cleaning Facility – one for each sedimentation pond.

7.3.1.6 Stream Buffer Zones

The facility is not located within 100 feet of any perennial or intermittent stream channels. Thus, no buffer zones have been designated.

7.3.1.7 Cross Sections and Maps

The locations of water rights for current users of surface water in the general area are provided on Figure 7-3. Discharges associated with the sedimentation ponds are located as presented on this figure.

7.3.1.8 Water Rights and Replacement

BRCW will replace the water supply of an owner of interest in real property who obtains all or part of his or her supply of water for domestic, agricultural, industrial, or other legitimate use from an underground or surface source, where the supply has been adversely impacted by contamination, diminution, or interruption proximately resulting from activities conducted by BRCW in the permit area.

7.3.2 Sediment Control Measures

The existing sediment control measures within the permit area have been designed, constructed, and maintained to prevent additional contributions of sediment to streams or to runoff outside the permit area. In addition, they have been designed to meet applicable effluent

limitations, and minimize erosion. The structures to be used for the runoff control at the site include diversion channels, sedimentation ponds, containment berms, silt fences, and road diversions and culverts.

7.3.2.1 Siltation Structures

The siltation structures within the permit area consist of the sedimentation ponds described in Section 7.3.2.2.

7.3.2.2 Sedimentation Ponds

Two sedimentation ponds store precipitation runoff from the facility. Ordinarily, runoff collected in these ponds is allowed to evaporate or percolate into the ground. Sediment that accumulates in the ponds will be removed as needed. Runoff may be pumped out of the sediment ponds and used for dust suppression in accordance with the air quality permit.

Compliance Requirements. All sedimentation ponds will be maintained until the site is reclaimed or transferred to a future landowner. The sedimentation ponds were designed to contain sediment in addition to the runoff resulting from the 10-year, 24-hour storm event. The spillways for the sedimentation ponds were designed to adequately pass the peak flow resulting from the 25-year, 6-hour precipitation event.

MSHA Requirements. The sedimentation ponds at the site do not meet the size criteria of MSHA requirements defined in 30 CFR 77.216.

7.3.2.3 Diversions

The objective of the runoff control plan is to isolate, to the maximum degree possible, runoff from disturbed areas. All diversion ditches are maintained with adequate erosion protection

in the ditch sections where flow velocities are great enough that a ditch lining is necessary. Adequate ditch capacities are maintained in all ditch sections. Culverts are kept free of debris. Detailed diversion design is presented in Section 7.4.2.

7.3.2.4 Road Drainage

Road drainage facilities include diversion ditches, culverts, and containment berms. Additional road drainage design information is presented in Section 7.4.2. All road drainage diversions will be maintained and repaired as needed following the occurrence of a large storm event. Culvert inlets and outlets will be kept clear of sediment and other debris.

7.3.3 Impoundments

7.3.3.1 General Plans

Two sedimentation ponds operate at the facility as described in Section 7.3.2.2.

Certification. All maps and cross sections of the sedimentation ponds have been prepared by or under the direction of and certified by a qualified, registered, professional engineer.

Maps and Cross Sections. The topography and cross sections for the sedimentation ponds are located on Plate 7-1. The geometry of drainage channels and the sedimentation ponds were measured in the field, and placed on the map using an aerial photograph of the site.

Narrative. A description of each sedimentation pond is presented in Sections 7.3.2.2 and 7.4.2 of this document.

Subsidence Survey Results. Since no mining occurs at the site, a subsidence survey is not presented.

Hydrologic Impact. The hydrologic and geologic information required to assess the hydrologic impacts of the impoundments can be found in Section 7.2.4 and Chapter 6, respectively.

Design Plans and Construction Schedule. No additional impounding structures are proposed for the facility at this time. Designs of all existing structures are described in this document.

7.3.3.2 Permanent and Temporary Impoundments

Requirements. Impoundments at the facility consist of the two sedimentation ponds. These ponds will be retained following closure of the site for use by the future landowner to control runoff from the property. They have been designed and constructed using current, prudent, engineering practices. Since they have been constructed below grade, they are considered to be stable. Specific hydrologic design criteria for each impoundment are presented in Section 7.4.3. Each impoundment will be inspected regularly based on the schedule contained in Section 5.1.4.3. The sedimentation ponds meet the requirements for retention as permanent impoundments as indicated below:

- R645-301-733.221: The future use of the ponds would be for runoff and sediment control. The ponds were designed in accordance with the requirements of the R645 rules, which requirements are consistent with the storm-water control requirements of the Utah Division of Water Quality. Thus, the size and configuration of the impoundments is adequate for their future intended use as storm-water control structure.
- R645-301-733.222: The ponds have been designed to meet the water-quality requirements of the R645 rules, which rules are consistent with Utah and federal water-quality standards for storm-water control structures. Hence, discharges from the ponds will meet applicable effluent limitations and will not degrade the quality of receiving waters below applicable Utah and federal water-quality standards.
- R645-301-733.223: The ponds will function in the future as runoff-control structures. As such, their operation is independent of water-level fluctuations.

- R645-301-733.224: The ponds are designed as runoff- and sediment-control structures. It is not intended that they be accessed by water users, either now or in the future.
- R645-301-733.225: The effect of the ponds on the quantity and quality of water in the general area is discussed in Section 7.2.8.3 of this application. Beneficial effects to water quality and insignificant effects on water quantity will continue in the future.
- R645-301-733.226: The ponds were designed to serve as storm-water control structures. This is accomplished by retaining sediment and detaining runoff on site to minimize the effects of site development on adjacent lands. The ponds are suitable to serve these functions in the future.

Hazard Notifications. The sedimentation ponds will be examined for structural weakness and erosion at least four times per year.

7.3.4 Discharge Structures

The discharge structures at the site include the spillways on the sedimentation ponds. These discharge structures are described in Section 7.4.4.

7.3.5 Disposal of Excess Spoil

No excess spoil is generated at the facility.

7.3.6 Coal Mine Waste

No coal mine waste is stored at the facility.

7.3.7 Noncoal Mine Waste

Non-coal mine waste is not stored or disposed of on site (see Chapter 5).

7.3.8 Temporary Casing and Sealing of Wells

The future groundwater monitoring well at the facility will be constructed in compliance with R645-301-748.

7.40 Design Criteria and Plans

7.4.1 General Requirements

This section includes site-specific plans that incorporate minimum design criteria for the control of drainage from disturbed areas. Refer to Appendix 7-6 for a description of the hydrologic design methods used to design the sedimentation ponds and diversion structures at the facility.

7.4.2 Sediment Control Measures

7.4.2.1 General Requirements

Design. Existing sediment control measures have been designed, constructed and maintained to:

- Prevent additional contributions of sediment to stream flow or to runoff outside the permit area,
- Meet the effluent limitations defined in R645-301-751, and
- Minimize erosion to the extent possible.

Measures and Methods. The sediment control measures at the facility include:

- Retention of sediment within the disturbed area
- Diversion of runoff using channels or culverts through disturbed areas to prevent additional erosion

- Provide straw bale dikes, riprap, dugout ponds, silt fencing, and other measures that reduce overland flow velocities, reduce runoff volumes or trap sediment.

7.4.2.2 Siltation Structures

General Requirements. Additional contributions of suspended solids and sediment to stream flow or runoff outside the permit area is being prevented to the extent possible using two sedimentation ponds as siltation structures. They are located in the southeast and southwest corners of the disturbed area. Each structure has been certified by a qualified registered professional engineer. They have been designed, constructed and maintained as described in Chapter 5 and Sections 7.3.3 and 7.4.3.

Sedimentation Ponds. The sedimentation ponds are designed to work individually. One pond receives runoff from the eastern portion of the disturbed area, and one pond receives runoff from the western portion of the disturbed area. Neither of the ponds is located within a perennial stream channel.

Sediment Storage Volume. The sedimentation ponds were designed to contain sediment in addition to runoff from the design storm event. The expected annual sediment volume reporting to each of the sedimentation ponds was calculated using a modified form of the Universal Soil Loss Equation developed specifically for conditions in Utah (Israelsen et al., 1984). As indicated in Table 7-2 and Appendix 7-7, the calculated annual sediment volume deposited in the eastern sedimentation pond is 333 cubic feet, and the calculated annual sediment volume deposited in the western sedimentation pond is 134 cubic feet.

The east and west sedimentation ponds have been constructed to store 16,930 and 12,730 cubic feet of sediment, respectively. These volumes correspond to approximately 51 and 95 years of average annual sediment storage for the east and west ponds, respectively. The practical effect of the substantial sediment storage life of the ponds will be to provide excess runoff storage during the period of facility operation. Based on a bottom elevation of 5,493.8 feet in the east

sedimentation pond and 5,498.2 feet in the west sedimentation pond, the elevation in each sedimentation pond corresponding to the maximum sediment storage is 5,498.6 feet in the east pond (4.8 feet above the bottom) and 5,505.4 feet in the west pond (7.2 feet above the bottom). The 60% sediment cleanout elevations for the east and west sedimentation ponds are 5,497.3 feet and 5,503.4 feet, respectively (3.5 and 5.2 feet above the bottoms, respectively). Refer to Appendix 7-7 for sediment storage calculations.

Detention Time. Given the substantial storage volume of the ponds relative to standard site requirements, an adequate detention time will be provided in each pond to allow the effluent to meet UPDES limitations. Prior to discharge of pond water to the adjacent area, this water will be sampled to ensure that it meets the above-referenced effluent limitations. Water may be periodically pumped from the ponds and used for dust suppression within the permit area.

Design Runoff Event. The sedimentation ponds are designed to fully contain runoff resulting from the 10-year, 24-hour precipitation event. The drainage characteristics, including contributing area, runoff curve number, and hydraulic length were calculated as shown in Appendix 7-7. The runoff storage volumes for the design event were calculated to be 36,970 and 14,850 cubic feet for the east and west ponds, respectively. In order to contain runoff from the design precipitation event and the design sediment volume, the elevations of the spillways were located at 5,503.8 feet and 5,508.0 feet for the east and west sedimentation ponds, respectively.

Sediment Removal. Sediment will be removed from the when the sediment level reaches an elevation corresponding to 60% of the total sediment storage volume. As noted in Plate 7-1 and Appendix 7-7, the 60% clean-out elevation is 5,497.3 feet and 5,503.4 feet for the east and west sedimentation ponds, respectively. Sediment that contains a significant amount of coal will be processed at the coal cleaning facility. Sediment that contains an insignificant amount of coal will be blended with byproduct produced at the facility.

Excessive Settlement. The sedimentation ponds within the permit area were excavated into natural soil. Excessive settlement has not been observed and, given the excavated construction, is not anticipated in the future at either sedimentation pond.

Embankment Material. Sedimentation pond embankment materials are free of sod, large roots, frozen soil, and acid- or toxic forming coal-processing waste.

Compaction. During construction the sedimentation ponds, the limited embankments were compacted using standard construction practices.

MSHA Sedimentation Ponds. The sedimentation ponds at the site do not meet the size criteria of MSHA requirements defined in 30 CFR 77.216.

Sedimentation Pond Spillways. Each sedimentation pond is equipped with a swale on its downstream side that serves as a spillway. Each spillway is trapezoidal in cross section and measures approximately 2 feet deep and 1 foot wide with 1H:1V side slopes. These spillways were designed to safely discharge the peak flow resulting from the 25-year, 6-hour precipitation event (see Appendix 7-7). If the ponds spill, this water will discharge as overland flow, eventually reaching Miller Creek if it does not first infiltrate. The design spillway event was modeled using HydroCAD 8.5 computer software. Since the sedimentation ponds contain sufficient volume to contain several years' worth of sediment yield, it is likely that the ponds will not spill during BRCW operations.

In the eastern pond, the peak inflow during the 25-year, 6-hour precipitation was calculated to be 9.99 cubic feet per second ("cfs"), and the peak outflow through the spillway was calculated to be 2.29 cfs with a peak velocity of 2.01 feet per second ("fps"). Since the peak outflow velocity is less than approximately 5 fps, it is considered non-erosive, and erosion protection is not required. The peak stage during this event was calculated to be 5,504.3 feet (10.5 feet above the pond bottom).

In the western pond, the peak inflow during the 25-year, 6-hour precipitation was calculated to be 3.24 cfs, and the peak outflow was calculated to be 0.04 cfs with a peak velocity of 0.46 fps. Since the peak outflow velocity is less than approximately 5 fps, it is considered non-erosive, and erosion protection is not required. The peak stage during this event was calculated to be 5,508.03 feet (9.8 feet above the pond bottom).

Other Treatment Facilities. No other water treatment facilities are located within the permit area.

Exemptions. Two alternate sediment control areas exist at the locations shown on Plate 7-2. These areas will be bounded by a minimum 6-inch high berm or fiber roll as indicated, each installed on the inside of the facility fence. Calculations to support the design of these alternate sediment control areas are provided in Appendix 7-9.

The berm noted on Plate 7-2 is existing and was installed during site grading along the interior of the facility fence. This berm, which has the approximate dimensions noted on Plate 7-2, effectively keeps runoff from flowing off site to the property west of the facility. The berm will be maintained with a minimum height of 6 inches.

Fiber rolls will be installed at the location shown on Plate 7-2 in accordance with manufacturer's instructions. Approximately half of the roll will extend below the ground surface and individual sections of fiber roll will be overlapped horizontally to preclude bypass of sediment. Each fiber roll will be staked into the ground on centers that do not exceed 4 feet. Although the junction point of the berm and fiber rolls may vary somewhat from that indicated on Plate 7-2, a barrier with a minimum height of 6 inches will be maintained in the indicated locations.

7.4.2.3 Diversions

General Requirements. The diversions within the permit area consist of drainage ditches and culverts. All diversions within the permit area have been designed to minimize adverse impacts to the hydrologic balance, to prevent material damage outside the permit area, and to assure the safety of the public. They have been designed, located, constructed, maintained, and used to:

- Be stable
- Provide protection against flooding and resultant damage to life and property
- Prevent, to the extent possible, additional contributions of suspended solids to stream flow outside the permit area
- Comply with all applicable local, state, and federal laws and regulations

Peak discharge rates from the drainages within the permit area were calculated for use in determining the adequacy of the existing diversion ditches and culverts. Since the diversions will remain in place for the future landowner following cessation of BRCW operations, runoff was calculated assuming permanent diversion structures based on the 100-year, 6-hour precipitation event of 1.74 inches. Curve numbers were based on those defined in Appendix 7-7. A description of the methods used to determine the peak discharge rates is presented in Appendix 7-8.

Watershed boundaries for the facility are presented on Plate 7-2. The disturbed area boundary is surrounded by a berm along the upstream edge and its sides in order to divert runoff around the site. Thus, the watersheds that drain the facility consist only of disturbed areas. The watershed contributing to the east sedimentation pond has been divided into five sub-watersheds which total 17.4 acres in area. The watershed contributing to the west sedimentation pond has been divided into three sub-watersheds which total 7.0 acres in area. The remaining 5.6 acres of the site are situated along the edges of the facility, outside of the diversion ditches, and is not disturbed. All of the area within the watersheds reporting to the ditches and the sedimentation ponds has been considered to be disturbed in the hydrology calculations.

The size and location of each existing diversion ditch and culvert were mapped using an aerial photograph of the site and verified in the field. All diversions are shown on Plate 7-2. The capacity and freeboard of each diversion ditch were determined based on the minimum ditch slope, while the maximum velocity and need for erosion protection were verified based on the maximum ditch slope. The capacity of each culvert was determined using the minimum culvert slope and the outlet velocity and riprap protection was verified using the culvert outlet slope. Slopes were measured from a pre-construction contour map of the site. A description of the methods used to determine diversion capacities, flow velocities, and erosion protection requirements is presented in Appendix 7-6. All diversion calculations are presented in Appendix 7-8.

Diversion of Perennial and Intermittent Streams. There are no diversions of perennial or intermittent streams at the facility.

Diversion Ditches and Culverts. A summary table of the geometry, channel slope, peak discharge, erosion protection, maximum flow velocity and minimum depth values for each diversion ditch and culvert at the facility is presented in Table 7-3. Diversion hydrology calculations are detailed in Appendix 7-8. Each ditch and culvert has been constructed to non-erosively convey the peak flow resulting from the 25-year, 6-hour precipitation event and to contain the flow resulting from the 100-year, 6-hour precipitation event. A description of the diversion ditches and culverts within the facilities area is presented below and in Table 7-2. The ditches are named according to the watersheds that they drain. Ditches prefixed by the letter “E” ultimately report to the east sedimentation pond, and ditches prefixed by the letter “W” ultimately report to the west sedimentation pond. Since some watersheds are drained by culverts instead of ditches, the ditches are not numbered strictly chronologically. Refer to Plate 7-2 for the locations of each watershed and diversion structure.

- **Ditch E-1 (Upper).** This ditch exists on the east edge of the permit area just within the permit area boundary. It conveys runoff from the northern portion and eastern

edge of the site southward toward the east sedimentation pond. It begins at the outlet of culvert C-1 and continues to the outlet of culvert C-2.

- **Ditch E-1 (Lower).** This ditch conveys runoff southward from the outlet of culvert C-2 to culvert C-7 at the inlet of the east sedimentation pond.
- **Ditch E-3.** This ditch conveys runoff from the southeastern corner of the inner yard to the east sedimentation pond.
- **Ditch E-4.** This ditch conveys runoff southward from the region between the top of the truck dump hopper embankment and the road on the east edge of the permit area.
- **Ditch E-5.** This ditch conveys runoff eastward along the southern edge of the permit area toward the east sedimentation pond. It captures runoff from the eastern watershed of the inner yard that is not captured by ditch E-3.
- **Ditch W-1 (Upper).** This ditch runs along the west edge of the permit area. It conveys runoff from the northern portion and western edge of the site southward toward the west sedimentation pond. It begins just west of the northwest corner of the yard access road and extends to the outlet of culvert C-3.
- **Ditch W-1 (Lower).** This ditch runs from the outlet of culvert C-3 to culvert C-5 at the inlet of the west sedimentation pond. It conveys runoff from the W-1 (Upper) Ditch and the W-2 Ditch into the west sedimentation pond.
- **Ditch W-2.** This ditch runs on the east side of the silo and its access road, and drains the area located to the east. It drains into culvert C-3, which feeds into Ditch W-1 (Lower).
- **Ditch W-3.** This ditch conveys runoff westward along the southern edge of the permit area toward the west sedimentation pond. It captures runoff from the area south of the perimeter access road that drains toward the west sedimentation pond.
- **Culvert C-1.** This culvert conveys runoff from watershed E-2 under the truck turn-around road in the northeastern corner of the site. It provides drainage for the area enclosed by the road embankments for the yard perimeter road and the truck turn-around.
- **Culvert C-2.** This culvert conveys runoff under the road in the southeastern corner of the permit area. It provides drainage for the area enclosed by the road embankments for watershed E-4, including the yard perimeter road and the truck dump hopper.

- **Culvert C-3.** This culvert conveys runoff under the road in the southwestern corner of the permit area. It provides a route for drainage from Ditch W-2 to travel under the road and into Ditch W-1 (Lower).
- **Culvert C-4.** This culvert is installed within Ditch W-1 (Lower) to allow vehicular access into the area south of the Loop Road.
- **Culvert C-5.** This culvert is installed at the inlet to the west sedimentation pond. Riprap with a minimum median diameter of 6 inches has been installed at the outlet of this culvert to provide erosion protection.
- **Culvert C-6.** This culvert is installed beneath the southeast corner of the Loop Road and extends a sufficient distance to allow vehicular access from the east to the area south of the road.
- **Culvert C-7.** This culvert is installed at the inlet to the east sedimentation pond. Riprap with a minimum median diameter of 10 inches has been installed at this outlet of this culvert to provide erosion protection.

7.4.2.4 Road Drainage

Roads at the facility include an access road that leads from Ridge Road into the main yard, a road around the perimeter of the main yard, and a truck turnaround north of the main yard. All of the roads have been constructed to include adequate drainage control with the use of diversion ditches, culverts, and containment berms. None of the roads are located in the channel of an intermittent or perennial stream. All roads have been located to minimize downstream sedimentation and flooding. Diversion ditches and culverts for all roads are described in Section 7.4.2.3 above.

7.4.3 Impoundments

The existing impoundments within the permit area consist of two sedimentation ponds along the southern boundary of the disturbed area. Pertinent information regarding these ponds is presented in Sections 7.3.2.2 and 7.4.2.2.

7.4.4 Discharge Structures

The discharge structures within the permit area consist of the spillways on each sedimentation pond. The spillways have been designed to safely pass the peak discharge resulting from the 25-year, 6-hour rainfall event, assuming starting pond storage equal to the 60% sediment cleanout volume and the 10-year, 24-hour runoff volume. Detailed information for each sedimentation pond is presented in Sections 7.3.2.2 and 7.4.2.2.

Each sedimentation pond is equipped with a swale on its downstream side that serves as a spillway. Small embankments have been constructed adjacent to the spillways. Each spillway is trapezoidal in cross section and measures approximately 2 feet deep and 3 feet wide with 1H:1V side slopes. The spillways are armored with rip rap ($D_{50} = 4$ inches). If they spill, this water will discharge as overland flow toward Miller Creek.

7.4.4.1 Erosion Protection

Each discharge structure was evaluated to determine the adequacy of the existing riprap and the hydraulic capacity of the structure during the 25-year, 6-hour precipitation event. The calculations for the discharge structures within the facilities area are presented in Appendix 7-7. Peak discharges from all of the discharge structures during their design events did not exceed 5 feet per second (fps). Thus, the flows are considered non-erosive.

7.4.4.2 Design Standards

All discharge structures within the permit area were designed and constructed according to standard engineering design procedures.

7.4.5 Disposal of Excess Spoil

No excess spoil is generated or disposed of within the permit area.

7.4.6 Coal Mine Waste

7.4.6.1 General Requirements

No coal mine waste is stored on site.

7.4.6.2 Refuse Piles

No refuse piles are located at the facility.

7.4.6.3 Impounding Structures

No impounding structures within the permit area have been constructed of coal mine waste or are used to impound coal mine waste.

7.4.6.4 Return of Coal Processing Waste to Underground Workings

No underground workings are located at this facility.

7.4.7 Disposal of Noncoal Mine Waste

Disposal of noncoal waste is discussed in Chapter 5.

7.4.8 Casing and Sealing of Wells

The groundwater monitoring well to be installed in the permit area will be cased and sealed at the surface to prevent potential acid or other toxic drainage from entering groundwater via the well. The surface will be completed with a lockable steel casing to protect the well and ensure the safety of people, livestock, wildlife, and machinery.

7.50 Performance Standards

All operations and reclamation will be conducted to minimize disturbance to the hydrologic balance within the permit and adjacent areas, prevent material damage to the hydrologic balance outside the permit area, and support approved post operations land uses.

7.5.1 Water Quality Standards and Effluent Limitations

Discharges of water from disturbed areas will be in compliance with all applicable Utah and federal water quality laws and regulations and with applicable effluent limitations for coal mining contained in 40 CFR Part 434.

7.5.2 Sediment Control Measures

All sediment control measures will be located, maintained, constructed and reclaimed according to plans and designs presented in Sections 7.3.2, 7.4.2, and 7.6.0.

7.5.2.1 Siltation Structures and Diversions

Siltation structures and diversions will be located, maintained, constructed and reclaimed according to plans and designs presented in Sections 7.3.2, 7.4.2, and 7.6.3.

7.5.2.2 Road Drainage

All roads will be located, designed, constructed, reconstructed, used, maintained and reclaimed according to plans and designs presented in Sections 7.3.2.4, 7.4.2.4, and 7.6.2. All roads have been designed to:

- Control or prevent erosion and siltation by maintaining or stabilizing all exposed surfaces in accordance with current, prudent engineering practices;
- Control or prevent additional contributions of suspended solids to stream flow or runoff outside the permit area;
- Neither cause nor contribute to, directly or indirectly, the violation of effluent standards given under Section 7.5.1.
- Minimize the diminution to or degradation of the quality or quantity of surface- and ground-water systems;
- Refrain from significantly altering the normal flow of water in streambeds or drainage channels.

7.5.3 Impoundments and Discharge Structures

Impoundments and discharge structures will be located, maintained, constructed and reclaimed as described in Sections 7.3.3, 7.3.4, 7.4.3, 7.4.5, and 7.6.0.

7.5.4 Disposal of Excess Spoil, Coal Mine Waste and Noncoal Mine Waste

Handling and disposal of coal mine waste and noncoal mine waste is described in Sections 7.3.6, 7.3.7, 7.4.6, 7.4.7, 7.6.0 and Chapter 5.

7.5.5 Casing and Sealing of Wells

When no longer needed, the groundwater monitoring well in the permit area will be abandoned in accordance with R645-301-765 and the requirements of the Utah Division of Water Rights.

7.60 Reclamation

7.6.1 General Requirements

A detailed reclamation plan for the facility is presented in Section 5.40. In general, BRCW will ensure that all temporary structures are removed and reclaimed. Permanent diversions will be maintained properly and will meet the requirements of the approved reclamation plan for permanent structures and impoundments. BRCW will renovate the diversion structures if necessary to meet the requirements of R614-301 and R614-302 and to conform to the approved reclamation plan.

7.6.2 Roads

All site roads will be retained for use under the operational industrial land use.

7.6.2.1 Restoring the Natural Drainage Patterns

The facility does not interfere with natural drainage patterns that require restoration.

7.6.2.2 Reshaping Cut and Fill Slopes

No cut and fill slopes are located at the facility.

7.6.3 Siltation Structures

7.6.3.1 Maintenance of Siltation Structures

All siltation structures will be maintained in accordance with the approved reclamation plan.

7.6.3.2 Removal of Siltation Structures

It is anticipated that siltation structures at the site will be retained following reclamation, for use by the future landowner, in accordance with the reclamation plan presented in Section 5.40.

7.6.4 Structure Removal

A timetable for the removal of each structure is presented in Table 5-2.

7.6.5 Permanent Casing and Sealing of Wells

When no longer needed, the groundwater monitoring well in the permit area will be abandoned in accordance with R645-301-765 and the requirements of the Utah Division of Water Rights.

REFERENCES

- EIS Environmental and Engineering Consulting, 2007. COVOL Engineered Fuels Wellington Plant Site Sediment Pond Calculations. Unpublished Consultant's Report. Prepared by J.T. Paluso, P.E.
- Gloyn, R.W., D.E. Tablet, B.T. Tripp, C.E. Bishop, C.D. Morgan, J.W. Gwynn, and R.E. Blackett, 2003. Energy, Mineral, and Groundwater Resources of Carbon and Emery Counties, Utah. Bulletin 132, Utah Geological Survey, Utah Department of Natural Resources. Salt Lake City, Utah.
- Israelsen, C. Earl, Joel E. Fletcher, Frank W. Haws, and Eugene K. Israelsen, 1984. Erosion and Sedimentation in Utah: A Guide for Control. Utah Water Research Laboratory, College of Engineering, Utah State University. Hydraulics and Hydrology Series UWRL/H-84/03.
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- Waddell, K.M., J.E. Dodge, D.W. Darby, and S.M. Theobald, 1982. Selected Hydrologic Data, Price River Basin, Utah, Water Years 1979 and 1980. Open-File Report 82-916. U.S. Geological Survey. Salt Lake City, Utah.
- Waddell, K.M., J.E. Dodge, D.W. Darby, and S.M. Theobald, 1986. Hydrology of the Price River Basin, Utah with Emphasis on Selected Coal-Field Areas. Water-Supply Paper 2246. U.S. Geological Survey. Washington, D.C.

TABLE 7-1

Results of Groundwater Analyses

Parameter	Dated Sampled			
	24 Dec 2008	17 Mar 2009	15 Jun 2009	23 Sep 2009
Field Analyses (units as indicated)				
Depth to water (ft) ^(a)	12.00	12.01	12.53	12.54
Temperature (°C)	12.1	11.0	15.7	17.1
pH (std units)	7.40	7.13	6.71	6.90
Specific conductance (μS)	9,900	--	9,370	9,990
Laboratory Analyses (mg/L)				
Bicarbonate as CaCO ₃	270	270	260	280
Calcium	390	370	390	410
Carbonate as CaCO ₃	<10	<10	<10	<10
Chloride	84	68	66	75
Iron, dissolved	<0.050	<0.050	0.97	0.92
Iron, total	300	5.6	0.27	5.6
Magnesium	270	270	260	270
Manganese, dissolved	0.57	0.60	0.58	0.50
Manganese, total	3.9	0.75	0.58	0.50
Nitrate/Nitrite as N	0.34	0.015	0.41	0.036
Potassium	36	26	28	29
Sodium	1,900	2,000	2,000	2,200
Sulfate	5,700	5,600	5,500	6,100
Total dissolved solids	11,000	8,900	8,800	8,400

^(a) Measured as depth from ground surface

TABLE 7-2

Summary of Sedimentation Pond Data

	East Pond	West Pond
Assumed bottom elevation (ft)	5,493.8	5,498.2
Assumed crest elevation (ft)	5,505.8	5,510.0
Total Storage Capacity (ft ³)	53,900	36,070
Calculated Annual Sediment Volume (ft ³)	333	134
10-Year, 24-Hour Precip. Runoff Volume (ft ³)	36,970	14,850
Sediment Storage Capacity (ft ³)	16,930	21,220
60% Sediment Storage Cleanout Volume (ft ³)	10,160	12,730
Sediment Cleanout Elevation (ft)	5,498.6	5,505.4
Peak Stage of 10-Year, 24-Hour Precipitation Event Plus 60% Sediment Storage Capacity (ft)	5,503.0	5,506.4
Invert elevation of 3-foot wide armored spillway (ft)	5,503.7	5,508.0
Peak Pond Inflow Due to 25-Year, 6-Hour Precipitation Event (cfs)	9.24	2.70
Peak Pond Outflow due to 25-Year, 6-Hour Precipitation Event (cfs)	2.26	0.29
Peak Pond Outflow Velocity due to 25-Year, 6-Hour Precipitation Event (fps)	2.0	0.8
Peak Stage of 25-Year, 6-Hour Precipitation Event Following a 10-Year, 24-Hour Precipitation Event with Pond Full to 60% of Sediment Storage Capacity (ft)	5,504.3	5,508.1

Notes:

- Refer to Appendix 7-7 for calculations related to sedimentation pond design
- Pond dimensions were surveyed by EIS Environmental and Engineering Consulting in November 2007. Absolute elevations were assumed by superimposing the survey data on the pre-construction topography provided by Mine and Mill Engineering. Each pond has a berm extending approximately 2 ft above the ground surface.

TABLE 7-3

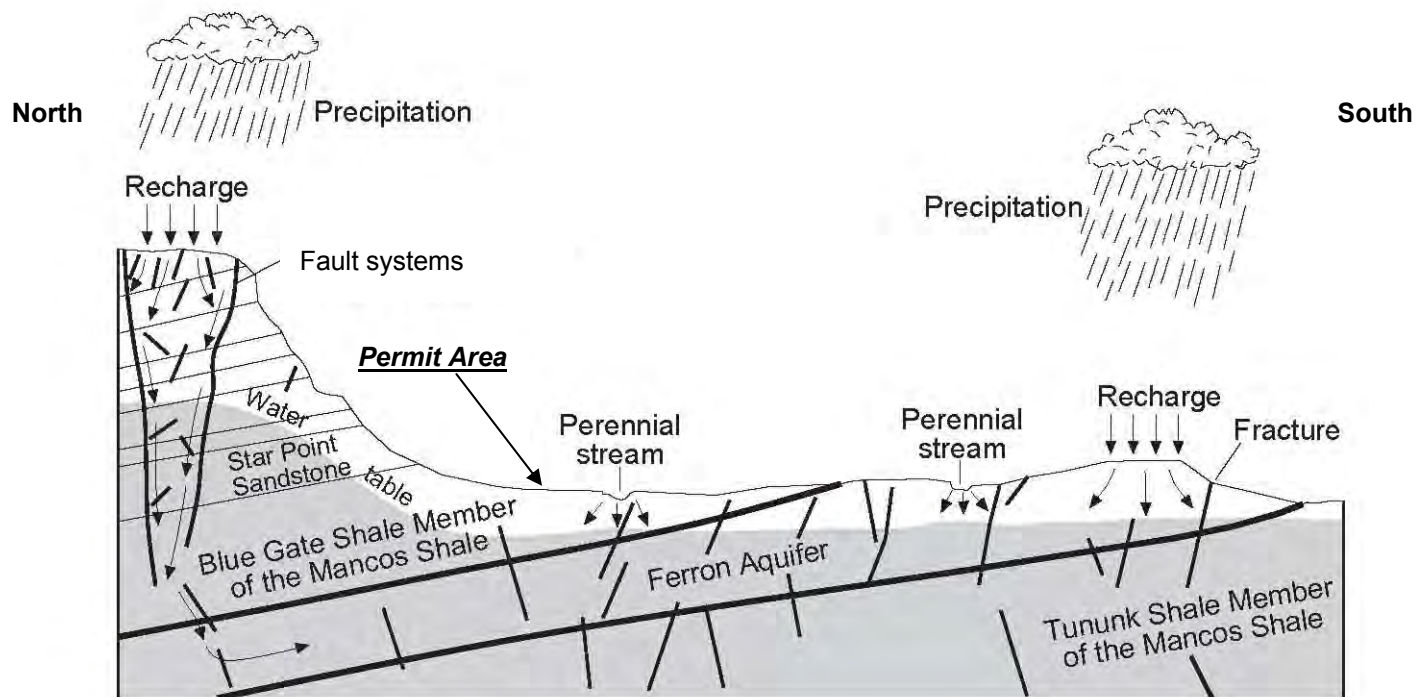
Summary of Drainage Ditch and Culvert Data

Structure	Description	Peak Flow (cfs) ^(a)	Max. Flow Depth (ft) ^(b)	Max. Flow Velocity (fps) ^(c)	Required Riprap D ₅₀ (in)
Ditches					
E-1 Upper	Triangular, 1:1 sides, 1.5' deep	1.75	0.91	2.57	None
E-1 Lower	Triangular, 1.5:1 sides, 1.5' deep	1.75	0.73	2.62	None
E-3	Trapezoidal, 2.5:1 left, 1:1 right, 0.5' bottom, 1.5' deep	4.80	0.84	3.41	None
E-4	Triangular, 2:1 left, 1:1 right, 1.2' deep	1.16	0.60	2.12	None
E-5	Triangular, 4:1 sides, 1.0' deep	4.98	0.76	3.40	None
W-1 Upper	Triangular, 2:1 sides, 2.0' deep	1.50	0.65	2.60	None
W-1 Lower	Triangular, 2:1 sides, 2.0' deep	2.44	0.83	2.54	None
W-2	Trapezoidal, 1:1 left, 2:1 right, 2.0' bottom, 1.0' deep	2.79	0.51	3.20	None
W-3	Triangular, 4.5:1 left, 1:1 right, 1.0' deep	1.81	0.74	2.54	None
Culverts					
C-1	Corrugated, 18" diameter	1.40	0.35	4.46	None
C-2	Corrugated, 18" diameter	0.63	0.24	3.45	None
C-3	Corrugated, 18" diameter	2.23	0.49	4.51	None
C-4	Corrugated, 18" diameter	1.17	0.44	2.76	None
C-5	Corrugated, 18" diameter	2.70	0.34	9.02	6
C-6	Corrugated, 18" diameter	4.80	0.83	4.83	None
C-7	Corrugated, 18" diameter	9.24	0.69	11.54	10

^(a) 25-yr, 6-hr event (see Appendix 7-7)

^(b) Based on minimum channel slope (see Appendix 7-8)

^(c) Based on maximum channel slope (see Appendix 7-8)



Adapted from Gloyn et al., 2003

FIGURE 7-1. GENERALIZED AREA HYDROSTRATIGRAPHIC CROSS-SECTION

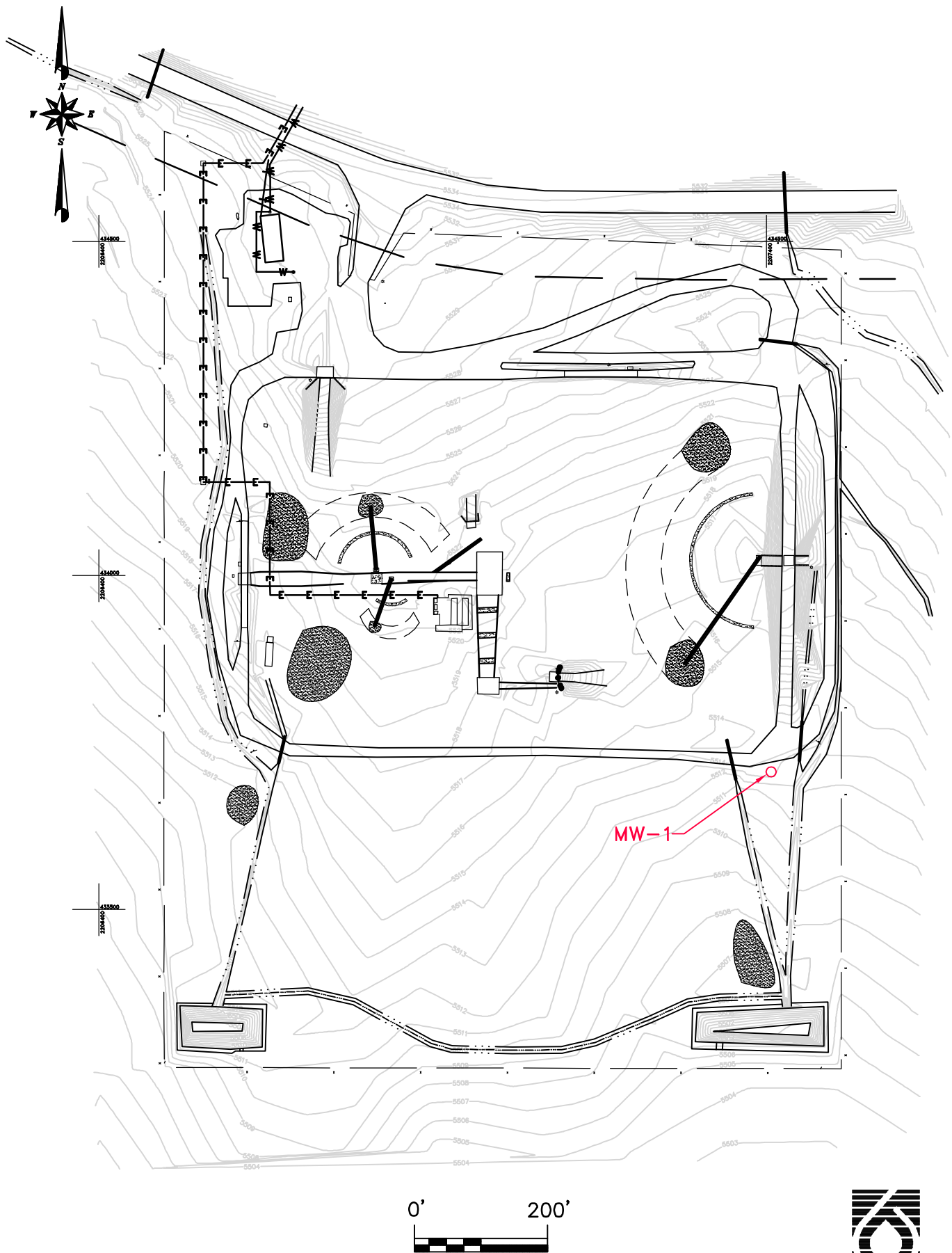


FIGURE 7-2. COVOL MONITORING WELL LOCATION

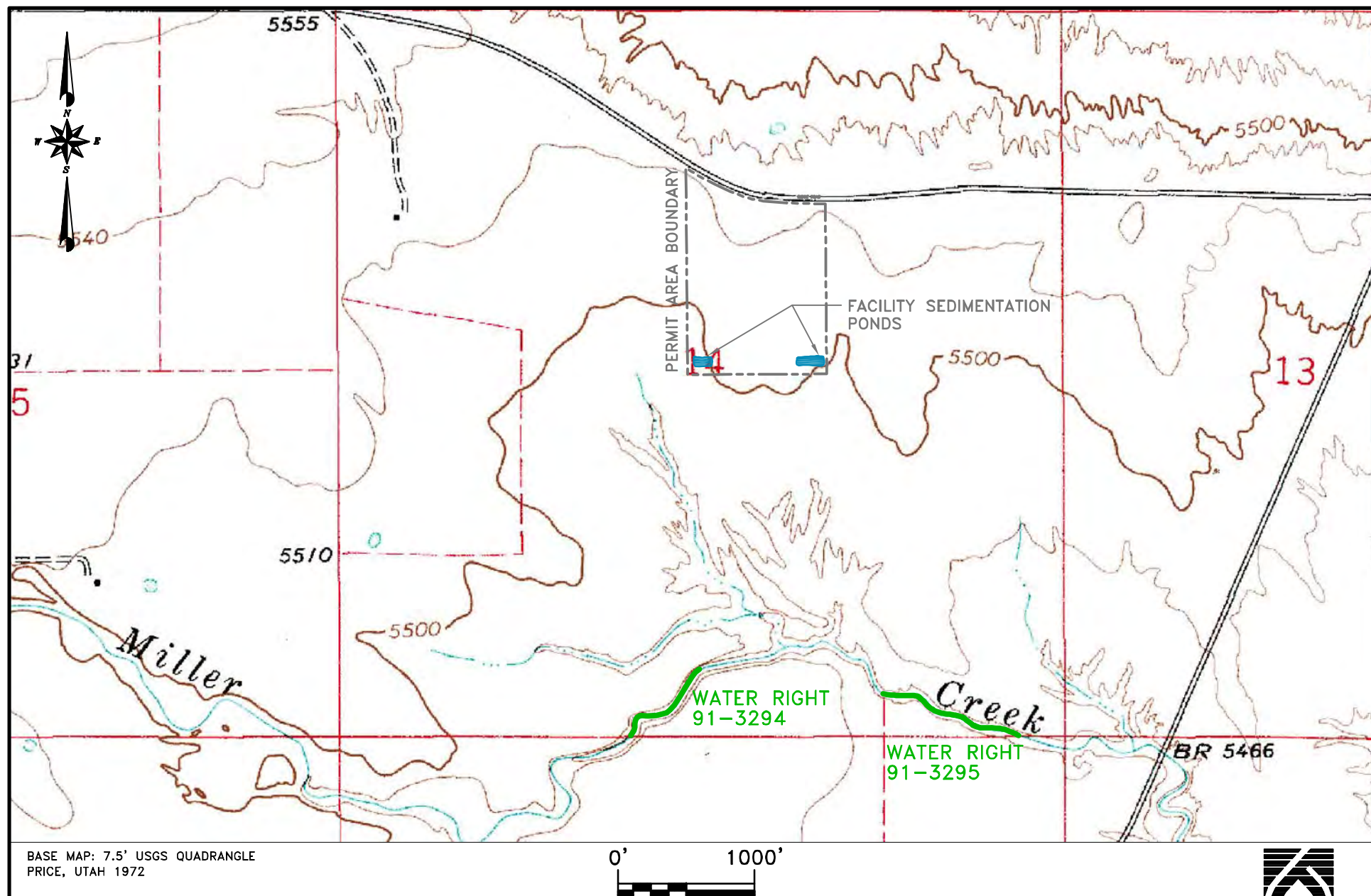


FIGURE 7-3. SURFACE POINT-OF-DIVERSION WATER RIGHTS AND PERMITTED FACILITY DISCHARGE LOCATIONS

BRC Wellington LLC
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October 2013

APPENDIX 7-1

Monitoring Well Lithologic and Completion Log



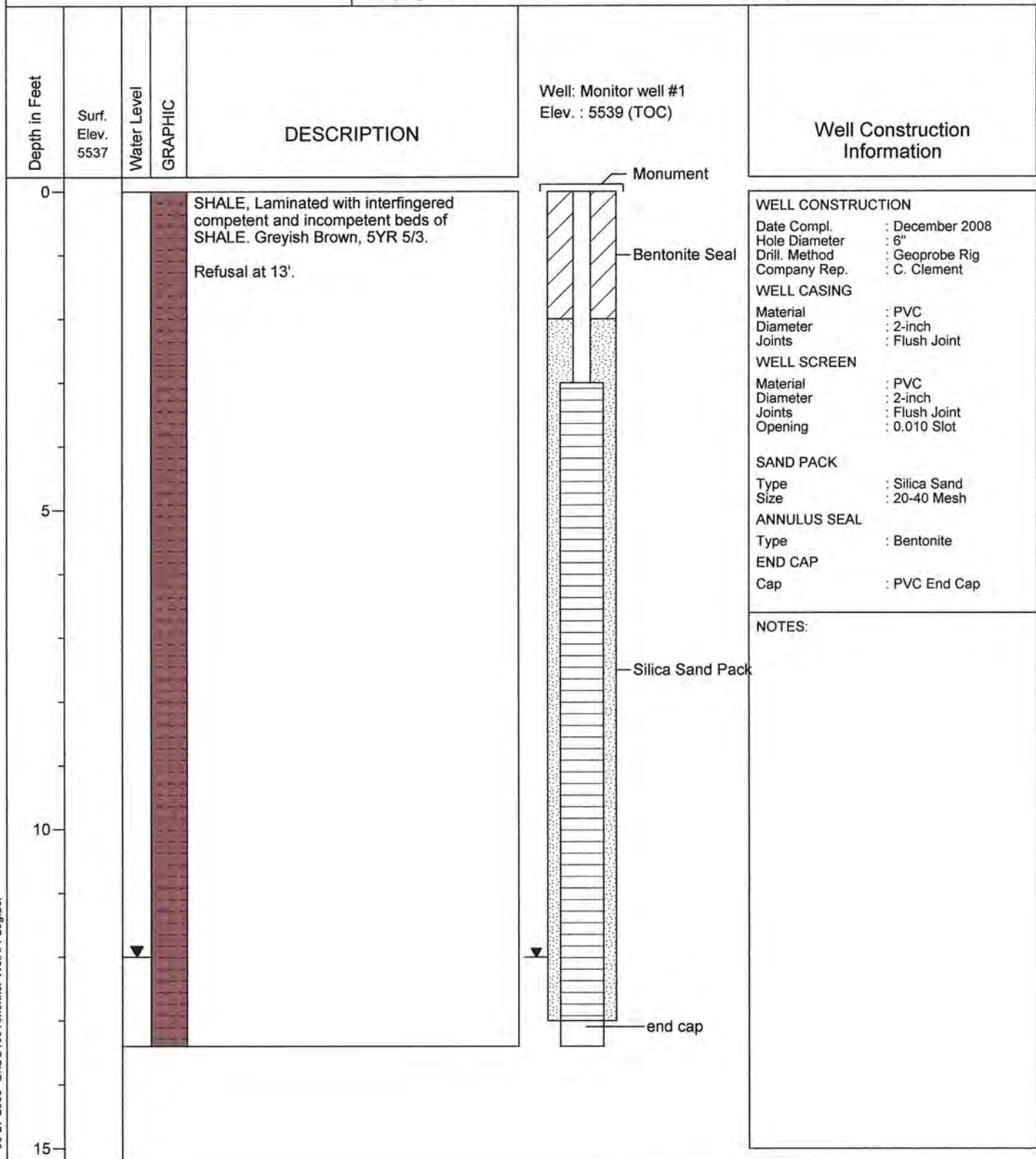
Monitor Well # 1

Headwaters Incorporated
Covol Engineered Fuels Facility
Wellington, UT

Project UC1091

Date Started : Dec 24, 2008
Date Completed : Dec 24, 2008
Hole Diameter : 6" auger
Drilling Method : Geoprobe Rig
Sampling Method : Grab

Company Rep. : C. Clement
Northing Coord. :
Easting Coord. :
Survey By :
Logged By : B. Heller



BRC Wellington LLC
Dry-Coal Cleaning Facility

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October 2013

APPENDIX 7-2

Water Rights Data

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Online Services

Agency List


Business

Utah Division of Water Rights

PLACE OF USE parcel

Place of Use Display Program

Search



New Search

WATER RIGHTS (PLACE OF USE) in: Section 14 Township 15S Range 10E SL Base & Meridian

(The Division of Water Rights makes NO claims regarding the accuracy of this data!!!)

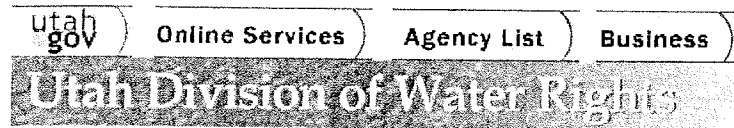
POD: Point of Diversion ----S=Surface, U=Underground, P=Point to Point
ST/TOR: Status/Type of Right
TYPE: Type of Place of Use---I=Irrigated Acreage, S=Stock Place of Use, P=Other Place of Use
USES: I=Irrigation, S=Stockwatering, D=Domestic, Mu=Municipal, P=Power, O=Other

N W 4 * N E 4 * S W 4 * S E 4									
N N S S * N N S S * N N S S * N N S S									
W E W E * W E W E * W E W E * W E W E									
WR-CH-EX#	POD	ST/TOR	TYPE	WATER	USES				
91-126	S	CERT	I	ISDMu	PO				
91-135	S	APP	I	ISDMu	PO				
91-2	S	CERT	I	ISDMu	PO				
91-3	S	CERT	S	ISD					
91-3294	P	DIL	S	S					
91-3295	P	DIL	S	S					
91-4271	S	TEMP	I		O				
91-4950	S	CERT	I	I					
91-4961	S	CERT	I	I					
91-4962	S	CERT	I	I					
91-4973	S	CERT	I	I					
91-4986	S	CERT	I	I					
91-4992	S	CERT	I	I					
91-4999	S	CERT	I	I					
91-5000	S	CERT	I	I					

[illegible]

91-5138	S	CERT	I	I	I				X X *				X *	X X X X *		X X X	SE4NE4,	S2NW4,	SW4,	S2SE4,	NE4SE4
91-5139	S	CERT	I	I	I				X X *				X *	X X X X *		X X X	SE4NE4,	S2NW4,	SW4,	S2SE4,	NE4SE4
91-5142	S	CERT	I	I	I				X X *				X *	X X X X *		X X X	SE4NE4,	S2NW4,	SW4,	S2SE4,	NE4SE4
91-5144	S	CERT	I	I	I				X X *				X *	X X X X *		X X X	SE4NE4,	S2NW4,	SW4,	S2SE4,	NE4SE4
91-5147	S	CERT	I	I	I				X X *				X *	X X X X *		X X X	SE4NE4,	S2NW4,	SW4,	S2SE4,	NE4SE4
91-5148	S	CERT	I	I	I				X X *				X *	X X X X *		X X X	SE4NE4,	S2NW4,	SW4,	S2SE4,	NE4SE4
91-5149	S	CERT	I	I	I				X X *				X *	X X X X *		X X X	SE4NE4,	S2NW4,	SW4,	S2SE4,	NE4SE4
91-5152	S	CERT	I	I	I				X X *				X *	X X X X *		X X X	SE4NE4,	S2NW4,	SW4,	S2SE4,	NE4SE4
91-5153	S	CERT	I	I	I				X X *				X *	X X X X *		X X X	SE4NE4,	S2NW4,	SW4,	S2SE4,	NE4SE4
91-5154	S	CERT	I	I	I				X X *				X *	X X X X *		X X X	SE4NE4,	S2NW4,	SW4,	S2SE4,	NE4SE4
91-5155	S	CERT	I	I	I				X X *				X *	X X X X *		X X X	SE4NE4,	S2NW4,	SW4,	S2SE4,	NE4SE4
91-5156	S	CERT	I	I	I				X X *				X *	X X X X *		X X X	SE4NE4,	S2NW4,	SW4,	S2SE4,	NE4SE4
91-5158	S	CERT	I	I	I				X X *				X *	X X X X *		X X X	SE4NE4,	S2NW4,	SW4,	S2SE4,	NE4SE4
91-5159	S	CERT	I	I	I				X X *				X *	X X X X *		X X X	SE4NE4,	S2NW4,	SW4,	S2SE4,	NE4SE4
91-5160	S	CERT	I	I	I				X X *				X *	X X X X *		X X X	SE4NE4,	S2NW4,	SW4,	S2SE4,	NE4SE4
91-88	S	WD	I	I	I				X X X X *				X *	X X X X *		X X X	SE4NE4,	S2NW4,	SW4,	S2SE4,	NE4SE4
ENTIRE SECTION																					

A total of 77 ENTRIES were found with Place(s) of Use in:
Section 14 Township 15S Range 10E SL Base & Meridian



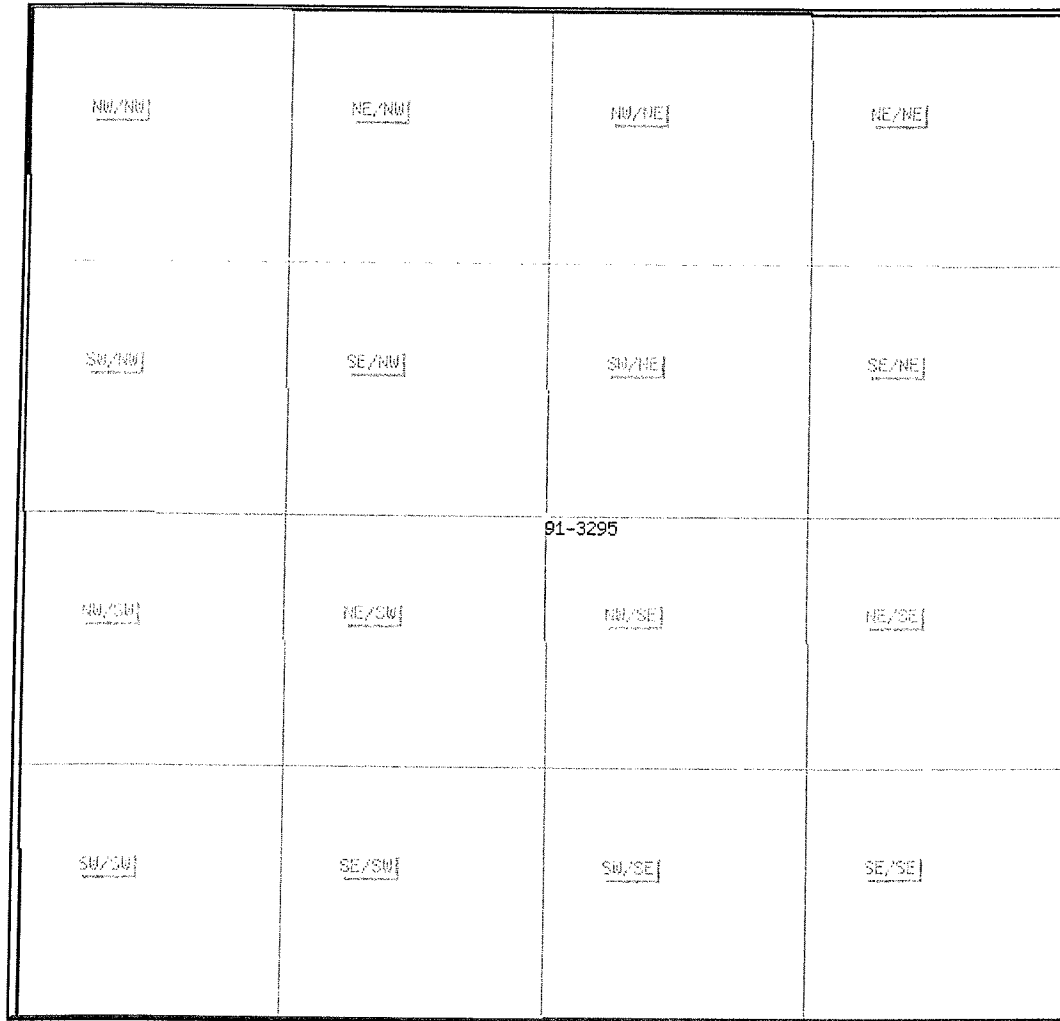
Search



WRPLAT Program Output Listing

Version: 2007.04.13.01 Rundate: 10/14/2008 07:57 AM

Search of Section 14, Township 15S, Range 10E, SL b&m Criteria:wrtypes=W,C,E podtypes=all status=U,A,P
usetypes=all



0 360 720 1080 1440 ft

Water Rights

WR Number	Diversion Type/Location	Well Log	Status	Priority	Uses	CFS	ACFT	Owner Name
91-3294	Point to Point		P	18690000	S	0.000	0.000	BONNIE JENSEN

	N660 W660 S4 14 15S 10E SL				C/O T.N. JENSEN
<u>91-3295</u>	Point to Point	P	18690000 S	0.000 0.000	SACCO BROTHERS LAND AND LIVESTOCK
	N660 W660 SE 14 15S 10E SL				RFD 1, BOX 152

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Online Services Agency List Business

Utah Division of Water Rights

Search



Select Related Information

(WARNING: Water Rights makes NO claims as to the accuracy of this data.) RUN DATE: 10/14/2008
WATER RIGHT: 91-3294 APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP*****

NAME: Bonnie Jensen
ADDR: C/O T.N. Jensen
Price UT 84501

DATES, ETC.*****

LAND OWNED BY APPLICANT? Yes

FILED: PRIORITY: 00/00/1869|PUB BEGAN:
ProtestEnd: |PROTESTED: [No |]HEARNG HLD:
EXTENSION: |ELEC/PROOF:[|]ELEC/PROOF:
RUSH LETTR: |RENOVATE: |RECON REQ:
PD BOOK: [91-4 |]MAP: [75b |]
Type of Right: Diligence Claim

|PUB ENDED: |NEWSPAPER:
|SE ACTION: [|]ActionDate:
|CERT/WUC: 06/06/1967|LAP, ETC:
|TYPE: [|]
|PROOF DUE:
|LAPS LETTER:

Source of Info: Proposed Determination Status:

LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)*****MAP VIEWER*****

FLOW: SOURCE: Miller Creek

COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:

(1) Stockwatering directly on stream from a point at N 660 ft. W 660 ft. from S4 corner, Sec 14, T15S, R10E, SLBM,
to a point at N 660 ft. W 660 ft. from S4 corner, Sec 14, T15S, R10E, SLBM.
COMMENT: Administratively updated by State Engineer.

USES OF WATER RIGHT***** ELU -- Equivalent Livestock Unit (cow, horse, etc.) ***** EDU -- Equivalent Domestic Unit or 1 Family

SUPPLEMENTAL GROUP NO. 614102. Water Rights Appurtenant to the following use(s):

91-160, 2280, 3250, 3292, 3294

3324

STOCKWATER: Sole Supply: UNEVALUATED ELUS Group Total: 300.0000 Div Limit: 8.4 acft. PERIOD OF USE: 01/01 TO 12/31
PLACE OF USE for STOCKWATERING*****

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STOCKWATER: Sole Supply: UNEVALUATED ELUS Div Limit: 2.8 acft. PERIOD OF USE: 01/01 TO 12/31/2000

SUPPLEMENTAL GROUP NO. 616109. Water Rights Appurtenant to the following use(s):
91-723, 727, 728, 825, 1195
1756, 1757, 1809, 1810, 1811
2000, 2120, 2254, 2255, 2256
2260, 2261, 2362, 3295

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BRC Wellington LLC
Dry-Coal Cleaning Facility

Permit Application
October 2013

APPENDIX 7-3

Utah Pollutant Discharge
Elimination System Permit



State of Utah

Department of Environmental Quality

Dianne R. Nielson, Ph.D.
Executive Director

DIVISION OF WATER QUALITY
Walter L. Baker, P.E.
Director

Water Quality Board
Joe Piccolo, *Chair*
Paula Doughty, *Vice-Chair*
David F. Echols
Neil K. Kochenour
Darrell H. Mensel
LeLand J. Myers
Dianne R. Nielson
Jay Ivan Olsen
Gregory L. Rowley
Ronald C. Sims
Daniel C. Snarr
Walter L. Baker,
Executive Secretary

JON M. HUNSMAN, JR.
Governor

GARY HERBERT
Lieutenant Governor

January 08, 2007

Mr. Keith Thompson
Vice President
Covol Engineered Fuels, LC
10653 South River Front Parkway, Suite 300
South Jordan, Utah 84095

Dear Mr. Thompson:

Subject: Utah Pollutant Discharge Elimination System (UPDES)
Multi-Sector General Permit for Storm Water Discharges Associated with Industrial
Activity, Coverage No. **UTR000685**.

Our office received your "notice of intent" (NOI) for **Covol Engineered Fuels, LC** to obtain coverage under the *UPDES Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity, General Permit No. UTR000000* on November 30, 2006. The received NOI is for the Covol Fuels facility located at, 1865 West Ridge Road, Wellinton, Utah, Carbon County. This letter confirms your coverage under the general permit; the permit coverage number for the facility is **No. UTR000685**. Please use this number in any future correspondence associated with this project.

This coverage is effective **January 01, 2007** and expires at midnight, **December 31, 2011**.

The permit requires a Storm Water Pollution Prevention Plan (SWP3). Maintaining a current copy of the SWP3 at the site is a requirement of the permit. Monitoring is also required as outlined in appendix II requirements. Please review these requirements if you are not familiar with them. A copy of the general permit and appendix requirements can be found on our website at <http://www.waterquality.utah.gov/updes/stormwater.htm>.

Storm water discharge monitoring report (SWDMR) forms are enclosed for your convenience. These forms may be used to record visual and/or analytical monitoring results.

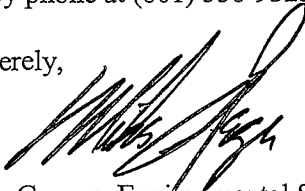
As the agency charged with the administration of issuing UPDES Permits, we are

Page 2

continuously looking for ways to improve our quality of service to you. Please take a few moments to complete the enclosed questionnaire, and return it in the enclosed, self-addressed, postage paid, envelope. The results will be used to improve our quality and responsiveness and give us feed back on customer satisfaction.

If you have any questions concerning this letter or your permit coverage please do not hesitate to contact me by phone at (801) 538-9325 or by e-mail at mmgeorge@utah.gov. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mike George', is written over the typed name.

Mike George, Environmental Scientist
Permits & Compliance Section

Enclosure

U:\WQ\PERMITS\Mgeorge\wp\storm water\group 4\covolfuels2007.doc

BRC Wellington LLC
Dry-Coal Cleaning Facility

Permit Application
October 2013

APPENDIX 7-4

Storm Water Pollution
Prevention Plan

STORM WATER POLLUTION PREVENTION PLAN
(Revision 2 – 11/03/05)

and

NOI Storm Water Discharges Associated with Construction Activities

and

**NOI Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated
with Industrial Activities**

COVOL ENGINEERED FUELS, LC

PREPARED BY:

EIS Environmental & Engineering Consulting

DECEMBER 2004

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LIST OF APPENDICES

Appendix A - Drawings

Appendix B - NOI-Storm Water Discharges Associated with Construction Activities

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Section 1.0 General Site Information

COVOL Engineered Fuels, LC (COVOL) is planning to construct and operate a new coal cleaning facility in Carbon County, Utah. The new facility will be located in Section 14, Township 15 South, Range 10 East, Salt Lake Base & Meridian. This facility will be located approximately five miles south of Price, Utah. Refer to the attached Location Map in Appendix A. The facility lies in an undeveloped, rural area on a 30 acre site. Approximately 15 acres will be used for this new operation. The adjacent land on the east, west, and south remains undeveloped. Across the road to the west are coal transfer facilities where coal is stored, loaded, and unloaded for shipment. Across the road and to the north is Carbon County Lumber Company.

The site slopes to the southeast and the surrounding ground consists of native soil with sparse vegetation. The soil is classified as Persayo-Badland Association Soils, which consist of gently sloping and rolling hills, well drained, moderately fine textured and medium textured soils over shale. The area receives approximately 9.5-inches of precipitation annually. The regional groundwater flow is east toward the Price River which lies approximately two miles northeast of the facility. Refer to the Location Map in Appendix A.

This site was previously permitted by Terra Systems Incorporated (TSI). In compliance with the provisions of the Utah Water Quality Act, Title 19, Chapter 5, Utah Code Annotated 1953, TSI was issued a General Storm Water UPDES Permit UTR101090 on August 20, 2003, for this Wellington Plant Site. COVOL has purchased this site from TSI and will use different processing techniques. COVOL will receive coal from various sources around the Carbon/Emery area. COVOL will take this coal with varying qualities and by using air jigs will improve the final quality. The cleaning facility will be divided into three areas: feedstock material handling and storage systems, coal cleaning equipment, and finished product material handling and storage system. It is anticipated that this facility will process approximately 1,500,000 ton per year.

Feedstock Handling

Incoming coal trucks will be weighed at the truck scale and dump their loads at the truck dump hopper. Refer to the Site Plan in Appendix A. This high ash coal will be moved via conveyors and dumped in the inventory pile with a radial stacker. The radial stacker will be positioned to segregate and pile multiple sources/qualities of coal.

Coal Cleaning

High ash coal will be fed into the feed hopper via a rubber-tired front end loader. This material will be transported by conveyor to a screen for separation. Coarse or oversized material can be processed through the crusher to be sized to 2" minus. The feed streams (coarse and fine) are then fed into an air jig separation unit where the coal is separated from the rock and ash using air and vibration to perform the separation. The air jig is covered by a hood connected to a bag house (one bag house for each air jig) to prevent any fugitive dust particles from escaping into the atmosphere. Finished product is transferred to an inventory pile or silo via one set of conveyors and the byproduct is transferred to a pile via another set of conveyors. The bag house dust can be combined either with the byproduct stream or the finished product stream depending on the required specifications.

Finished Product Handling

The finished product may be stored in the silo which is situated over the site haul road. A designated amount of product stored in the silo will be charged into trucks to be shipped to its final destination. Alternately, finished material from a segregated finished product pile may be fed into the product silo via the feed/blending hoppers or be loaded directly into trucks, for transportation, via the truck ramp and hopper.

Storm Water Pollution Prevention Plan

It has been determined that the permittee has a regulated storm water discharge as per UAC R317.8. Therefore, conditions governing storm water discharges apply. The permittee shall develop a storm water pollution plan. The receiving water for this facility is the Price River. Refer to Appendix D for Guidelines Associated with Storm Water Discharge from Construction Activities.

Section 2.0 Content of Plan

Section 2.1.1 Pollution Prevention Team

The facility will be operated two shifts per day. Each shift will have three employees, a shift foreman and two operators. During each shift the pollution prevention team at the facility will be comprised of these three individuals.

The shift foreman will be responsible to coordinate a spill response, oversee good housekeeping and best management practices. His responsibilities will also include monitoring, if required, and ensuring compliance with aforementioned permit. The on shift operators will be required to inspect and maintain all diversion and appurtenant structures to ensure proper control and treatment of storm water runoff prior to leaving the site.

All employees will be properly trained in their various areas and will be given the proper notification numbers and contact personnel to comply with the requirements of the permit. Refer to Section 2.4.1 Employee Training.

Section 2.2.1 Site Map

Included in Appendix A is a Site Map showing the proposed surface facilities. Additional features on the map include storm water flow directions, berm, and sediment pond locations. Final engineering on this facility is presently being completed. Surface contours will be modified to direct all surface flows towards the sediment ponds located in the southeast and southwest corners of the project. An earthen berm will be constructed to contain all runoff from the site. All surface structures will be located inside the berm. This will prevent any potential contamination from leaving the site.

Section 2.2.2 Material Inventory

Description of Potential Pollutant Sources

The potential sources which may reasonably be expected to add pollutants to storm water discharges from the site are those disturbed areas which facilitate the operation. The surface facilities are shown on the Site Plan drawing. The Potential Pollution Sources are listed in the following table.

Potential Pollution Source	Potential Pollutants	Likelihood of Contact
Truck Dump	Coal Fines, Equipment Fuels and Fluids	Low potential, No known spill or leak
Coal Storage Area	Coal Fines, Equipment Fuels and Fluids	Low potential, No known spill or leak
Front End Loader	Equipment Fuels and Fluids	Low potential, No known spill or leak
Conveyor Belt	Coal Fines, Lubricant	Low potential, No known spill or leak
Silo	Coal Fines, Lubricant	Low potential, No known spill or leak

All runoff will be contained by the berm surrounding the site. This runoff will report to the sediment ponds. Coal fines in the storage areas are very fine-grained, therefore some storm events could potentially cause enough surface flow to transport the fines to the sediment ponds.

Drainage

The Site Plan drawing provides the drainage direction and the location of the proposed sediment ponds and berms. Berms will be constructed to prevent storm water from leaving the site. Runoff from Ridge Road (County Road) will be diverted around the property. The sediment ponds will remove pollutants from storm water runoff and will discharge to the south, if necessary. After construction both the berms and sediment ponds will be inspected on a quarterly basis to insure that they are operating correctly.

Section 2.3.1 Best Management Identifications (BMP)

BMPs	Brief Description of Activities	Implementation of BMP
Good Housekeeping	Pick-up Trash, Use of absorbent materials to clean up minor spills. Training of staff in cleanup procedures.	Training of staff during annual training or as needed.
Preventative Maintenance	Maintain sediment control measures. Maintain equipment and machinery. Maintain fuel stations, coal pile and surface drainage..	Inspect and Maintain contours to drain to sediment controls
Inspections	Quarterly inspection of runoff control measures.	Quarterly Inspections or as needed after storm events.
Spill Prevention Response	Fuel tanks will be contained. Absorbent materials available for spill clean up.	Clean up or maintain as needed.
Sediment and Erosion Control	Inspection of ponds and berms, at least quarterly or after/during storm event greater than .5 inches.	Sample ponds during runoff event if ponds are discharging or will discharge. Clean ponds when necessary.
Management of Runoff	Off site runoff diverted around disturbed and storage areas. Disturbed and storage areas treated by sediment ponds or berm.	Inspect, maintain and repair as needed.

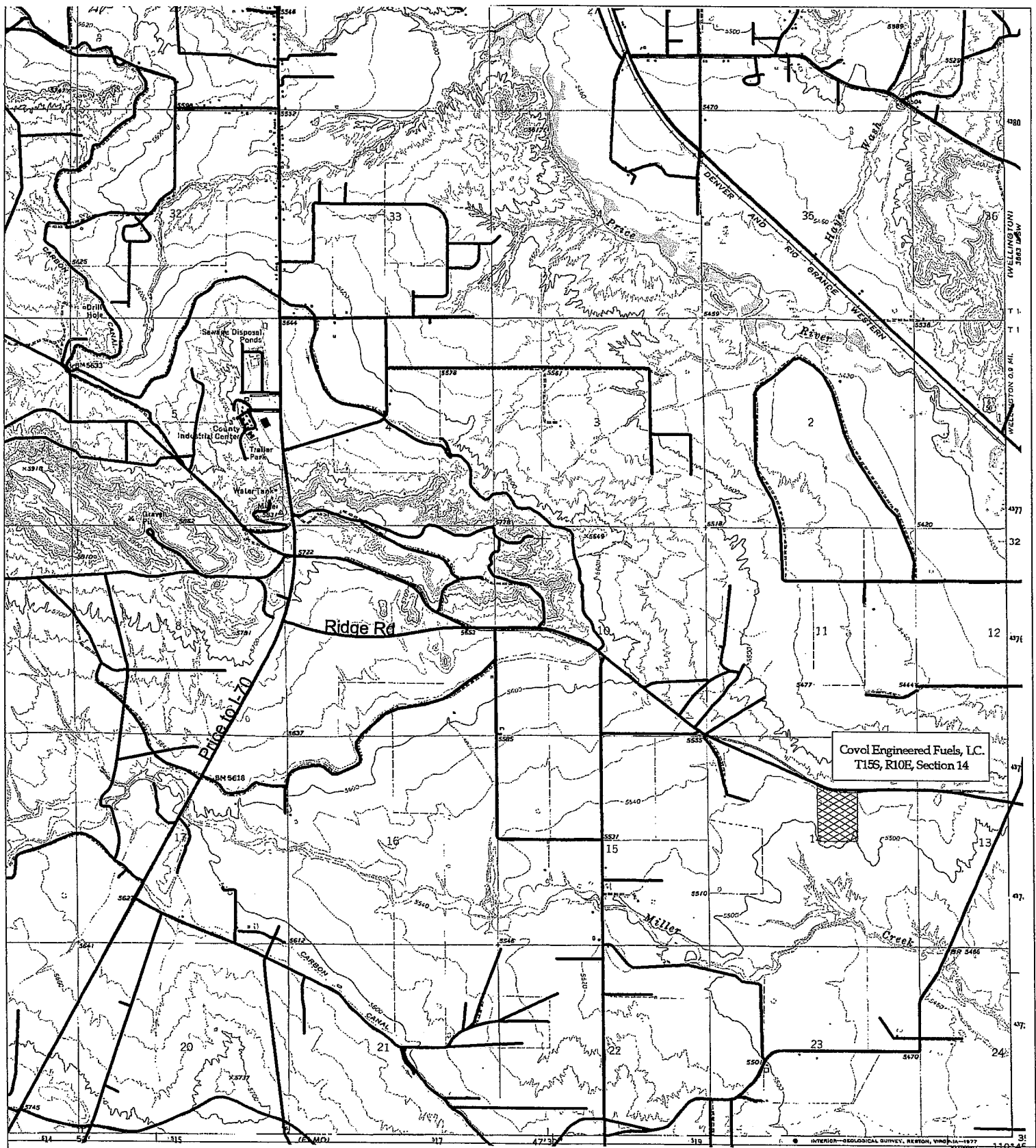
Section 2.4.1 Employee Training

Training topics will include, but not be limited to Spill Prevention and Response, Spill Reporting Procedures, Good Housekeeping, Material Management Practices, and Storm Water Sampling Procedures.


Employees will be provided training regarding the prevention and control of spillage of fuels and oils associated with machinery and equipment. Employees will be advised to not overfill fuel tanks while fueling equipment or vehicles. Employees will assist fuel vendors to watch tank gauges and not overfill bulk tanks.

APPENDIX A

DRAWINGS



Legend


 Roads

 Covol



Location Map

2000 0 2000 4000 Feet



Drawn By: K. Nash
Designed By: J.T. Paluso

EIS Environmental &
Engineering Consulting
31 North Main Street
Helper, Utah 84526

APPENDIX B

**NOI-STORM WATER DISCHARGES ASSOCIATED
WITH CONSTRUCTION ACTIVITIES**

STATE OF UTAH, DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER QUALITY
288 North 1460 West, P.O. Box 144870, Salt Lake City, Utah 84114-4870 (801)538-6146

NOI

Notice of Intent (NOI) for Storm Water Discharges Associated with Construction Activity Under the UPDES General Permit No. UTR100000. SEE REVERSE FOR INSTRUCTIONS

Submission of this Notice of Intent constitutes notice that the party(s) identified in Section I of this form intends to be authorized by UPDES General Permit No. UTR100000 issued for storm water discharges associated with construction activity in the State of Utah. Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit. ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM.

I. OPERATOR INFORMATION

Name (Main operator): COVOL ENGINEERED FUELS, LC

Phone: 801-984-9400

Address: 10653 S. RIVERFRONT PARKWAY

Status of Owner/Operator: P

City: SOUTH JORDAN

State: UT

Zip: 84095

Contact Person: KEITH THOMPSON

Phone: 801-984-9400

Name (1st Co-permittee): _____

Phone: _____

Address: _____

Status of Owner/Operator: _____

City: _____ State: _____ Zip: _____

Contact Person: _____

Phone: _____

Name (2nd Co-permittee): _____

Phone: _____

Address: _____

Status of Owner/Operator: _____

City: _____ State: _____ Zip: _____

Contact Person: _____

Phone: _____

Name (3rd Co-permittee): COVOL ENGINEERED FUELS, LC

Phone: _____

Address: _____

Status of Owner/Operator: _____

City: _____ State: _____ Zip: _____

Contact Person: _____

Phone: _____

Please copy this form if you have more co-permittees than what is allowed on this form.

II. FACILITY SITE / LOCATION INFORMATION

Name: COVOL ENGINEERED FUELS, LC

Project No. (if any): _____

Address: 1865 WEST RIDGE ROAD County: CARBON

City: WELLINGTON State: UT Zip: 84542

Latitude: 39.31.27 Longitude: 110.45.58

Is the facility located
on Indian Lands?

(Y or N) N

III. SITE ACTIVITY INFORMATION

Municipal Separate Storm Sewer System (MS4) Operator Name: _____

Receiving Water Body: PRICE RIVER

How far to the nearest water body? 2 MILES

List the Number of any other UPDES permits at the site: _____

IV. TYPE OF CONSTRUCTION (Check all that apply)

1. ☐ Residential 2. ☐ Commercial 3. ☒ Industrial 4. ☐ Road 5. ☐ Bridge 6. ☐ Utility 7. ☐ Contouring, Landscaping

8. ☐ Other (Please list) _____

V. BEST MANAGEMENT PRACTICES

Identify proposed Best Management Practices (BMPs) to reduce pollutants in storm water discharges: (Check all that apply)

1. ☐ Silt Fences 2. ☒ Sediment Pond 3. ☐ Seeding/Preservation of Vegetation 4. ☐ Mulching/Geotextiles 5. ☐ Check Dams 6. ☒ Structural Controls

(Berms, Ditches, etc.)

7. ☐ Other (Please list) _____

VI. ADDITIONAL INFORMATION REQUIRED

A storm water pollution prevention plan has been

prepared for this site and is to the best of my knowledge in Compliance with State

Project Start Date: 02/01/05 Completion Date: 08/01/05 Estimated Area to be Disturbed (in Acres): 1.5 and/or Local Sediment and Erosion Plans and Requirements. (Y or N) Y (A pollution prevention plan is required to be on hand before submittal of the NOI)

VII. CERTIFICATION: I certify under penalty of law that I have read and understand the *Part I.B.* eligibility requirements for coverage under the general permit for storm water discharges from construction activities.

I further certify that to the best of my knowledge, all discharges and BMPs that have been scheduled and detailed in a pollution prevention plan will satisfy requirements of *Part I.B.*, and *Part III.* of this permit.

I understand that continued coverage under this storm water general permit is contingent upon maintaining eligibility as provided for in *Part I.B.*

I also certify under penalty of law that this document and all attachments were prepared under the direction or supervision of those who have placed their signature below, in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name (of responsible person for the main operator from first page):

Date:

KEITH THOMPSON - V.P. COVOL ENGINEERED FUELS, LC

Signature: _____

Print Name (of responsible person for the 1st co-permittee from first page):

Date:

Signature: _____

Print Name (of responsible person for the 2nd co-permittee from first page):

Date:

Signature: _____

Print Name (of responsible person for 3rd co-permittee from first page):

Date:

Signature: _____

Amount of Permit Fee Enclosed: \$100.00

APPENDIX C

**NOI-MULTI-SECTOR GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES**

STATE OF UTAH, DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER QUALITY

288 North 1460 West, P.O. Box 144870, Salt Lake City, Utah 84114-4870 (801)538-6146

NOI

Notice of Intent (NOI) for Coverage Under the UPDES General Multi-Sector Storm Water Permit for Discharges Associated with Industrial Activity, Permit No. UTR000000. INSTRUCTIONS ON BACK PAGE

Submission of this Notice of Intent constitutes notice that the party identified in Section I of this form intends to be authorized by a UPDES permit issued for storm water discharges associated with industrial activity in the State of Utah. Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit. ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM. A different NOI form is provided for construction activities disturbing over 5 acres.

I. FACILITY OPERATOR INFORMATION

Name: COVOL ENGINEERED FUELS, LC

Phone: 801-984-9400

Address: 10653 S. RIVERFRONT PARKWAY

Status of Owner/Operator: P

City: SOUTH JORDAN

State: U T

Zip: 84095

Facility Contact Person: KEITH THOMPSON

Phone: 801-984-9400

Facility Contact Person Title: VP COVOL ENGINEERED FUELS, LC

II. FACILITY SITE/LOCATION INFORMATION

Is the facility located
on Indian Lands?
(Y or N) N

Name: COVOL ENGINEERED FUELS, LC

Address: 1865 WEST RIDGE ROAD

County: CARBON

City: WELLINGTON

State: UT

Zip: 84542

Latitude: 3 9 3 1 2 7 Longitude: 1 1 0 4 5 5 8 Quarter: S E

Section: 1 4 Township: 1 5 5 Range: 1 0 E

Site Contact Person: KEITH THOMPSON

Phone: 801-984-9400

Site Contact Person Title: C E O

III. SITE ACTIVITY INFORMATION

Name of Municipality which Operates the Storm Sewer System: _____

Receiving Water Body: PRICE RIVER

Is there existing quantitative storm water discharge data?

NO

S

Is the facility required to do analytical monitoring? (See permit conditions Part V. and Sector monitoring requirements.)

Yes

Is the facility required to do visual monitoring? (See permit conditions near the end of applicable Sector(s); Appendix A to AD)

Yes

Is the facility required to submit monitoring data or retain it on site?

(Submit) ☒

(Retain on site)



Is This a New Facility, or is it an Existing Facility?

(New) ☒

(Existing)



If This is an Existing Facility, and the Start-up Date was After Oct. 1992, Please Fill in the Start-up Month: Month (Jan, Feb., etc.): _____ Year: _____

SIC or Designated Activity Code: Primary: 12 2nd: _____ 3rd: _____ 4th: _____

If You Have Other Existing UPDES Permits, Enter Permit #'s: _____

IV. SECTOR IDENTIFICATION: The General Multi-Sector Permit covers all industrial activity that is required by law to be covered by a storm water permit. On the following pages the sectors are listed with a description of the industrial activity that is covered by that sector. Please check each sector that covers industrial activities which occur at your site. The sector covered in Appendix AD is the catch-all sector and should only be used if positively no other sector covers your industrial activity. If you should select AD, please call the Storm Water Coordinator at DWQ to discuss the need for choosing Sector AD (Non-Classified Facilities).

IV. SECTOR IDENTIFICATION: The General Multi-Sector Permit covers all industrial activity that is required by law to be covered by a storm water permit. On the following pages the sectors are listed with a description of the industrial activity that is covered by that sector. Please check each sector that covers industrial activities which occur at your site. The sector covered in Appendix AD is the catch-all sector and should only be used if positively no other sector covers your industrial activity. If you should select AD, please call the Storm Water Coordinator at DWQ to discuss the need for choosing Sector AD (Non-Classified Facilities).

- ☐ **A. Timber Products Facilities** -- establishments [generally classified under Standard Industrial Classification (SIC) Major Group 24] that are engaged in cutting timber and pulpwood, merchant sawmills, lath mills, shingle mills, cooperage stock mills, planing mills, and plywood and veneer mills engaged in producing lumber and wood basic materials; and establishments engaged in wood preserving or in manufacturing finished articles made entirely of wood or related materials, except for wood kitchen cabinet manufacturers (SIC Code 2434), which are addressed under sector W.
- ☐ **B. Paper and Allied Products Manufacturing Facilities** -- facilities engaged in the manufacture of pulps from wood and other cellulose fibers and from rags; the manufacture of paper and paperboard into converted products, such as paper coated off the paper machine, paper bags, paper boxes and envelopes; and establishments primarily engaged in manufacturing bags of plastic film and sheet. These facilities are commonly identified by Standard Industrial Classification (SIC) Major Group 26.
- ☐ **C. Chemical and Allied Products Manufacturing Facilities** -- 1) Basic industrial inorganic chemicals (including SIC 281), 2) Plastic materials and synthetic resins, synthetic rubbers, and cellulosic and other humanmade fibers, except glass (including SIC 282), 3) Soap and other detergents and in producing glycerin from vegetable and animal fats and oils; specialty cleaning, polishing, and sanitation preparations; surface active preparations used as emulsifiers, wetting agents, and finishing agents, including sulfonated oils; and perfumes, cosmetics, and other toilet preparations (including SIC 284), 4) Paints (in paste and ready-mixed form); varnishes; lacquers; enamels and shellac; putties, wood fillers, and sealers; paint and varnish removers; paint brush cleaners; and allied paint products (including SIC 285), 5) Industrial organic chemicals (including SIC 286), 6) Nitrogenous and phosphatic basic fertilizers, mixed fertilizer, pesticides, and other agricultural chemicals (including SIC 287), 7) Industrial and household adhesives, glues, caulking compounds, sealants, and linoleum, tile, and rubber cements from vegetable, animal, or synthetic plastics materials; explosives; printing ink, including gravure ink, screen process ink, and lithographic; miscellaneous chemical preparations, such as fatty acids, essential oils, gelatin (except vegetable), sizes, bluing, laundry soaps, writing and stamp pad ink, industrial compounds, such as boiler and heat insulating compounds, metal, oil, and water treatment compounds, waterproofing compounds, and chemical supplies for foundries (including facilities with SIC 289), 8) Ink and paints, including china painting enamels, india ink, drawing ink, platinum paints for burnt wood or leather work, paints for china painting, artists' paints and artists' water colors (SIC 3952, limited to those listed; for others see sector Y.), 9) Medicinal chemicals and pharmaceutical products, including the grading grinding and milling of botanicals (including SIC 283).
- ☐ **D. Asphalt Paving, Roofing Materials, and Lubricant Manufacturing Facilities** -- 1) facilities engaged in manufacturing asphalt paving and roofing materials, including those facilities commonly identified by Standard Industrial Classification (SIC) codes 2951 and 2952, 2) portable asphalt plant facilities (also commonly identified by SIC code 2951), 3) facilities engaged in manufacturing lubricating oils and greases, including those facilities classified as SIC code 2992. Not covered are: 1) petroleum refining facilities, including those that manufacture asphalt or asphalt products and that are classified as SIC code 2911 (see sector I.), 2) oil recycling facilities (see sector N.), and 3) fats and oils rendering (see sector U.).
- ☐ **E. Glass, Clay, Cement, Concrete, and Gypsum Product Manufacturing Facilities** -- manufacturing flat, pressed, or blown glass or glass containers; manufacturing hydraulic cement; manufacturing clay products including tile and brick; manufacturing of pottery and porcelain electrical supplies; manufacturing concrete products; manufacturing gypsum products; nonclay refractories; and grinding or otherwise treating minerals and earths. This section generally includes the following types of manufacturing operations: flat glass, (SIC code 3211); glass containers, (SIC code 3221); pressed and blown glass, not elsewhere classified, (SIC code 3229); glass products made of purchased glass (SIC code 3231) where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water; hydraulic cement, (SIC code 3241); brick and structural clay tile, (SIC code 3251); ceramic wall and floor tile, (SIC code 3253); clay refractories, (SIC code 3255); structural clay products not elsewhere classified (SIC code 3259); vitreous china plumbing fixtures, and china and earthen ware fittings and bathroom accessories (SIC code 3261); vitreous china table and kitchen articles (SIC code 3262); fine earthenware table and kitchen articles (SIC code 3263); porcelain electrical supplies, (SIC code 3264); pottery products, (SIC code 3269); concrete block and brick, (SIC code 3271); concrete products, except block and brick (SIC code 3272); ready-mix concrete, (SIC code 3273); lime (SIC code 3274); gypsum products, (SIC code 3275); cut stone and stone products (SIC code 3281); abrasive products (SIC code 3291); asbestos products (SIC code 3292); minerals and earths, ground or otherwise treated, (SIC code 3295); mineral wool (SIC code 3296); nonclay refractories, (SIC code 3297); and nonmetallic mineral products not elsewhere classified (SIC code 3299).
- ☐ **F. Primary Metals Facilities** -- coking operations, sintering plants, blast furnaces, smelting operations, rolling mills, casting operations, heat treating, extruding, drawing, or forging of all types of ferrous and nonferrous metals, scrap, and ore. Coverage includes the following types of facilities: 1) Steel works, blast furnaces, and rolling and finishing mills including: steel wiredrawing and steel nails and spikes; cold-rolled steel sheet, strip, and bars; and steel pipes and tubes (SIC code 331), 2) Iron and steel foundries, including: gray and ductile iron, malleable iron, steel investment, and steel foundries not elsewhere classified (SIC code 332), 3) Primary smelting and refining of nonferrous metals, including: primary smelting and refining of copper, and primary production of aluminum (SIC code 333), 4) Secondary smelting and refining of nonferrous metals (SIC code 334), 5) Rolling, drawing, and extruding of nonferrous metals, including: rolling, drawing, and extruding of copper; rolling, drawing, and extruding of nonferrous metals, except copper and aluminum; and drawing and insulating of nonferrous wire (SIC code 335), 6) Nonferrous foundries (castings), including: aluminum die-castings, nonferrous die-castings, except aluminum, aluminum foundries, copper foundries, and nonferrous foundries, except copper and aluminum (SIC code 336), 7) Miscellaneous primary metal products, not elsewhere classified, including: metal heat treating, and primary metal products, not elsewhere classified (SIC code 339).
- ☐ **G. Metal Mines (Ore Mining and Dressing)** -- active and inactive metal mining and ore dressing facilities [Standard Industrial Classification (SIC) Major Group 10] if the storm water has come into contact with, or is contaminated by, any overburden, raw material, intermediate product, finished product, byproduct, or waste product located on the site of the operation. SIC Major Group 10 includes establishments primarily engaged in mining, developing mines, or exploring for metallic minerals (ores) and also includes all ore dressing and beneficiating operations, whether performed at mills operated in conjunction with the mines served or at mills, such as custom mills, operated separately. For the purposes of this part of the permit, the term "metal mining" includes all ore mining and/or dressing and beneficiating operations, whether performed at mills operated in conjunction with the mines served or at mills, such as custom mills, operated separately. All storm water discharges from inactive metal mining facilities and the storm water discharges from the following areas of active, and temporarily inactive, metal mining facilities are the only discharges covered by this section of the permit: topsoil piles; offsite haul/access roads if off active area; onsite haul roads if not constructed of waste rock or if spent ore and mine water is not used for dust control; runoff from tailings dams/dikes when not constructed of waste rock/tailings and no process fluids are present; concentration building, if no contact with material piles; mill site, if no contact with material piles; chemical storage area; docking facility, if no excessive contact with waste product; explosive storage; reclaimed areas released from reclamation bonds prior to December 17, 1990; and partially/inadequately reclaimed areas or areas not released from reclamation bonds. Not covered are: 1) active metal mining facilities that are subject to the effluent limitation guidelines for the Ore Mining and Dressing Point Source Category (40 CFR Part 440). Coverage under this permit does not include adit drainage or contaminated springs or seeps at active facilities, temporarily inactive facilities, or inactive facilities. Also see permit conditions, Limitations on Coverage, Part I.B.3. 2) Storm water discharges associated with an industrial activity that the Executive Secretary has determined to be, or may reasonably be expected to be, contributing to a violation of a water quality standard, 3) Storm water discharges associated with industrial activity from inactive mining operations occurring on Federal lands where an operator cannot be identified.
- ☐ **H. Coal Mines and Coal Mine-Related Facilities** -- coal mining-related areas (SIC Major Group 12) if they are not subject to effluent limitations guidelines under 40 CFR Part 434. Not covered are: inactive mining activities occurring on Federal lands where an operator cannot be identified.
- ☐ **I. Oil and Gas Extraction Facilities** -- oil and gas facilities listed under Standard Industrial Classification (SIC) Major Group 13 which are required to be permitted under UAC R317-8-3.8(2)(a)3. These include oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with any overburden raw material, intermediate products, finished products, by-products or waste products located

on the site of such operations." Industries in SIC Major Group 13 include the extraction and production of crude oil, natural gas, oil sands and shale; the production of hydrocarbon liquids and natural gas from coal; and associated oil field service, supply and repair industries. This section also covers petroleum refineries listed under SIC code 2911. Contaminated storm water discharges from petroleum refining or drilling operations that are subject to nationally established BAT or BPT guidelines found at 40 CFR 419 and 435 respectively are not included. [Note that areas eligible for coverage at petroleum refineries will be very limited because the term "contaminated runoff," as defined under 40 CFR 419.11, includes "... runoff which comes into contact with any raw material, intermediate product, finished product, by-product or waste product located on petroleum refinery property." Areas at petroleum refineries which may be eligible for permit coverage, provided discharges from these areas are not co-mingled with "contaminated runoff," include: vehicle and equipment storage, maintenance and refueling areas. Most areas at refineries will not be eligible for coverage including: raw material, intermediate product, by-product, waste material, chemical, and material storage areas; loading and unloading areas; transmission pipelines, and, processing areas.] Not covered are: inactive oil and gas operations occurring on Federal lands where an operator cannot be identified are not covered by this permit.

☐ J. Mineral Mining and Processing Facilities – active and inactive mineral mining and processing facilities (generally identified by Standard Industrial Classification (SIC) Major Group 14). Not covered are: 1) facilities associated with industrial activity which are subject to an existing effluent limitation guideline (40 CFR Part 436), 2) inactive mineral mining activities occurring on Federal lands where an operator cannot be identified are not eligible for coverage under this permit.

☐ K. Hazardous Waste Treatment Storage or Disposal Facilities – facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under subtitle C of RCRA. [Disposal facilities that have been properly closed and capped, and have no significant materials exposed to storm water, are considered inactive and do not require permits (UAC R317-8-3.8(c)).]

☐ L. Landfills and Land Application Sites – waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes. Open dumps are solid waste disposal units that are not in compliance with State/Federal criteria established under RCRA Subtitle D. Not covered are: inactive landfills, land application sites, and open dumps occurring on Federal lands where an operator cannot be identified.

☐ M. Automobile Salvage Yards – facilities engaged in dismantling or wrecking used motor vehicles for parts recycling or resale and for scrap (SIC Code 5015).

☐ N. Scrap Recycling and Waste Recycling Facilities – facilities that are engaged in the processing, reclaiming and wholesale distribution of scrap and waste materials such as ferrous and nonferrous metals, paper, plastic, cardboard, glass, animal hides (these types of activities are typically identified as SIC code 5093). Facilities that are engaged in reclaiming and recycling liquid wastes such as used oil, antifreeze, mineral spirits, and industrial solvents (also identified as SIC code 5093) are also covered under this section. Separate permit requirements have been established for recycling facilities that only receive source-separated recyclable materials primarily from non-industrial and residential sources (also identified as SIC 5093) (e.g., common consumer products including paper, newspaper, glass, cardboard, plastic containers, aluminum and tin cans). This includes recycling facilities commonly referred to as material recovery facilities (MRF).

☐ O. Steam Electric Power Generating Facilities – steam electric power generating facilities, including coal handling areas. Non-storm water discharges subject to effluent limitations guidelines are not covered by this permit. Storm water discharges from coal pile runoff subject to numeric limitations are eligible for coverage under this permit, but are subject to the limitations established by 40 CFR 423. Not covered are: ancillary facilities such as fleet centers, gas turbine stations, and substations that are not contiguous to a steam electric power generating facility are not covered by this permit. Heat capture co-generation facilities are not covered by this permit; however, dual fuel co-generation facilities are included.

☐ P. Vehicle Maintenance or Equipment Cleaning areas at Motor Freight Transportation Facilities, Passenger Transportation Facilities, Petroleum Bulk Oil Stations and Terminals, the United States Postal Service, or Railroad Transportation Facilities – ground transportation facilities and rail transportation facilities (generally identified by Standard Industrial Classification (SIC) codes 40, 41, 42, 43, and 5171), that have vehicle and equipment maintenance shops (vehicle and equipment rehabilitation, mechanical repairs, painting, fueling and lubrication) and/or equipment cleaning operations are eligible for coverage under this section. Also covered under this section are facilities found under SIC code 4221-4225 (public warehousing and storage) that do not have vehicle and equipment maintenance shops and/or equipment cleaning operations but have areas (exclusive of access roads and rail lines) where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products or industrial machinery are exposed to storm water.

☐ Q. Vehicle Maintenance Areas and Equipment Cleaning Areas of Water Transportation Facilities – water transportation facilities that have vehicle (vessel) maintenance shops and/or equipment cleaning operations. The water transportation industry includes facilities engaged in foreign or domestic transport of freight or passengers in deep sea or inland waters; marine cargo handling operations; ferry operations; towing and tugboat services; and marinas (facilities commonly identified by SIC code Major Group 44).

☐ R. Ship or Boat Building and Repair Yards – facilities engaged in ship building and repairing and boat building and repairing (SIC code 373).

☐ S. Vehicle Maintenance Areas, Equipment Cleaning Areas or Airport Deicing Operations located at Air Transportation Facilities – establishments and/or facilities including airports, air terminals, air carriers, flying fields, and establishments engaged in servicing or maintaining airports and/or aircraft (generally classified under Standard Industrial Classification (SIC) code 45) which have vehicle maintenance shops, material handling facilities, equipment cleaning operations or airport and/or aircraft deicing/anti-icing operations. For the purpose of this permit, the term "deicing" is defined as the process to remove frost, snow, or ice and "anti-icing" is the process which prevents the accumulation of frost, snow, or ice. Only those portions of the facility or establishment that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, or deicing/anti-icing operations are addressed under this section.

☐ T. Wastewater Treatment Works – treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including lands dedicated to the disposal of sewage sludge that are located within the confines of the facility with a design flow of 1.0 MGD or more, or required to have an approved pretreatment program under 40 CFR Part 403.

☐ U. Food and Kindred Products Facilities – food and kindred products processing facilities (commonly identified by Standard Industrial Classification (SIC) code 20), including: meat products; dairy products; canned, frozen and preserved fruits, vegetables, and food specialties; grain mill products; bakery products; sugar and confectionery products; fats and oils; beverages; and miscellaneous food preparations and kindred products and tobacco products manufacturing (SIC Code 21), except for storm water discharges identified under paragraph I.B.3. where industrial plant yards; material handling sites; refuse sites; sites used for application or disposal of process wastewaters; sites used for storage and maintenance of material handling equipment; sites used for residential treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; and storage areas for raw material and intermediate and finished products are exposed to storm water and areas where industrial activity has taken place in the past and significant materials remain. For the purposes of this paragraph, material handling activities include the storage, loading, and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product, or waste product.

☐ **V. Textile Mills, Apparel and other Fabric Product Manufacturing Facilities** -- Textile Mill Products, of and regarding facilities and establishments engaged in the preparation of fiber and subsequent manufacturing of yarn, thread, braids, twine, and cordage, the manufacturing of broad woven fabrics, narrow woven fabrics, knit fabrics, and carpets and rugs from yarn; processes involved in the dyeing and finishing of fibers, yarn fabrics, and knit apparel; the integrated manufacturing of knit apparel and other finished articles of yarn; the manufacturing of felt goods (wool), lace goods, nonwoven fabrics; miscellaneous textiles, and other apparel products (generally described by SIC codes 22 and 23). This section also covers facilities engaged in manufacturing finished leather and artificial leather products (SIC 31, except 3111).

☐ **W. Furniture and Fixture Manufacturing Facilities** -- facilities involved in the manufacturing of: wood kitchen cabinets (generally described by SIC code 2434); household furniture (generally described by SIC code 251); office furniture (generally described by SIC code 252); public buildings and related furniture (generally described by SIC code 253); partitions, shelving, lockers, and office and store fixtures (generally described by SIC code 254); and miscellaneous furniture and fixtures (generally described by SIC code 259).

☐ **X. Printing and Publishing Facilities** -- newspaper, periodical, and book publishing or publishing and printing (SIC Codes 2711-2731); book printing (SIC Code 2732); miscellaneous publishing (SIC Code 2741); commercial printing, lithographic (SIC Code 2752); commercial printing, gravure (SIC Code 2754); commercial printing, not elsewhere classified (SIC Code 2759); manifold business forms, greeting cards, bankbooks, looseleaf binders and devices, bookbinding and related work, and typesetting (SIC Codes 2761-2791); and, plate making and related services (SIC Code 2796).

☐ **Y. Rubber and Miscellaneous Plastic Product Manufacturing Facilities** -- rubber and miscellaneous plastic products manufacturing facilities (SIC major group 30) and miscellaneous manufacturing industries, except jewelry, silverware, and plated ware (SIC major group 39, except 391).

☐ **Z. Leather Tanning and Finishing Facilities** -- leather tanning, currying and finishing (commonly identified by Standard Industrial Classification (SIC) code 3111). Discharges from facilities that make fertilizer solely from leather scraps and leather dust are also covered under this section.

☐ **AA. Facilities That Manufacture Metal Products including Jewelry, Silverware and Plated Ware** -- fabricated metals industry listed below, except for electrical related industries: fabricated metal products, except machinery and transportation equipment, SIC 34, and jewelry, silverware, and plated ware (SIC Code 391).

☐ **AB. Facilities That Manufacture Transportation Equipment, Industrial or Commercial Machinery** -- transportation equipment, industrial or commercial machinery manufacturing facilities (commonly described by SIC Major Group 35 except SIC 357, and SIC Major Group 37, except SIC 373). Common activities include: industrial plant yards; material handling sites; refuse sites; sites used for application or disposal of process wastewaters; sites used for storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas for raw material and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water.

☐ **AC. Facilities That Manufacture Electronic and Electrical Equipment and Components, Photographic and Optical Goods** -- facilities that manufacture: electronic and other electrical equipment and components, except computer equipment (SIC major group 36); measuring, analyzing, and controlling instruments; photographic, medical and optical goods; watches and clocks (SIC major group 38) and computer and office equipment (SIC code 357).

☐ **AD. Non-Classified Facilities** -- facilities that meet the definition of storm water associated with industrial activity (UAC R317-8-3.8(6)(c) & (d), except for construction activities as defined under UAC R317-8-3.8(6)(d)10.) but, can not be classified in another industrial sector (i.e., sectors A to AC), and are not excluded from permit coverage elsewhere in this permit; or, the Executive Secretary has designated as needing a storm water permit under UAC R317-8-3.8(1)(a)5. Should conditions at a facility covered by this section change and industrial activities in another section(s) contained in sectors A to AC apply, the facility shall comply with any and all applicable monitoring and pollution prevention plan requirements of the other section(s) in addition to those contained in this section. The monitoring and pollution prevention plan terms and conditions of this permit are additive for industrial activities being conducted at the same industrial facility (co-located industrial activities). The operator of the facility shall determine which monitoring and pollution prevention plan section(s) of this permit (if any) are applicable to the facility.

V. CERTIFICATION: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name: KEITH THOMPSON

Date: _____

Signature: _____

Amount of Permit Fee Enclosed: \$ 200.00

APPENDIX D

GUIDELINES ASSOCIATED WITH STORM WATER DISCHARGES

Guidelines Associated with Storm Water Discharge from Construction Activities

Prevent a mixture of non storm water discharge with construction storm water discharge.

All discharges under this permit must be made up entirely of storm water, unless the mixed discharge meets UPDES standards which include TDS, TSS, pH, Total Iron. Water discharges may not contain detergents, oils, greases, toxic or hazardous materials, or solvents.

If storm water containing any of the following components is released from the site, the plant manager or foreman must be **notified immediately**.

Detergents
Oils
Greases
Toxic or hazardous materials, or
Solvents
Concrete
Asphalt

The plant manager must immediately notify the Division of Water Quality of the release, **if the release is in excess of established reportable quantities.**

(801) 538-6146 OR (801) 536-4123 (24 Hour Number)

Erosion and Sediment Controls

Erosion and Sediment Controls must be constructed and maintained during construction activities.

Sediment will be removed at a sufficient frequency to minimize offsite impacts.

Sediment will be removed from berms and ponds when the designed capacity has been reduced by 50%.

Stabilization Practices

Preserve existing vegetation.

Incorporate seeding, mulching, geotextiles, and other appropriate measures to stabilize disturbed soils.

Divert flows from exposed soils with silt fences, earth dikes, swales, sediment traps or basins.

Inspections

Qualified personnel will inspect disturbed areas of the construction site at least once every fourteen days (14), before anticipated storm events and within 24 hours of a storm event that is 0.5 inches or greater. Unless site is in an **arid period**, then inspections shall be conducted at least **once every month**.

Inspections shall include:

- Drainage Systems
- Sediment Control Measures
- Erosion
- Offsite Sediment Tracking by Vehicles

Inspection Reports will include:

- Inspectors Name, Date of Inspection, Major Observations,
- Actions Taken to Repair Sediment Structures, Incidents of Non
- Compliance

Reports will be retained for three years (3) after the completion of the construction project.

APPENDIX E

**NOT-NOTICE OF TERMINATION FOR STORM WATER DISCHARGES
ASSOCIATED WITH CONSTRUCTION ACTIVITY**

STATE OF UTAH, DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER QUALITY
288 North 1460 West, P.O. Box 144870, Salt Lake City, Utah 84114-4870

NOT

Notice of Termination (NOT) for Storm Water Discharges Associated with Construction Activity
Under the UPDES General Permit No. UTR100000. SEE REVERSE FOR INSTRUCTIONS

Submission of this Notice of Termination constitutes notice that the operator identified in Section II of this form is no longer authorized to discharge storm water associated with industrial activity under the UPDES program. ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM.

I. Permit Information

UPDES Storm Water General Permit Number: UTR101090

Check Here if You are No Longer the Operator of the Facility: ☒ Check Here if the Storm Water Discharge is Being Terminated:

II. Facility Operator Information

Name: TERRA SYSTEMS INC

Phone: 435-637-2470

Address: P. O. BOX 1673

City: PRICE State: UT Zip: 84501

III. Facility Site/Location Information

Name: TERRA SYSTEMS INC

Address: 1865 WEST RIDGE ROAD County: CARBON

City: WELLINGTON State: UT Zip: 84542

Latitude: 39 31 27 Longitude: 110 45 58

IV. Certification: I certify under penalty of law that either: a) all storm water discharges associated with construction activity from the portion of the identified facility where I was an operator have ceased or have been eliminated or b) I am no longer an operator at the construction site and a new operator has assumed operational control for those portions of the construction site where I previously had operational control. I understand that by submitting this notice of termination, I am no longer authorized to discharge storm water associated with construction activity under this general permit, and that discharging pollutants in storm water associated with construction activity to waters of the State is unlawful under the State of Utah Water Quality Act where the discharge is not authorized by a UPDES permit. I also understand that the submittal of this notice of termination does not release an operator from liability for any violations of this permit or the Water Quality Act.

Print Name: CLAYTON TIMOTHY

Date:

Signature: CLAYTON TIMOTHY

Signature: For Terra Systems, Inc.

Jay K. Mant

12/30/04

BRC Wellington LLC
Dry-Coal Cleaning Facility

Permit Application
October 2013

APPENDIX 7-5

Spill Prevention, Control and
Countermeasure Plan

COVOL Engineered Fuels, LC
Dry-Coal Cleaning Facility

Permit Application
July 2009

APPENDIX 7-5

Spill Prevention, Control and Countermeasure Plan

Spill Prevention Control and Countermeasure Plan

COVOL ENGINEERED FUELS, LC
1865 WEST RIDGE ROAD
WELLINGTON, UT 84542

ORIGINAL DATE OF PLAN/P.E. CERTIFICATION: November 2005

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1. FACILITY OWNER AND OPERATOR

A. Corporate Headquarters, Address, and Telephone:

Headwaters Incorporated
10653 So. River Front Parkway, Suite 300
Salt Lake City, Utah 84095
(801) 984-9400

B. Facility Operator, Address, and Telephone:

Covol Engineered Fuels, LC
1865 West Ridge Road
Wellington, UT 84542
Telephone: (435) 613-1631

2. FACILITY CONTACT(S):

<u>Name</u>	<u>Title</u>	<u>Telephone</u>
Mike Gipson	Plant Manager	(435) 613-1631

3. FACILITY CONFORMANCE [112.7(a)]:

A. Conformance [112.7 (a)(1)]

The facility intends to comply with the requirements of this Section. Details regarding the compliance with the requirements of Section 112.7 (a) are contained in this SPCC Plan.

The facility is new as of November 2005 and has not experienced any leaks or spill events. Should the facility experience spills they will be documented, reported according to applicable regulations and discussed in future updates of this plan.

B. Deviation from Requirements [112.7 (a)(2)]

The Facility does not plan to deviate from the requirements of Section 112.7 (a); therefore no variance is being requested.

C. Facility Description [112.7 (a)(3)]

Covol Engineered Fuels, LC operates a coal cleaning facility at 1865 West Ridge Road, Wellington, Utah. The facility produces coal-related products for commercial sale.

The facility has an area for feedstock handling and storage, an area containing coal cleaning equipment and an area for finished product storage. The facility is fenced with locked gate access.

In order to facilitate processing operations an aboveground storage tank within a secondary containment structure has been installed at a centralized location. Equipment maintenance needs will be taken care of offsite. Used oil will not be accumulated on site. There are no

underground oil storage tanks (UST) at this facility. The overall facility layout is shown in Figure 3-1, Facility Site Map, including the petroleum product storage area.

Facility Product Storage Inventory (Typical Volumes) [112.7(a)(3)(i)]:

ABOVEGROUND STORAGE

<u>Tank ID No.</u>	<u>Contents</u>	<u>Volume (gallons)</u>
Tank No. 1	Diesel Fuel	8,500
Drums/Containers (number varies)	Oil and Grease	5 to 55 per drum/container
Total Fixed Storage Volume:		8,500 gallons
Variable Storage Volume:		Up to 500 gallons
Total Storage Volume:		9,000 gallons

Discharge Prevention Measures [112.7(a)(3)(ii)]

A secondary containment has been constructed for the single diesel storage tank and another for the storage of various sized drums and containers, to prevent any spilled petroleum products in storage from reaching water of the United States. In addition, berms, culverts, ditches and detention ponds constructed to control stormwater runoff would also prevent oil from leaving the site. See Section 13 for loading and unloading procedures.

Discharge and Drainage Controls [112.7(a)(3)(iii)]

The nearest water body is the Price River, approximately two miles east of the Facility.

Berms, drainage ditches, and culverts direct operational area drainage into detention ponds. These detention ponds have the potential to receive and hold operational drainage and an unexpected release of oil from equipment or the oil storage areas. Figure 3-1 shows the facility layout and surface drainage direction of flow.

The Facility has been designed whereby drainage from undisturbed watershed areas is diverted away from the operational area with the use of berms, culverts, and diversion ditches.

Countermeasures [112.7(a)(3)(iv)]

Ideally, spill prevention measures would prevent a spill from occurring at the facility. However, a spill may still occur. Using the procedures listed below minor spills that are confined to small areas will be cleaned up as part of the ordinary operating procedure

Procedures to follow in the event of a spill:

- Terminate source of flow - plugging and/or closing valve(s).
- Confine spill - berming, and trenching.
- Prevent from entering waterway.
- Notify Plant Manager or Plant Supervisor.
- Clean up - Absorb liquid with absorptive material before removing contaminated soil and

other media.

- Disposal - Dispose of absorbent material and contaminated media only after conferring with the Plant Manager.
- Report – Complete the facility Spill Reporting Form (Appendix E), report clean-up activities identify cause and determine remedial action. Evaluate whether or not the spill must be reported to EPA Region 8 (for two or more spills in excess of 42 gallons each within a 12 month period or a single spill in excess of 1,000 gallons).

Direct Countermeasures

Direct countermeasures outlined below have been designed to mitigate the possibility of oil reaching a waterway. Employees will undertake these countermeasures immediately and especially when there is danger of oil entering a waterway or in case of a spill of significant size. Countermeasures include the necessary action to terminate the source of the flow of oil.

Dig a trench or dike, build a berm, use appropriate oil-absorbent materials or do whatever else is necessary to confine the area or to stop oil from entering a waterway. After this is accomplished, immediately initiate the reporting procedure. After the countermeasures and reporting functions have been accomplished, cleanup will begin as detailed below:

Who to Contact for Cleanup

In the case of small spill less than 10 gallons and confined to the facility area, the cleanup operation will be conducted by Plant employees under the direction of the Plant Manager.

In the case of a spill over 10 gallons, the Plant Manager and the Regional Environmental Manager must be notified. If the Plant Manager decides outside help is required the Plant Manager can contact one of the following contactors.

Nielson Construction
750 East Ridge Road
Price, Utah 84501
(435) 636-8514

Rocky Mountain Excavation
6065 East North Coal Creek Road
Wellington, Utah 84542
(435) 637-9322

Cleanup Materials and Equipment

Spill control equipment at the facility includes absorbent pads and booms, granular absorbent material, shovels, and various earth moving equipment. A spill kit containing absorbent materials will be placed adjacent to the containment area.

Clean-up Procedures

For a spill on gravel or soil, it may be possible to absorb some of the liquid with absorptive material before removing the gravel or soil. All contaminated gravel or soil must be removed

and discarded properly.

A spill on solid surfaces may be collected with absorptive materials and then cleaned thoroughly with rags. Sufficient quantities of absorbent material will be maintained adjacent to the containment area and other cleanup equipment will be available at the facility to accomplish cleanup.

Disposal of Contaminated Materials [112.7(a)(3)(v)]

When cleaning up diesel or oil, all spent cleanup material such as rags, absorbents, blankets, booms, and etc., must be disposed of in accordance with company's approved procedures.

Contact List and Phone Numbers [112.7(a)(3)(vi)]

When a petroleum spill in excess of 10 gallons is detected the following company personnel will be notified:

- Plant Manager, (435) 613-1631
- Plant Supervisor, (435) 613-1631
- Steven Van Ootegham, Regional Environmental Manager, (801) 984-3777

Reportable Spill Under 110 or 112

According to SPCC rule Section 112.4 (a) facilities that store, transfer, use or consume oil and oil productions (112.1(b) are accountable to report spills or releases of oil that enters into or upon the navigable water of the United States or adjoining shorelines in harmful quantities.

A spill becomes reportable to the appropriate regulatory agency whenever a SPCC regulated facility has a:

(1) discharge of more than 1,000 U.S. gallons of oil in a single discharge as described in 112.1(b)

or

(2) discharge of more than 42 gallons of oil as described in 112.1(b) in each of 2 discharges within any 12-month period.

The following agencies will be verbally notified in the event of a spill of oil that may be harmful as defined in 40 CFR 110 and 112. Verbal notification to the agencies must be made within 24 hours of a legally reportable spill. In Utah, legally reportable spills are reported to:

U.S. Environmental Protection Agency
Denver Place, Suite 1300
999 18th Street
Denver, CO 80202-2413
Permits and Technical Support Branch

(800) 227-8917

Utah Division of Environmental Quality
Division of Environmental Response and Remediation
168 North 1950 West
P.O. Box 144840
Salt Lake City, UT 84114-4840
(801) 536-4123

These agencies may require follow-up written reports depending on the magnitude and quantity of the spill. The Regional Environmental Manager will be responsible for coordinating agency(s) notification and correspondence with regulatory agency(s) following an incident.

The National Response Center requires notification if a discharge of oil causes a discoloration or "sheen" on the surface of water, violates water quality standards or causes a sludge or emulsion to be deposited beneath the surface or on the adjoining shorelines.

National Response Center (800) 424-8802 or (202)267-2675

A spill is defined as a discharge of oil in harmful quantities into navigable water of the United States or adjoining shorelines. (40CFR 112.2) Harmful Quantity means any discharge of oil into or upon waters of the United States that may be harmful to the public health or welfare of the United State, including discharges of oil that violate applicable water quality standards or cause a film or sheen upon or discoloration of the surface of the water or adjoining shoreline or cause sludges or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines. (40 CFR 110.3).

Not Reportable Under 110 or 112

Small spills not reportable under 40 CFR 110 and 112 will be cleaned up as noted above.

D. Reporting Procedure [112.7 (a)(4)]

A spill becomes reportable to the appropriate regulatory agency whenever a SPCC regulated facility has a:

(1) discharge of more than 1,000 U.S. gallons of oil in a single discharge as described in 112.1(b)

or

(2) discharge of more than 42 gallons of oil as described in 112.1(b) in each of 2 discharges within any 12-month period.

When reporting discharges, the following information should be provided to the agencies:

The Company name, address and phone number.

Responsible company/person, including their address and telephone number.
Date, time, and type of incident (e.g., discharge or fire).
Quantity and type of material discharged.
Address of facility.
Waterways affected, if any, including amount of hazardous substance reaching water.
Description of circumstances causing discharge.
Description of methods used to stop and contain spill.
Describe actions used to remove and mitigate the effects of the discharge.
Description and estimate of any third party damages.
If applicable, any injuries associated with spill.
Procedures, methods, and precautions instituted to prevent a recurrence.
And the estimated quantity and disposition of recovered materials, if any.
Other pertinent information specific to the discharge.

A copy of the reporting form is provided in Appendix E.

E. Response Plan [112.7 (a)(5)]

The procedures to be used when responding to a spill are contained in Section 3 and Appendix E.

4. POTENTIAL SPILL PREDICTIONS, VOLUMES, RATES, AND CONTROL [112.7 (b)]

The potential for a spill or releases to leave the property is slight due to the redundant controls and the size of the facility relative to the volumes stored on site and the porous nature of the soils at the site. The initial control for Tank #1 is the tank's secondary containment. The initial control for the various oil containers stored at the facility is the secondary containment. Backup containment exists in the berms, diversion/drainage ditches, and detention ponds at the facility. The location and layout of facility's prevention measures are shown on Figure 3-1.

POTENTIAL SPILL PREDICTIONS, VOLUMES, RATES AND CONTROL [112.7(b)]

Source	#1 Diesel Tank	#2 Various Containers (5 to 55 gallons)
Type of Failure	Rupture, Hose, Valve Failure	Rupture/puncture
Volume (Gallons)	8,500	55
Rate (Gallons/hour)	Variable – event dependent	Variable – event dependent
Direction of Flow	Containment or Southwest	Containment or Southwest
Net Secondary Containment (Gallons)		67.3

5. DRAINAGE CONTROL DIVERSION STRUCTURES AND CONTAINMENT [112.7 (c)]

The diesel storage tank and other oil containers are enclosed within a steel secondary containment structure. The containment structures are capable of holding the volume of the

largest oil container within each structure, plus the 25-year, 24-hour storm precipitation event for uncovered containment areas (approximately 2.2 inches of precipitation). The containment structures will have drains with locking valves.

6. DRAINAGE CONTROL [112.8(b)]

A. Facility Drainage Systems and Equipment

The initial control for the diesel tank is its secondary containment. Backup containment exists in the berms, diversion/drainage ditches, and detention ponds for the facilities. The tank containment has no connections to a sewer system.

To maintain containment capacity, when no oil sheen is present, the operator will manually drain or pump water from the secondary containment to one of the detention ponds. The required information associated with each drainage event will be recorded. When oil sheen is present the content of the containment structure will be collected by a licensed recycling or disposal company.

Surface water drainage reports to one of the two detention ponds, which provides control and treatment prior to release from the site. When oil is present, it will be collected with absorbent materials (pads, booms, etc.) or skimmed off for disposal or recycling at a licensed facility.

B. Final Discharge of Drainage

Prior to discharge, runoff from the facility reports to one of the detention ponds. The ponds are equipped with a spillway, which acts as an outlet control structure to provide detention time prior to final discharge. Drainage features are shown on Figure 3-1.

The detention ponds are checked periodically during normal operations and during storm events. If present, oil is removed with absorbent booms or pads or skimmed off for disposal or recycling at a licensed facility.

7. BULK STORAGE TANKS AND SECONDARY CONTAINMENT [112.8(c)]

A. Tank Compatibility

The storage tank is constructed of carbon steel with painted exterior and is compatible with the material stored inside. The tank conforms to all applicable building and fire codes.

B. Containment Volume for Storage Tanks

The containment structure is capable of containing the volume in the largest tank/container within the containment area plus the 25-year, 24-hour storm precipitation event. The net volume for secondary containment structures is shown in Table 4-1. Calculation sheets for the net volume of the secondary containment are contained in Appendix A.

Secondary containment protection for service trucks, equipment, fueling facilities, loading/unloading areas are provided by berms, drainage/diversion ditches, and detention ponds.

C. Containment Area Inspection and Drainage of Stormwater

When required prior to manually draining or pumping accumulated water from the secondary containment, the operator will perform a careful visual examination of accumulated water for oil or oil sheen. Further requirements for draining of secondary containment areas by the operators are contained on the Drainage Discharge Report Form in Appendix B. Record keeping requirements for these forms are discussed in Section 6, Part E.

The ponds are all constructed and operated as described above. The ponds are inspected periodically and during storm events. If oil is present, it is removed with the use of absorbent materials (pads, booms, etc.) or skimmed off for off-site disposal.

D. Corrosion Protection of Buried Metallic Storage Tanks

Not applicable - No underground storage tanks or buried oil conveyance piping.

E. Corrosion Protection of Partially Buried Metallic Storage Tanks

Not applicable - No partially buried storage tanks.

F. Aboveground Tank Periodic Inspection

Users/operators visually observe tanks, supports, and foundations for signs of deterioration and/or leaks which might cause a release or accumulation of hydrocarbons within the tank's secondary containment. Concerns are reported to the Plant Manager or Plant Supervisor. Visible leaks from tank seams, rivets, or bolts that may lead to accumulation of oil within the secondary containment are repaired.

Fifty-five gallon drums and five-gallon cans on-site are observed for excessive external corrosion on a regular basis. Formal inspection of drums includes moving the drum so that all exterior surfaces can be observed. Any drum with rust blisters or flakes of rust is replaced.

Fixed storage tanks and secondary containment structures are inspected annually following the Facility Inspection Checklist contained in Appendix C. Record keeping requirements for these forms are discussed in Section 10.

G. Control of Leakage Through Internal Heating Coils

Not applicable.

H. Good Engineering Practices

Each container to be filled is inspected manually to ensure sufficient volume prior to the start of the filling process. The supplier and/or facility personnel will monitor the tank and gauges

during the entire filling process of bulk storage containers to ensure it is not over filled (40CFR112.8(c)(8)(iv).

I. Observation of Disposal Facilities for Effluent Discharge

Secondary containment structures are routinely observed during operation and are inspected annually. Any oil present is removed prior to manual draining or pumping by using absorbent materials (pads, booms, etc.) or skimmed for off-site disposal.

System failure will require shut down by supplier or facility operator until the problem can be corrected. A release during loading/unloading or from a service truck will drains to the detention ponds where it will be collected and removed as discussed in Section 6, Part A.

J. Visible Oil Leak Corrections from Tank Seams and Gaskets

Visible oil leaks from tank seams, rivets, or bolts that may lead to accumulation of oil within the secondary containment is reported to the Plant Manager or Plant Supervisor and repaired by plant personnel. If repairs cannot be made immediately, temporary repairs are performed until permanent repairs are made. Plant personnel will clean up oil released following completion of the repairs.

K. Appropriate Positions of Mobile Oil Storage Tanks

Not Applicable.

8. FACILITY TRANSFER OPERATIONS [112.8(d)]

Not Applicable. No buried or aboveground pipeline.

A. Buried Piping Installation Protection and Examination

Not Applicable.

B. Not-In-Service and Standby Service Terminal Connections

Loading and unloading terminal connections to storage tanks are capped when not in use. There are no out of service lines at this facility.

C. Pipe Supports Design

Steel pipe supports, where required, are anchored to the localized secondary containment floors and walls. Pipelines are short and contained within the containment structure. This eliminates the need for expansion loops.

D. Aboveground Valve and Pipeline Examination

Users/operators visually observe piping and valves for signs of deterioration and/or leaks when in use. Any sign of deterioration or leakage that might cause a release or accumulation of oil

inside a containment area is reported to the Plant Manager or Plant Supervisor. Visible leaks at flanges, valves, or fittings, which may lead to accumulation of oil in the secondary containment, are promptly repaired.

Valves are inspected annually by following the Facility Inspection Checklist contained in Appendix C. Record keeping requirements for these forms are discussed in Section 10.

E. Vehicle Traffic

The tank is aboveground, anchored, and contained within a secondary containment structure. The tank location and containment assist in protecting the tank from vehicular traffic.

9. PRACTICALITY OF INSTALLATION OF REQUIRED STRUCTURES [112.7(d)]

Secondary containment is practical and currently in use for all storage tanks and oil containers at this facility.

10. INSPECTIONS, TESTS AND RECORDS [112.7(e)]

In addition to annual inspections, the storage tanks and corresponding secondary containment systems containing petroleum product are inspected by an engineer every five years in conjunction with the review and re-certification of this SPCC plan. Inspection of the loading/unloading facilities and security features are also included. These inspections are documented and signed by the inspector on the Facility Inspection Checklist. Blank checklists are contained in Appendix C and completed checklists are maintained for three years in Appendix F.

11. PERSONNEL TRAINING AND SPILL PREVENTION PROCEDURES [112.7(f)]

A. Personnel instructions [112.7(f)(1)]

All new employees are trained in spill prevention and are made familiar with the SPCC Plan as part of their initial training. Regular refresher safety training also addresses spill prevention and response. Training records for personnel are maintained at the facility.

B. Designated Person Accountable for Spill Prevention [112.7(f)(2)]

The Plant Manager is the designated responsible person accountable for spill prevention.

C. Spill Prevention Briefings [112.7(f)(3)]

Spill prevention issues are regular topics at safety meetings, thus fulfilling the requirement of annual spill prevention briefings. In the event of a spill, spill prevention policies would be reviewed following the spill response. The spill response process will be reviewed and suggestions for improvement discussed.

12. SITE SECURITY [112.7(g)]

A. Fencing [112.7(g)(1)]

The Facility is fenced and gated. The gate to the facility remains open during operating hours and shut and locked when the facility is not in operation.

B. Flow Valves Locked [112.7(g)(2)]

All drain valves permitting an outward flow of fuel from storage tanks and local secondary containment drains have on-off type valves that remain securely locked in the closed position when not in use.

C. Starter Controls Locked [112.7(g)(3)]

The facility has a fixed tank storage area with a fueling station for equipment. The fueling station has manual locks to control fueling.

D. Pipeline Loading/Unloading Connections Securely Capped [112.7(g)(4)]

All loading and unloading connections on storage tanks are capped with threaded or cam type caps. These caps are removed only during filling or draining operations and are replaced at the end of the operation.

E. Lighting Adequate to Detect Spills [112.7(g)(5)]

The facility has yard lights sufficient to illuminate storage, maintenance, and fueling areas. These yard lights are sufficient to observe any release, vandalism, or equipment problems during nighttime operations.

13. FACILITY LOADING/UNLOADING OPERATIONS [112.7(h)]

Loading/unloading procedures for supplier tank trucks meet or exceed the minimum requirements and regulations of the Department of Transportation as set forth in 40 CFR 112.7. No rail tank cars are used at this facility.

Though the loading/unloading area does not have localized secondary containment the area is provided secondary containment by the berms, drainage/diversion ditches, and detention ponds that protect the operational facility as previously discussed in Sections 3 and 6.

A. Secondary Containment for Vehicles Adequate [112.7(h)(1)]

The tank truck loading/unloading areas are unpaved. These areas do not have localized secondary containment features. However, all areas drain to a detention pond. This pond has sufficient volume to store the entire contents of the largest single compartment of a tanker truck servicing the facility (approximately 10,000 gallons) or piece of equipment being fueled (approximately 175 gallons) except in the event of a 25-year storm event. In the event of a 25-year 24-hour storm, absorbent booms will be deployed at the pond overflow spillway to provide capture and additional storage for oil products.

B. Warning System for Vehicles [112.7(h)(2)]

Warning and instructions for loading/unloading are posted on all tank truck, including instructions for disconnecting all flexible transfer lines. Supplier personnel are present during all loading/unloading of storage tanks. Operating personnel are present during all fueling operations for equipment. These personnel assure all lines are properly connected and disconnected as necessary.

C. Vehicles Examined for Lowermost Drainage Outlets Before Leaving [112.7(h)(3)]

Prior to the departure of any tank truck from the loading/unloading areas, the lower most drain and all outlets of the tank truck will be checked for leakage. If necessary, valves and fittings will be tightened, adjusted, or replaced to prevent leakage during transit. Supplier personnel present during the loading/unloading operation will ensure these procedures are followed.

14. BRITTLE FRACTURE EVALUATION [112.7(i)]

If a tank at the facility is repaired, modified, experiences a change in service or fails, the tank will be evaluated for the risk of brittle fracture or other means of failure. If a risk of failure exists appropriate action will be taken.

15. ADDITIONAL REQUIREMENTS FROM STATE RULES AND REGULATIONS [112.7(j)]

The State of Utah does not have any additional regulations related to oil spill prevention beyond that which are currently found in the Federal Regulations. This SPCC Plan has been prepared based on the Federal Regulations and as such it addresses all pertinent Utah Regulations.

Professional Engineer Certification:

I hereby certify:

I am familiar with the requirements of 40 CFR Part 112:

- I have visited and examined the facility;
- The plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of part 40 CFR 112;
- Procedures for required inspections and testing have been established; and the plan is adequate for the facility.

Printed Name of Registered
Professional Engineer

Signature of Registered
Professional Engineer

Date

Registration Number

(Seal)

**SPILL PREVENTION CONTROL AND COUNTERMEASURE COMPLIANCE
PLAN REVIEW RECORD**

In accordance with 40 CFR 112.5(b), a review and evaluation of this SPCC Plan is conducted at least once every five years. As a result of this review and evaluation, Covol Engineered Fuels, LC will amend the SPCC Plan within six months of the review if the plan is ineffective. Any amendment to the SPCC Plan shall be certified by a Professional Engineer within six months after a change in the facility design, construction, operation, or maintenance occurs which materially affects the facility's potential for the discharge of oil into or upon the navigable water of the United States or adjoining shorelines.

Review Dates

Signature

1. No later than:
November 2010*

2. No later than:
November 2015*

3. No later than:
November 2020*

4. No later than:
November 2025*

- SPCC Plan reviewed, amended and certified by a Registered Professional Engineer per 40 CFR112.3 (d).

CERTIFICATION

Facility:

Covol Engineered Fuels, LC
1865 West Ridge Road
Wellington, UT 84542
Telephone: (435) 613-1631

Owner:

Headwaters Incorporated
10653 So. River Front Parkway
South Jordan, UT 84095
Telephone: (801) 984-9400

Management Approval:

This Spill Prevention Control and Countermeasure Plan (SPCC) was prepared to satisfy the requirements of 40 CFR Part 112. I approve of this plan and have the authority to commit the necessary resources to fully implement this Plan, which will be put into practice as described. Covol Engineered Fuels, LC is committed to the prevention of discharges of oil to navigable waters and the environment, and maintains the highest standards for spill prevention control and countermeasures through regular review, updating, and implementation of this Spill Prevention Control and Countermeasure Plan.

Printed Name

Title

Signature

Date

BRC Wellington LLC
Dry-Coal Cleaning Facility

Permit Application
October 2013

APPENDIX 7-6

Hydrologic Design Methods

**HYDROLOGIC DESIGN METHODS
FOR THE COVOL
DRY-COAL CLEANING FACILITY**

1.0 INTRODUCTION

The purpose of this report is to present the methodology used during hydrologic calculations for the main facilities area of the COVOL Dry-Coal Cleaning Facility Complex. The hydrologic calculations performed include runoff volumes and peak discharges, sediment storage calculations, existing sedimentation pond capacity, and existing diversion structure adequacy. The adequacy of existing erosion control methods is also addressed.

This report is divided into six sections including the introduction. The methods for determining runoff volumes and peak discharge rates are presented in Section 2.0. A discussion of the sedimentation ponds is contained in Section 3.0. Sections 4.0 and 5.0 describe diversion structures and methods of erosion protection. References are presented in Section 6.0.

2.0 RUNOFF CALCULATIONS

The disturbed area boundaries and watersheds at the facility are shown on Plate 7-2 of the permit application.

Data obtained from these watersheds were input to a computer modeling program called HydroCAD 8.5 developed by HydroCAD Software Solutions to generate runoff hydrographs which were used for the design of drainage diversions and inflow/outflow hydrographs for the sedimentation ponds. HydroCAD models runoff using the rainfall-runoff function and triangular unit hydrograph of the U.S. Soil Conservation Service (1972). The SCS Type B rainfall distribution was used to generate the hydrographs for the 6-hour precipitation events.

The design calculations for diversion structures were verified based on the 100-year, 6-hour storm event. The design calculations for the sedimentation ponds design storm capacity were verified using the 10-year, 24-hour storm event. The design calculations for the sedimentation pond outlet structure capacity were verified using the 25-year, 6-hour storm event.

According to the U.S. Soil Conservation Service (1972), the algebraic and hydrologic relations between storm rainfall, soil moisture storage, and runoff can be expressed by the equations,

$$Q = \frac{(P - 0.2S)^2}{P + 0.8S} \quad (1)$$

and

$$S = \frac{1000}{CN - 10} \quad (2)$$

where Q = direct runoff volume (inches)
S = watershed storage factor (inches)
P = rainfall depth (inches)
CN = runoff curve number (dimensionless)

It should be noted that (a) Equation (1) is valid only for $P \geq 0.2S$ (otherwise $Q=0$), (b) Equation (2), as stated, is in inches, with the values of 1000 and 10 carrying the dimensions of inches, although metric conversions are possible, and (c) CN is only a convenient transformation of S to establish a scale of 0 to 100 and has no intrinsic meaning.

The curve numbers for disturbed and undisturbed areas at the facility were based on published values for sites with similar conditions (Mockus, 1969). An average curve number of 87 was assumed for the disturbed area, which corresponds to dirt roads for hydrologic soil group C.

The translation of the runoff depth to an outflow hydrograph is accomplished in the codes using the triangular unit hydrograph of the U.S. Soil Conservation Service (1972). This unit hydrograph is shown in Figure 1 along with a typical curvilinear hydrograph. It is characterized by its time to peak (T_p), recession time (T_r), time of base (T_b), and the relations between these parameters (i.e., $T_r=1.67T_p$; $T_b=2.67T_p$). Thus, from the geometry of a triangle, the incremental runoff (Q) can be defined by the equation,

$$Q = \frac{(2.67T_p)(q_p)}{2} \quad (3)$$

or

$$q_p = \frac{0.75(Q)}{T_p} \quad (4)$$

where q_p = peak flow rate (dimensioned according to Q and T)

When Q is expressed in inches and T_p in hours, q_p will be in inches per hour. The flow at any time $0 < t < T_r$ may be determined by simple linear proportioning of the triangular unit hydrograph. The time to peak is related to the familiar expression time of concentration (T_c) by the equation,

$$T_c + t = 1.7T_p \quad (5)$$

in which the factor 1.7 is an empirical finding cited by the U.S. Soil Conservation Service (1972).

The time of concentration may be estimated by several formulas. For this report, T_c was determined from the following equations (U.S. Soil Conservation Service, 1972):

$$L = \frac{1^{0.8}(S+1)^{0.7}}{1900Y^{0.5}} \quad (6)$$

and

$$T_c = 1.67L \quad (7)$$

where

L = watershed lag (hours)

l = hydraulic length of the watershed, or distance along the main channel to the watershed divide (feet)

S = watershed storage factor defined in Equation (2)

Y = average watershed slope (percent)

T_c = time of concentration (hours)

The precipitation values for the design storm events were obtained from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Precipitation Frequency Map (NOAA, 2006). The precipitation data are presented in Table 1.

3.0 SEDIMENTATION PONDS

3.1 Pond Capacity

The capacity of each pond is designed based on runoff and sediment storage volumes. The ponds are designed to completely contain the 10-year, 24-hour storm at the required sediment storage capacity. Division of Oil, Gas and Mining regulations (2006), R614-301-742.221.31 and 742.221.36 require that adequate sediment control be provided and maintained by periodic sediment removal.

3.1.1 Runoff Volume. The runoff calculations for those watersheds contributing to the sediment trap and sedimentation pond were performed as described in Section 2.0. Each analysis was conducted for the 10-year, 24-hour storm event presented in Table 1.

3.1.2 Sediment Storage. The required sediment storage volumes for the sedimentation ponds were based on a modified version of the Soil Conservation Service (SCS) Universal Soil Loss Equation (USL) developed specifically for Utah by Isrealsen et al. (1984). The equation determines the expected annual weight of soil erosion per acre of land based on precipitation, soil erodibility, slope lengths and steepnesses, and erosion controls at the site.

3.2 Spillway Analysis

The sedimentation ponds are constructed with spillways that will pass the peak runoff from the 25-year, 6-hour storm event presented in Table 1. The spillways are constructed as rip-rap lined trapezoidal channels. The spillways for the sedimentation pond are presented on Plate 7-1 of the permit application. The discharge capacities of the spillways were modeled with HydroCAD 8.5, which employs the methodology described below.

The discharge capacity of the rip-rapped overflow spillways was calculated using a method developed by the U.S. Soil conservation Service (1968) and expanded by Haan et al. (1994) for broad-crested weirs. According to this methodology, the critical specific energy head (H_{ec}) is determined for selected values of the energy head of water in the pond (H_p). The discharge capacity of the spillway is then calculated for the standard 100-foot wide rectangular section from the equation,

$$q_r = (0.544)(g^{0.5})(H_{ec}^{1.5})(100) \quad (8)$$

where q_r = discharge for standard 100-foot rectangular section (cubic feet per second) and all other parameters have been previously defined. The flow is then corrected for a trapezoidal section using the equation.

$$q = [(1.5b + zH_{ec})/150](q_r) \quad (9)$$

where q = corrected discharge (cubic feet per second)
 b = bottom width of channel (feet)
 z = channel side slope (run over rise - dimensionless)

4.0 DIVERSION STRUCTURES

4.1 Diversion Ditches

The location of diversion ditches are presented on Plate 7-2 of the permit application. The ditches are labeled based on a description of the area drained.

Diversions were designed to convey runoff from a disturbed drainage area. Some ditch sections are rip-rapped with rock to reduce erosion. Ditches are routinely maintained by removing sediment and replacing rip-rap when necessary.

The ditch capacity and flow velocity was calculated using HydroCAD 8.5, which uses the Manning and continuity equations (see Haan et al., 1994):

$$V = \frac{1.486}{n} R^{0.67} S^{0.50} \quad (10)$$

and

$$Q = AV \quad (11)$$

where

V = velocity (feet per second)

R = hydraulic radius (feet)

S = hydraulic slope (feet per foot)

n = roughness coefficient

Q = discharge (cubic feet per second)

A = flow area (square feet)

Peak discharges for the undisturbed drainage areas were calculated as described in Section 2.0. Values of Manning's Roughness Coefficient required for the solution of Equation (10) were obtained by comparing local conditions with tabulated values provided by Haan et al. (1994). An average roughness coefficient of 0.035 was representative of most ditches.

The diversion ditch geometries were measured in the field and approximated with trapezoidal or triangular ditch cross sections. The hydraulic slope of each ditch was either measured in the field or approximated from the topographic base maps (scale: 1"=50'). The capacity of each ditch was verified using a minimum slope value and solving for the depth of flow. The maximum flow velocity for each ditch was calculated using the maximum ditch slope measured from the topographic base maps. All of the calculated flow velocities were 5 feet per second or less, and thus were considered acceptable for unlined ditches without erosion protection.

4.2 Culverts

The location of diversion culverts are presented on Plate 7-2 of the permit application. The culverts are labeled based on a description of the area drained. The location, size, and slope of each culvert were verified in the field.

Peak discharges for the 100-year, 6-hour storm event were calculated as described in Section 2.0. The adequacy of each culvert was determined using a nomograph prepared by the U.S. Department of Transportation (1977). This nomograph for circular culverts with inlet control is presented in Figure 2. Based on the known culvert size, entrance type, and peak discharge, the headwater depth/diameter ratio was determined from the nomograph. If this value was 1.0 or less, the culvert was considered adequate to pass the design discharge rate. If the ratio was greater than 1.0, a closer inspection of the culvert geometry and entrance was necessary.

Exit velocities from each circular culvert were modeled with HydroCAD 8.5. A roughness coefficient of 0.020 was used for the calculations which can be considered typical for corrugated polyethylene pipe (Haan et al., 1994).

5.0 RIPRAP PROTECTION

The use of riprap to line drainage ditches, culvert outlets or spillways is required when flow velocities exceed approximately 5 feet per second. Calculations to determine the adequacy of existing riprap sections are based on a method defined by the U.S. Department of Transportation (1978).

The size of stone needed to protect a diversion channel or spillway from erosion by a current moving parallel to the channel is determined by the use of Figure 3. The size of stone (k) is determined by a trial-and-error method which consists of first estimating a stone size.

Using the peak velocity in the ditch, enter Figure 3 and read the stone size for the channel side slope (not the hydraulic slope, unless it is steeper than the side slope of the ditch). The stone size from Figure 3 is the 50 percent (median) size, by weight, of a well-graded mass of stone with a unit weight of 165 pounds per cubic foot. If the stone size from Figure 3 agrees with the assumed stone size, it is correct. If not, the procedure is repeated until agreement is achieved.

6.0 REFERENCES

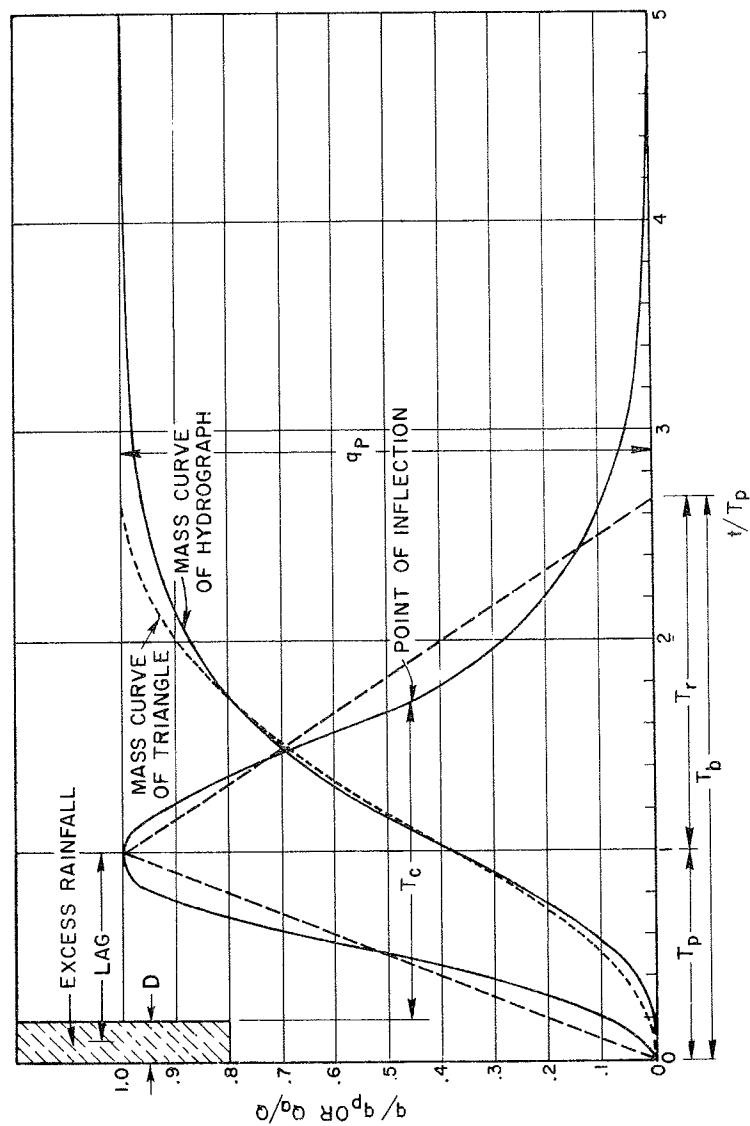
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- U.S. Soil Conservation Service. 1968. Hydraulics of Broad-Crested Spillways. Technical Release No. 39. U.S. Government Printing Office. Washington, D.C.
- Utah Division of Oil, Gas and Mining. 2006. Utah Coal Mining Regulations. Utah Division of Oil, Gas and Mining. Salt Lake City, Utah.

TABLE 1

Precipitation Data for the COVOL
Dry-Coal Cleaning Facility

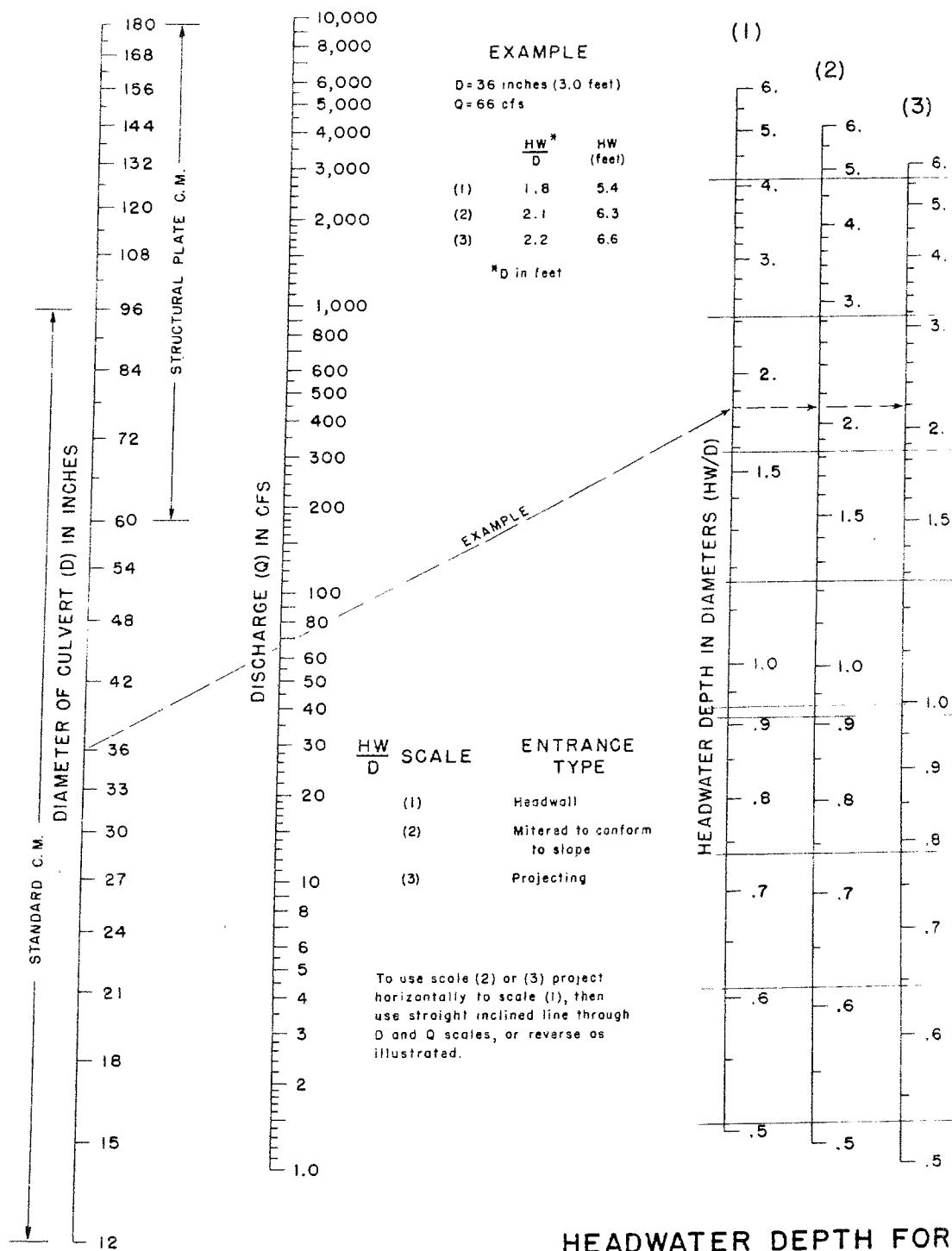
Frequency (years)	Duration (hours)	Precipitation (inches)
10	24	1.57
100	6	1.74
25	6	1.29

Reference: NOAA, 2006.



Source: NRCS National Engineering Handbook, Part 630

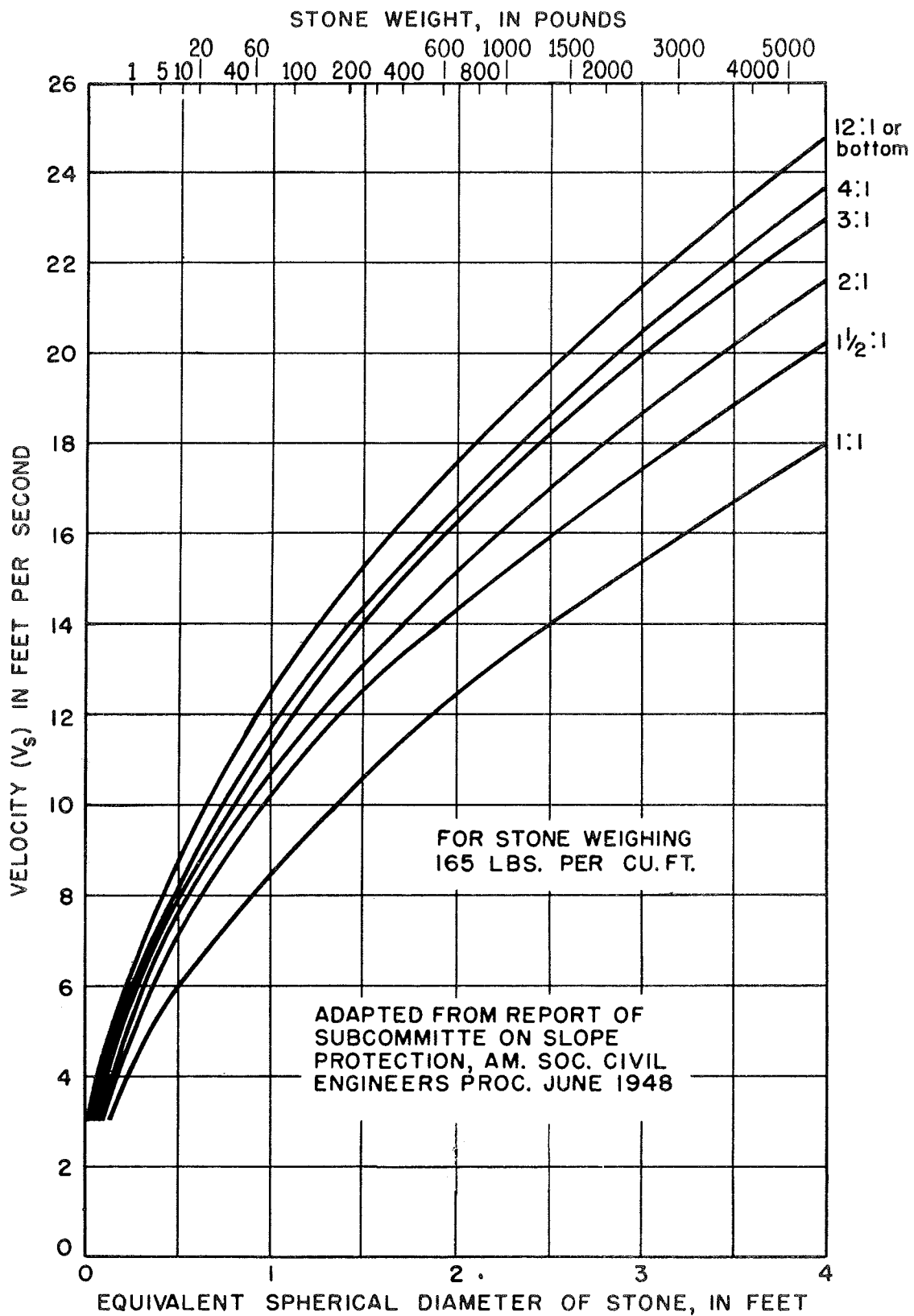
FIGURE 1. CURVILINEAR AND TRIANGULAR UNIT HYDROGRAPHS.



BUREAU OF PUBLIC ROADS JAN. 1963

Source: FHWA Hyd. Eng. Circular No. 5

FIGURE 2. CIRCULAR CULVERT CAPACITY CHART



Source: FHWA Hyd. Eng. Circular No. 11

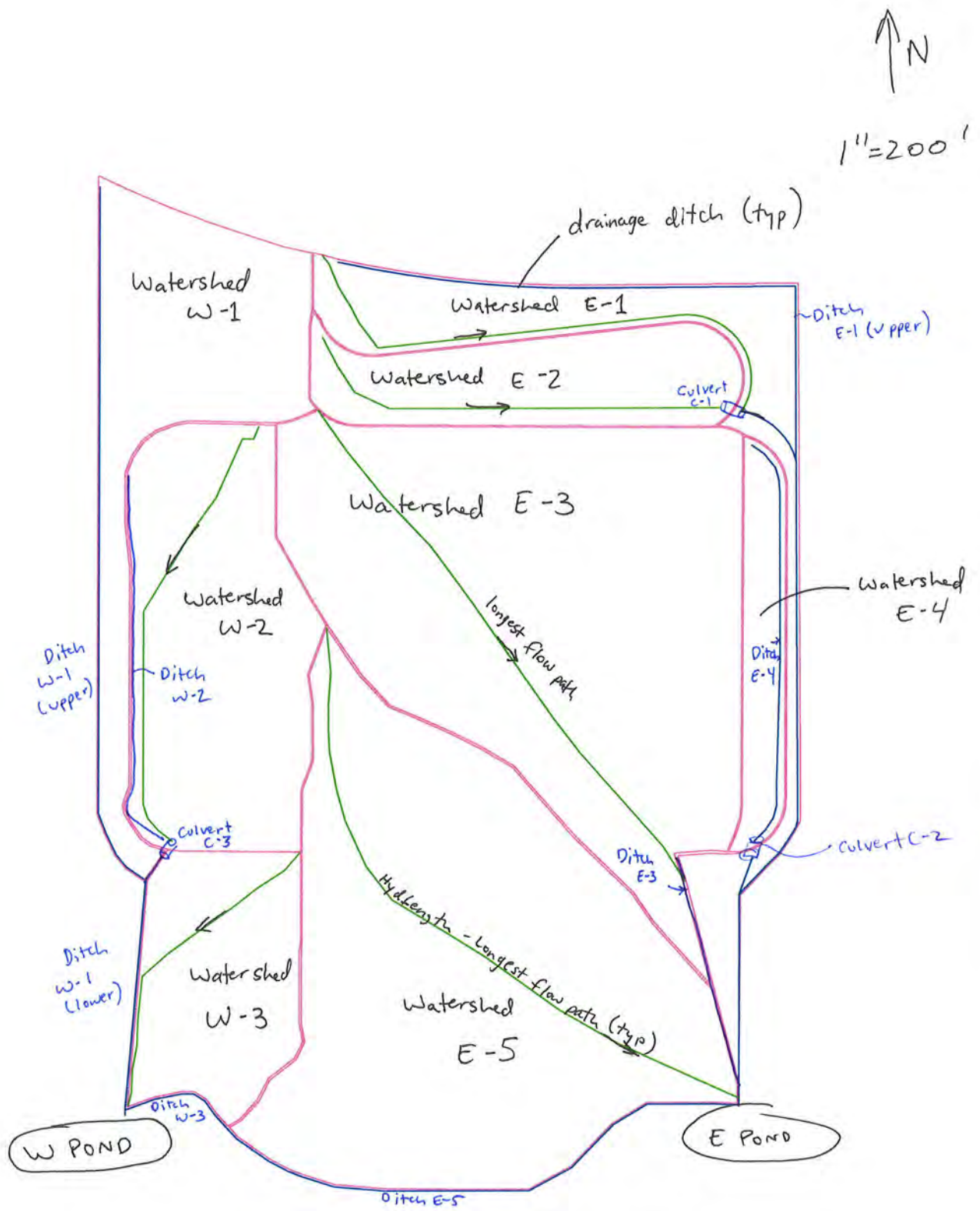
FIGURE 3. RIPRAP SIZING CHART

BRC Wellington LLC
Dry-Coal Cleaning Facility

Permit Application
October 2013

APPENDIX 7-7

Sedimentation Pond Hydrology Calculations



Coal Dry Coal Cleaning FACILITY
WATERSHED MAP

WATERSHED HYDROLOGY MODEL SUMMARIES
COVOL ENGINEERED FUELS
WELLINGTON DRY-COAL CLEANING FACILITY

Watersheds Reporting to East Sedimentation Pond

Watershed	Area (ft ²)	Avg. Slope (%)	Curve Number	Hydraulic Length (ft)	10-Year, 24-Hour Storm Runoff Volume (ft ³)	25-Year, 6-Hour Storm Runoff Volume (ft ³)
E-1	88,103	0.021	87	1,752	4,290	2,902
E-2	66,123	0.021	87	581	3,220	2,178
E-3	28,991	0.03	87	1,091	14,120	9,552
E-4	29,947	0.25	87	561	1,458	986
E-5	285,103	0.025	87	925	13,882	9,391

Watersheds Reporting to West Sedimentation Pond

Watershed	Area (ft ²)	Avg. Slope (%)	Curve Number	Hydraulic Length (ft)	10-Year, 24-Hour Storm Runoff Volume (ft ³)	25-Year, 6-Hour Storm Runoff Volume (ft ³)
W-1	105,474	0.025	87	1,297	5,136	3,474
W-2	128,724	0.025	87	635	6,268	4,240
W-3	70,836	0.027	87	447	3,449	2,333

Note: Curve Number assumed to be 87, which corresponds to a dirt road designation for Hydrologic Soil Group C (National Engineering Handbook, Section 4, Chapter 9)

Refer to attached HydroCAD 8.5 output for additional information

SEDIMENT YIELD CALCULATIONS
COVOL ENGINEERED FUELS
WELLINGTON DRY-COAL CLEANING FACILITY

Watershed	Area (sq ft)	R	K	LS	VM	A (tons/ac/yr)	Density (pcf)	Annual Sediment Volume (cubic ft/yr)
East Pond	759,267	8	0.37	0.24	1.48	1.051	110	333
West Pond	305,033	8	0.37	0.24	1.48	1.051	110	134

Notes

A = R K LS VM, after Isrealsen et al, 1984

R is the rainfall factor, and is taken from a map in Isrealson et al., 1984

K is the soil erodibility factor for the Persayo-Chipeta Complex, as published by the NRCS

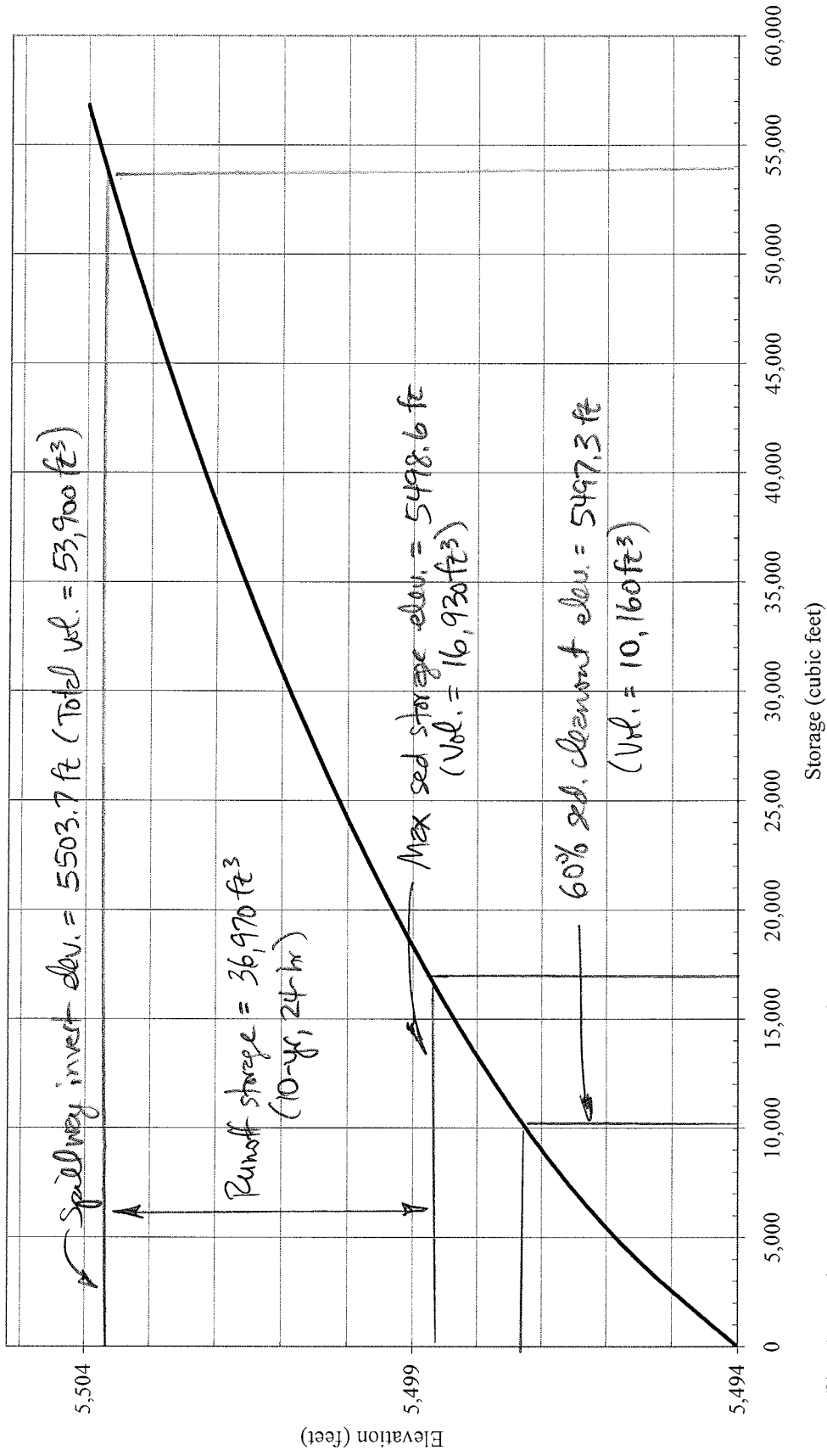
LS is the topographic factor, which is based on the length and steepness of the slope at the site. A slope length of 100 feet and a simple slope steepness of 2.5% was used. The value of LS was taken from Isrealsen et al., 1984, Table 2.

VM is the erosion control factor, which was taken to be 1.48, which is the value for compacted fill as specified by Israelsen, et al., 1984, Table 3.

Density assumed to be 110 pcf

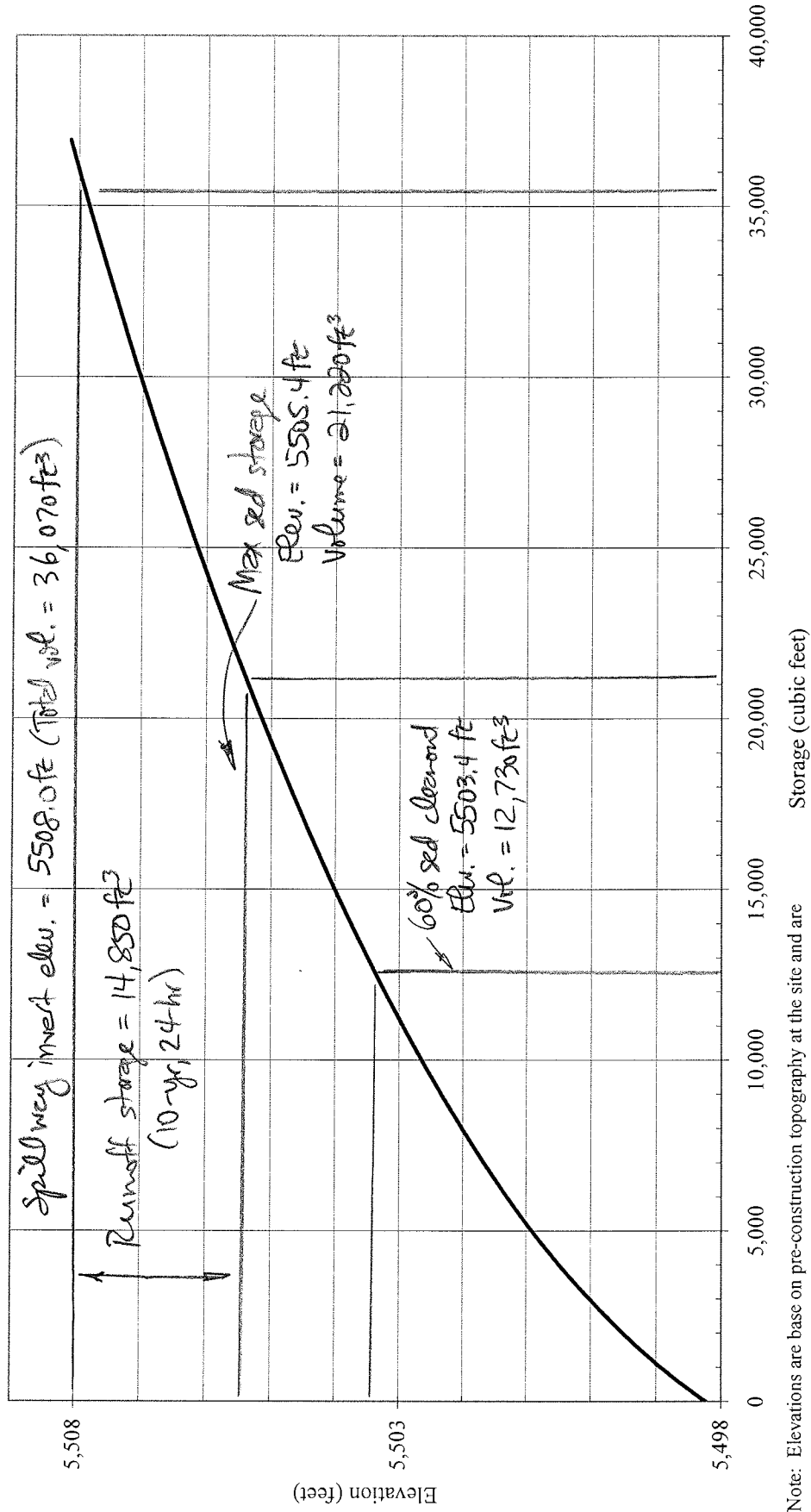
Reference:

Isrealsen, C. Earl, Joel E. Fletcher, Frank W. Haws, and Eugene K. Isrealsen, 1984. *Erosion and Sedimentation in Utah: A Guide for Control*. Utah Water Research Laboratory, College of Engineering, Utah State University. Hydraulics and Hydrology Series UWRL/H-84/03.



Note: Elevations are based on pre-construction topography at the site and are thus considered approximate. The dimensions and geometry of the sedimentation pond were surveyed by EIS Environmental and Engineering Consultants in November 2007. The bottom of the sedimentation pond was measured to be 10.2 feet below the surrounding ground surface, which is at an elevation of approximately 5,504.0 feet.

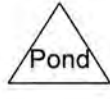
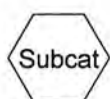
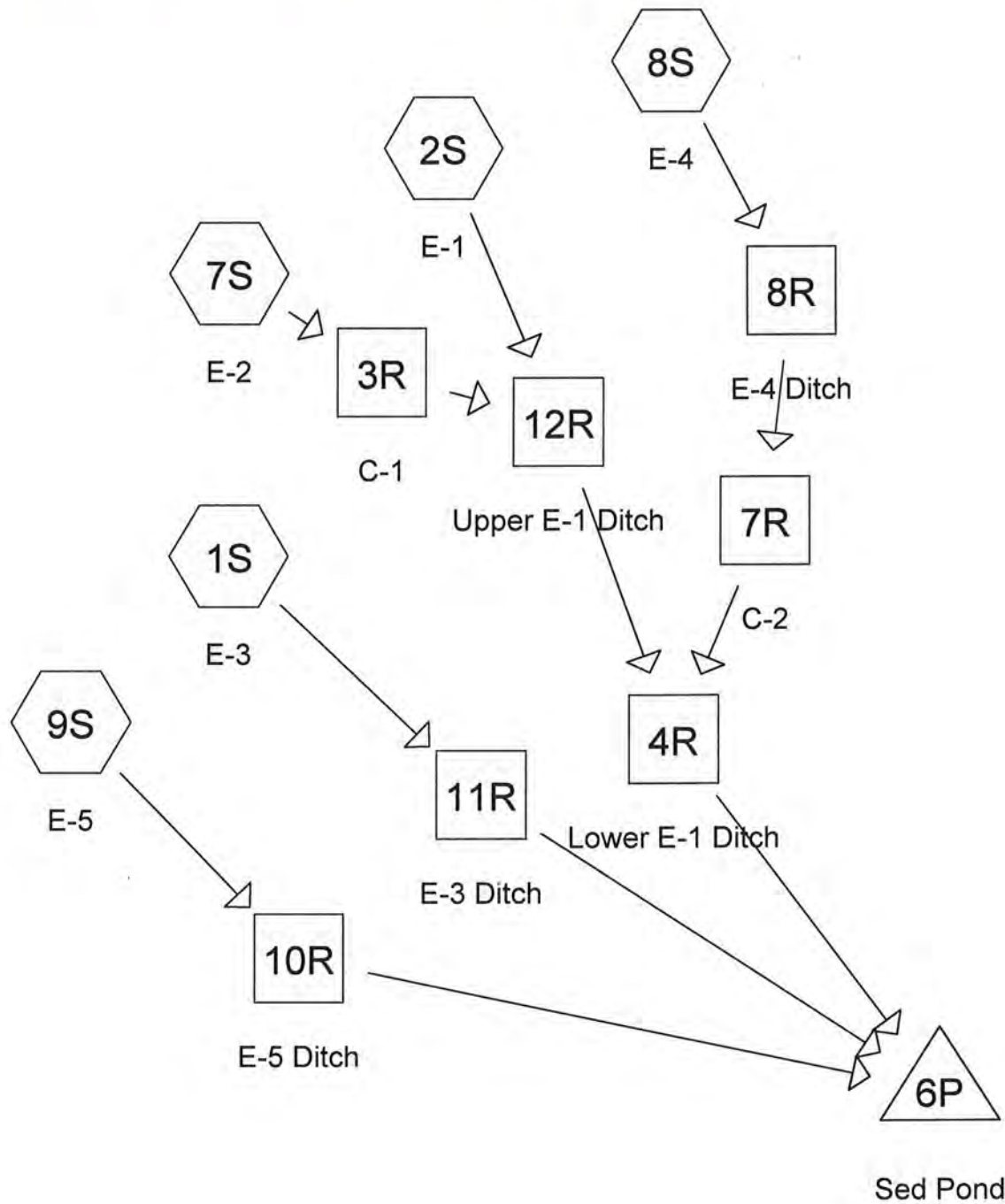
EAST POND STAGE VS. STORAGE



Note: Elevations are base on pre-construction topography at the site and are thus considered approximate. The dimensions and geometry of the sedimentation pond were surveyed by EIS Environmental and Engineering Consultants in November 2007. The bottom of the sedimentation pond was measured to be 9.8 feet below the surrounding ground surface, which is at an elevation of approximately 5,508.0 feet.

WEST POND STAGE VS. STORAGE

East Sedimentation Pond
10yr-24 hr Storm Runoff Model



Drainage Diagram for 10yr-24hr East Pond

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10yr-24hr East Pond

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
759,267	87	(1S,2S,7S,8S,9S)
759,267		TOTAL AREA

10yr-24hr East Pond

Type II 24-hr Rainfall=1.57"

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: E-3 Runoff Area=289,991 sf 0.00% Impervious Runoff Depth=0.58"
Flow Length=1,091' Slope=0.0300 '/' Tc=15.5 min CN=87 Runoff=4.81 cfs 14,120 cf

Subcatchment 2S: E-1 Runoff Area=88,103 sf 0.00% Impervious Runoff Depth=0.58"
Flow Length=1,752' Slope=0.0210 '/' Tc=27.1 min CN=87 Runoff=1.05 cfs 4,290 cf

Subcatchment 7S: E-2 Runoff Area=66,123 sf 0.00% Impervious Runoff Depth=0.58"
Flow Length=581' Slope=0.0210 '/' Tc=11.2 min CN=87 Runoff=1.28 cfs 3,220 cf

Subcatchment 8S: E-4 Runoff Area=29,947 sf 0.00% Impervious Runoff Depth=0.58"
Flow Length=561' Slope=0.2500 '/' Tc=3.2 min CN=87 Runoff=0.78 cfs 1,458 cf

Subcatchment 9S: E-5 Runoff Area=285,103 sf 0.00% Impervious Runoff Depth=0.58"
Flow Length=925' Slope=0.0250 '/' Tc=14.9 min CN=87 Runoff=4.82 cfs 13,882 cf

Reach 3R: C-1 Avg. Depth=0.33' Max Vel=4.37 fps Inflow=1.28 cfs 3,220 cf
D=18.0" n=0.020 L=40.0' S=0.0300 '/' Capacity=11.83 cfs Outflow=1.27 cfs 3,220 cf

Reach 4R: Lower E-1 Ditch Avg. Depth=0.62' Max Vel=3.58 fps Inflow=2.08 cfs 8,968 cf
n=0.022 L=287.0' S=0.0171 '/' Capacity=21.75 cfs Outflow=2.05 cfs 8,968 cf

Reach 7R: C-2 Avg. Depth=0.24' Max Vel=3.57 fps Inflow=0.64 cfs 1,458 cf
D=18.0" n=0.020 L=40.0' S=0.0300 '/' Capacity=11.83 cfs Outflow=0.64 cfs 1,458 cf

Reach 8R: E-4 Ditch Avg. Depth=0.41' Max Vel=2.58 fps Inflow=0.78 cfs 1,458 cf
n=0.022 L=561.0' S=0.0159 '/' Capacity=11.47 cfs Outflow=0.64 cfs 1,458 cf

Reach 10R: E-5 Ditch Avg. Depth=0.62' Max Vel=2.88 fps Inflow=4.82 cfs 13,882 cf
n=0.022 L=746.0' S=0.0091 '/' Capacity=15.92 cfs Outflow=4.33 cfs 13,882 cf

Reach 11R: E-3 Ditch Avg. Depth=0.78' Max Vel=4.51 fps Inflow=4.81 cfs 14,120 cf
n=0.022 L=283.0' S=0.0194 '/' Capacity=9.33 cfs Outflow=4.69 cfs 14,120 cf

Reach 12R: Upper E-1 Ditch Avg. Depth=0.73' Max Vel=3.36 fps Inflow=1.93 cfs 7,510 cf
n=0.022 L=720.0' S=0.0150 '/' Capacity=4.14 cfs Outflow=1.80 cfs 7,509 cf

Pond 6P: Sed Pond Peak Elev=5,502.55' Storage=44,872 cf Inflow=10.55 cfs 36,970 cf
Outflow=0.00 cfs 0 cf

Total Runoff Area = 759,267 sf Runoff Volume = 36,970 cf Average Runoff Depth = 0.58"
100.00% Pervious = 759,267 sf 0.00% Impervious = 0 sf

10yr-24hr East Pond

Type II 24-hr Rainfall=1.57"

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Summary for Subcatchment 1S: E-3

Runoff = 4.81 cfs @ 12.09 hrs, Volume= 14,120 cf, Depth= 0.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Type II 24-hr Rainfall=1.57"

	Area (sf)	CN	Description
*	289,991	87	
	289,991		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.5	1,091	0.0300	1.17		Lag/CN Method,

Summary for Subcatchment 2S: E-1

Runoff = 1.05 cfs @ 12.22 hrs, Volume= 4,290 cf, Depth= 0.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Type II 24-hr Rainfall=1.57"

	Area (sf)	CN	Description
*	88,103	87	
	88,103		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.1	1,752	0.0210	1.08		Lag/CN Method,

Summary for Subcatchment 7S: E-2

Runoff = 1.28 cfs @ 12.04 hrs, Volume= 3,220 cf, Depth= 0.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Type II 24-hr Rainfall=1.57"

	Area (sf)	CN	Description
*	66,123	87	
	66,123		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	581	0.0210	0.86		Lag/CN Method,

10yr-24hr East Pond

Type II 24-hr Rainfall=1.57"

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Summary for Subcatchment 8S: E-4[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.78 cfs @ 11.94 hrs, Volume= 1,458 cf, Depth= 0.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, $dt=0.05$ hrs

Type II 24-hr Rainfall=1.57"

	Area (sf)	CN	Description
*	29,947	87	
	29,947		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	561	0.2500	2.96		Lag/CN Method,

Summary for Subcatchment 9S: E-5

Runoff = 4.82 cfs @ 12.08 hrs, Volume= 13,882 cf, Depth= 0.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, $dt=0.05$ hrs

Type II 24-hr Rainfall=1.57"

	Area (sf)	CN	Description
*	285,103	87	
	285,103		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	925	0.0250	1.04		Lag/CN Method,

Summary for Reach 3R: C-1

[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 66,123 sf, 0.00% Impervious, Inflow Depth = 0.58"

Inflow = 1.28 cfs @ 12.04 hrs, Volume= 3,220 cf

Outflow = 1.27 cfs @ 12.04 hrs, Volume= 3,220 cf, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, $dt=0.05$ hrs

Max. Velocity= 4.37 fps, Min. Travel Time= 0.2 min

Avg. Velocity = 1.51 fps, Avg. Travel Time= 0.4 min

Peak Storage= 12 cf @ 12.04 hrs, Average Depth at Peak Storage= 0.33'

Bank-Full Depth= 1.50', Capacity at Bank-Full= 11.83 cfs

18.0" Diameter Pipe, $n=0.020$ Corrugated PE, corrugated interior

Length= 40.0' Slope= 0.0300 '/

Inlet Invert= 5,520.70', Outlet Invert= 5,519.50'

10yr-24hr East Pond

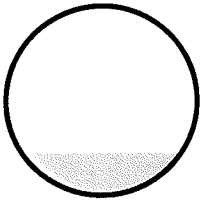
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Type II 24-hr Rainfall=1.57"

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Summary for Reach 4R: Lower E-1 Ditch

[62] Warning: Exceeded Reach 7R OUTLET depth by 0.48' @ 12.25 hrs

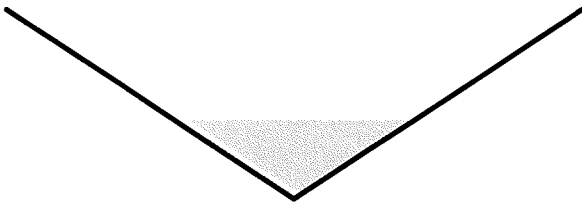
[61] Hint: Exceeded Reach 12R outlet invert by 0.62' @ 12.15 hrs

Inflow Area = 184,173 sf, 0.00% Impervious, Inflow Depth = 0.58"
Inflow = 2.08 cfs @ 12.15 hrs, Volume= 8,968 cf
Outflow = 2.05 cfs @ 12.19 hrs, Volume= 8,968 cf, Atten= 1%, Lag= 2.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.58 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 1.49 fps, Avg. Travel Time= 3.2 min

Peak Storage= 166 cf @ 12.17 hrs, Average Depth at Peak Storage= 0.62'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 21.75 cfs

0.00' x 1.50' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 1.5 ' / ' Top Width= 4.50'
Length= 287.0' Slope= 0.0171 ' / '
Inlet Invert= 5,508.70', Outlet Invert= 5,503.80'



Summary for Reach 7R: C-2

[52] Hint: Inlet/Outlet conditions not evaluated

[62] Warning: Exceeded Reach 8R OUTLET depth by 0.10' @ 0.00 hrs

Inflow Area = 29,947 sf, 0.00% Impervious, Inflow Depth = 0.58"
Inflow = 0.64 cfs @ 12.04 hrs, Volume= 1,458 cf
Outflow = 0.64 cfs @ 12.04 hrs, Volume= 1,458 cf, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.57 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.17 fps, Avg. Travel Time= 0.6 min

Peak Storage= 7 cf @ 12.04 hrs, Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 11.83 cfs

10yr-24hr East Pond

Type II 24-hr Rainfall=1.57"

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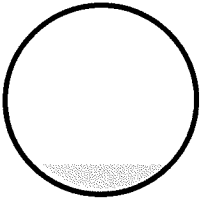
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18.0" Diameter Pipe, $n = 0.020$ Corrugated PE, corrugated interior

Length= 40.0' Slope= 0.0300 '/'

Inlet Invert= 5,509.90', Outlet Invert= 5,508.70'



Summary for Reach 8R: E-4 Ditch

Inflow Area = 29,947 sf, 0.00% Impervious, Inflow Depth = 0.58"
Inflow = 0.78 cfs @ 11.94 hrs, Volume= 1,458 cf
Outflow = 0.64 cfs @ 12.04 hrs, Volume= 1,458 cf, Atten= 17%, Lag= 5.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.58 fps, Min. Travel Time= 3.6 min

Avg. Velocity = 0.97 fps, Avg. Travel Time= 9.7 min

Peak Storage= 143 cf @ 11.98 hrs, Average Depth at Peak Storage= 0.41'

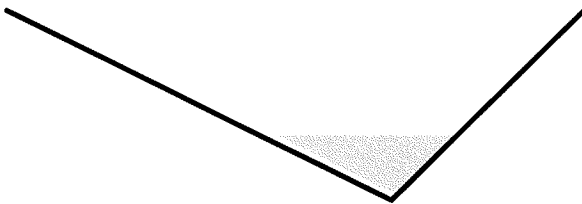
Bank-Full Depth= 1.20', Capacity at Bank-Full= 11.47 cfs

0.00' x 1.20' deep channel, $n = 0.022$

Side Slope Z-value= 2.0 1.0 '/' Top Width= 3.60'

Length= 561.0' Slope= 0.0159 '/'

Inlet Invert= 5,518.70', Outlet Invert= 5,509.80'



Summary for Reach 10R: E-5 Ditch

Inflow Area = 285,103 sf, 0.00% Impervious, Inflow Depth = 0.58"
Inflow = 4.82 cfs @ 12.08 hrs, Volume= 13,882 cf
Outflow = 4.33 cfs @ 12.20 hrs, Volume= 13,882 cf, Atten= 10%, Lag= 7.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.88 fps, Min. Travel Time= 4.3 min

Avg. Velocity = 1.04 fps, Avg. Travel Time= 12.0 min

Peak Storage= 1,136 cf @ 12.13 hrs, Average Depth at Peak Storage= 0.62'

Bank-Full Depth= 1.00', Capacity at Bank-Full= 15.92 cfs

10yr-24hr East Pond

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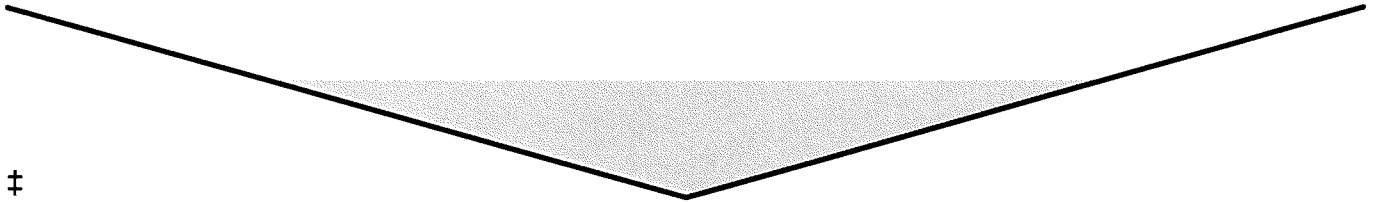
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Type II 24-hr Rainfall=1.57"

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0.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 '/' Top Width= 8.00'
Length= 746.0' Slope= 0.0091 '/'
Inlet Invert= 5,510.60', Outlet Invert= 5,503.80'



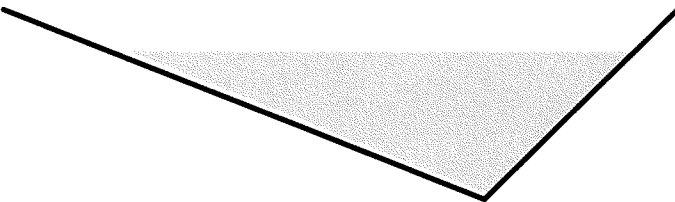
Summary for Reach 11R: E-3 Ditch

Inflow Area = 289,991 sf, 0.00% Impervious, Inflow Depth = 0.58"
Inflow = 4.81 cfs @ 12.09 hrs, Volume= 14,120 cf
Outflow = 4.69 cfs @ 12.12 hrs, Volume= 14,120 cf, Atten= 2%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.51 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.83 fps, Avg. Travel Time= 2.6 min

Peak Storage= 300 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.78'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 9.33 cfs

0.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.5 1.0 '/' Top Width= 3.50'
Length= 283.0' Slope= 0.0194 '/'
Inlet Invert= 5,509.50', Outlet Invert= 5,504.00'



Summary for Reach 12R: Upper E-1 Ditch

[62] Warning: Exceeded Reach 3R OUTLET depth by 0.51' @ 12.25 hrs

Inflow Area = 154,226 sf, 0.00% Impervious, Inflow Depth = 0.58"
Inflow = 1.93 cfs @ 12.07 hrs, Volume= 7,510 cf
Outflow = 1.80 cfs @ 12.19 hrs, Volume= 7,509 cf, Atten= 7%, Lag= 7.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.36 fps, Min. Travel Time= 3.6 min
Avg. Velocity = 1.39 fps, Avg. Travel Time= 8.6 min

Peak Storage= 388 cf @ 12.13 hrs, Average Depth at Peak Storage= 0.73'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 4.14 cfs

10yr-24hr East Pond

Type II 24-hr Rainfall=1.57"

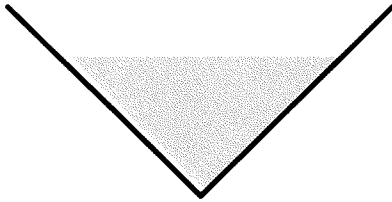
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0.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
 Side Slope Z-value= 1.0 '/' Top Width= 2.00'
 Length= 720.0' Slope= 0.0150 '/'
 Inlet Invert= 5,519.50', Outlet Invert= 5,508.70'

**Summary for Pond 6P: Sed Pond**

Inflow Area = 759,267 sf, 0.00% Impervious, Inflow Depth = 0.58"
 Inflow = 10.55 cfs @ 12.16 hrs, Volume= 36,970 cf
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Starting Elev= 5,496.50' Surf.Area= 3,700 sf Storage= 7,903 cf

Peak Elev= 5,502.55' @ 30.00 hrs Surf.Area= 8,845 sf Storage= 44,872 cf (36,969 cf above start)

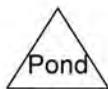
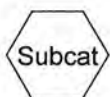
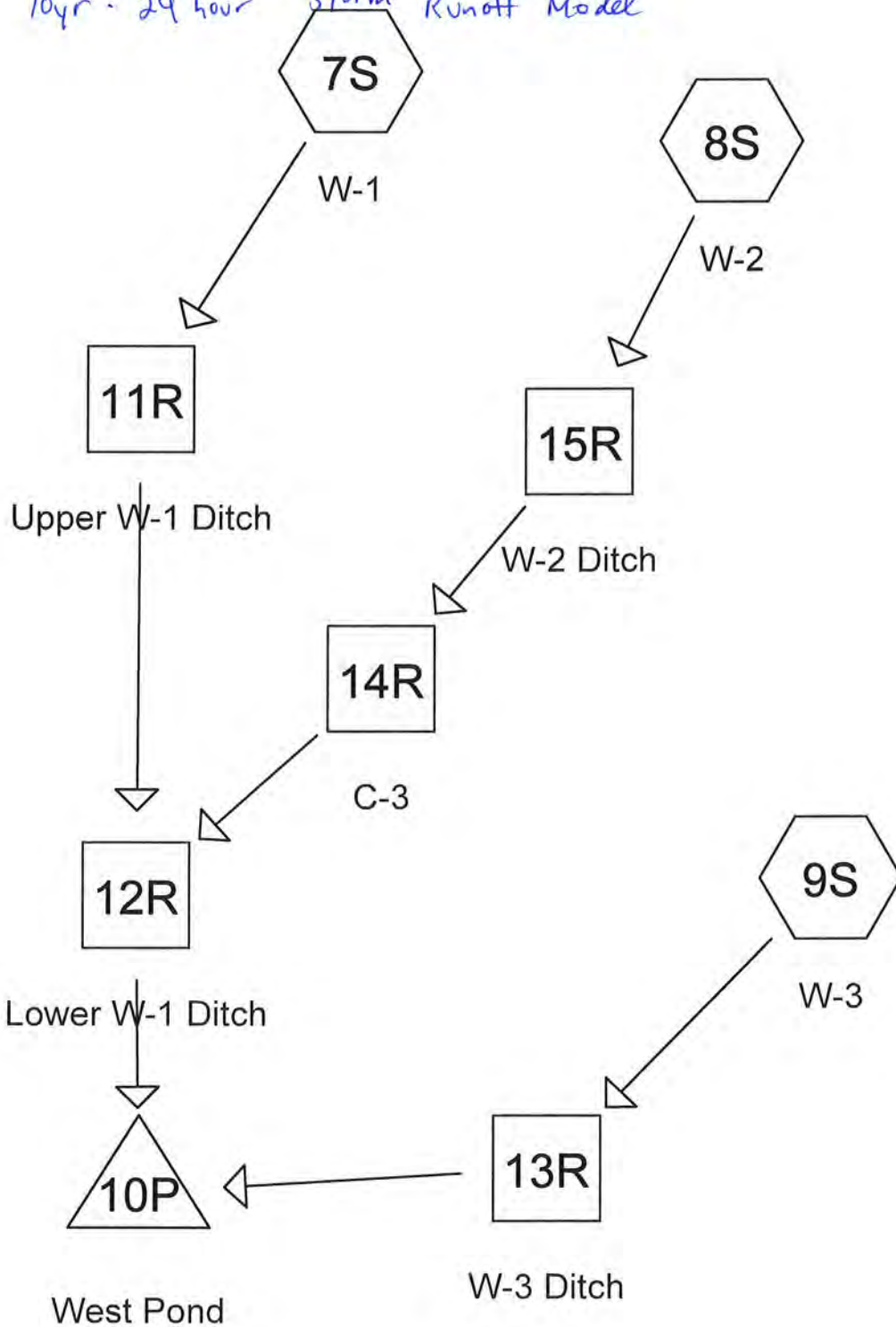
Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	5,493.80'	56,820 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5,493.80	2,550	0	0
5,494.80	2,601	2,576	2,576
5,495.80	3,214	2,908	5,483
5,496.80	3,909	3,562	9,045
5,497.80	4,637	4,273	13,318
5,498.80	5,425	5,031	18,349
5,499.80	6,243	5,834	24,183
5,500.80	7,158	6,701	30,883
5,501.80	8,125	7,642	38,525
5,502.80	9,087	8,606	47,131
5,503.80	10,291	9,689	56,820

West Sedimentation Pond
10yr - 24 hour Storm Runoff Model



Drainage Diagram for 10yr-24hr West Pond

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10yr-24hr West Pond

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
305,034	87	(7S,8S,9S)
305,034		TOTAL AREA

10yr-24hr West Pond

Type II 24-hr Rainfall=1.57"

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment7S: W-1 Runoff Area=105,474 sf 0.00% Impervious Runoff Depth=0.58"
Flow Length=1,297' Slope=0.0250 '/' Tc=19.5 min CN=87 Runoff=1.54 cfs 5,136 cf

Subcatchment8S: W-2 Runoff Area=128,724 sf 0.00% Impervious Runoff Depth=0.58"
Flow Length=635' Slope=0.0250 '/' Tc=11.0 min CN=87 Runoff=2.50 cfs 6,268 cf

Subcatchment9S: W-3 Runoff Area=70,836 sf 0.00% Impervious Runoff Depth=0.58"
Flow Length=447' Slope=0.0270 '/' Tc=8.0 min CN=87 Runoff=1.55 cfs 3,449 cf

Reach 11R: Upper W-1 Ditch Avg. Depth=0.49' Max Vel=2.95 fps Inflow=1.54 cfs 5,136 cf
n=0.022 L=963.0' S=0.0145 '/' Capacity=60.48 cfs Outflow=1.38 cfs 5,136 cf

Reach 12R: Lower W-1 Ditch Avg. Depth=0.72' Max Vel=2.96 fps Inflow=3.15 cfs 11,403 cf
n=0.022 L=320.0' S=0.0088 '/' Capacity=46.92 cfs Outflow=3.06 cfs 11,403 cf

Reach 13R: W-3 Ditch Avg. Depth=0.44' Max Vel=2.88 fps Inflow=1.55 cfs 3,449 cf
n=0.022 L=160.0' S=0.0156 '/' Capacity=13.77 cfs Outflow=1.46 cfs 3,449 cf

Reach 14R: C-3 Avg. Depth=0.45' Max Vel=5.35 fps Inflow=2.36 cfs 6,268 cf
D=18.0" n=0.020 L=40.0' S=0.0325 '/' Capacity=12.31 cfs Outflow=2.35 cfs 6,268 cf

Reach 15R: W-2 Ditch Avg. Depth=0.20' Max Vel=2.72 fps Inflow=2.50 cfs 6,268 cf
n=0.022 L=500.0' S=0.0158 '/' Capacity=37.48 cfs Outflow=2.36 cfs 6,268 cf

Pond 10P: West Pond Peak Elev=5,503.96' Storage=14,852 cf Inflow=3.50 cfs 14,853 cf
Outflow=0.00 cfs 0 cf

Total Runoff Area = 305,034 sf Runoff Volume = 14,853 cf Average Runoff Depth = 0.58"
100.00% Pervious = 305,034 sf 0.00% Impervious = 0 sf

10yr-24hr West Pond

Type II 24-hr Rainfall=1.57"

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Summary for Subcatchment 7S: W-1

Runoff = 1.54 cfs @ 12.13 hrs, Volume= 5,136 cf, Depth= 0.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr Rainfall=1.57"

	Area (sf)	CN	Description
*	105,474	87	
	105,474		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.5	1,297	0.0250	1.11		Lag/CN Method,

Summary for Subcatchment 8S: W-2

Runoff = 2.50 cfs @ 12.04 hrs, Volume= 6,268 cf, Depth= 0.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr Rainfall=1.57"

	Area (sf)	CN	Description
*	128,724	87	
	128,724		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	635	0.0250	0.96		Lag/CN Method,

Summary for Subcatchment 9S: W-3

Runoff = 1.55 cfs @ 12.00 hrs, Volume= 3,449 cf, Depth= 0.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr Rainfall=1.57"

	Area (sf)	CN	Description
*	70,836	87	
	70,836		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	447	0.0270	0.93		Lag/CN Method,

10yr-24hr West Pond

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Type II 24-hr Rainfall=1.57"

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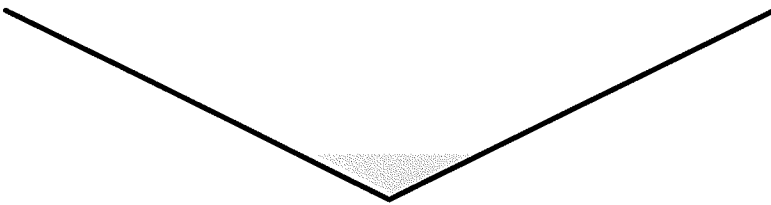
Summary for Reach 11R: Upper W-1 Ditch

Inflow Area = 105,474 sf, 0.00% Impervious, Inflow Depth = 0.58"
Inflow = 1.54 cfs @ 12.13 hrs, Volume= 5,136 cf
Outflow = 1.38 cfs @ 12.29 hrs, Volume= 5,136 cf, Atten= 10%, Lag= 9.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.95 fps, Min. Travel Time= 5.4 min
Avg. Velocity = 1.18 fps, Avg. Travel Time= 13.6 min

Peak Storage= 456 cf @ 12.20 hrs, Average Depth at Peak Storage= 0.49'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 60.48 cfs

0.00' x 2.00' deep channel, n= 0.022
Side Slope Z-value= 2.0 ' / ' Top Width= 8.00'
Length= 963.0' Slope= 0.0145 ' / '
Inlet Invert= 5,524.80', Outlet Invert= 5,510.80'



Summary for Reach 12R: Lower W-1 Ditch

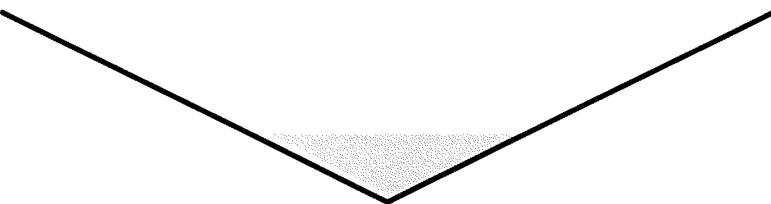
[62] Warning: Exceeded Reach 11R OUTLET depth by 0.24' @ 12.15 hrs
[62] Warning: Exceeded Reach 14R OUTLET depth by 0.39' @ 12.35 hrs

Inflow Area = 234,198 sf, 0.00% Impervious, Inflow Depth = 0.58"
Inflow = 3.15 cfs @ 12.15 hrs, Volume= 11,403 cf
Outflow = 3.06 cfs @ 12.21 hrs, Volume= 11,403 cf, Atten= 3%, Lag= 3.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.96 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 1.15 fps, Avg. Travel Time= 4.6 min

Peak Storage= 333 cf @ 12.18 hrs, Average Depth at Peak Storage= 0.72'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 46.92 cfs

0.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 ' / ' Top Width= 8.00'
Length= 320.0' Slope= 0.0088 ' / '
Inlet Invert= 5,510.80', Outlet Invert= 5,508.00'



10yr-24hr West Pond

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Type II 24-hr Rainfall=1.57"

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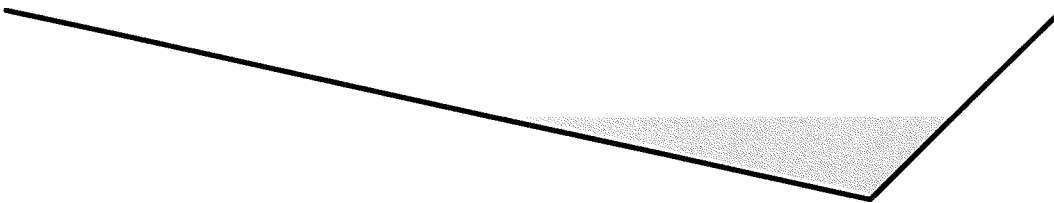
Summary for Reach 13R: W-3 Ditch

Inflow Area = 70,836 sf, 0.00% Impervious, Inflow Depth = 0.58"
Inflow = 1.55 cfs @ 12.00 hrs, Volume= 3,449 cf
Outflow = 1.46 cfs @ 12.03 hrs, Volume= 3,449 cf, Atten= 5%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.88 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.13 fps, Avg. Travel Time= 2.4 min

Peak Storage= 84 cf @ 12.01 hrs, Average Depth at Peak Storage= 0.44'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 13.77 cfs

0.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.5 1.0 '/' Top Width= 5.50'
Length= 160.0' Slope= 0.0156 '/'
Inlet Invert= 5,510.50', Outlet Invert= 5,508.00'



Summary for Reach 14R: C-3

[52] Hint: Inlet/Outlet conditions not evaluated

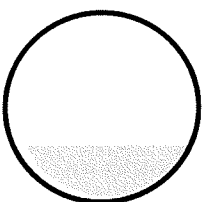
[62] Warning: Exceeded Reach 15R OUTLET depth by 0.27' @ 12.15 hrs

Inflow Area = 128,724 sf, 0.00% Impervious, Inflow Depth = 0.58"
Inflow = 2.36 cfs @ 12.12 hrs, Volume= 6,268 cf
Outflow = 2.35 cfs @ 12.12 hrs, Volume= 6,268 cf, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.35 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.77 fps, Avg. Travel Time= 0.4 min

Peak Storage= 18 cf @ 12.12 hrs, Average Depth at Peak Storage= 0.45'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 12.31 cfs

18.0" Diameter Pipe, n= 0.020
Length= 40.0' Slope= 0.0325 '/'
Inlet Invert= 5,512.10', Outlet Invert= 5,510.80'



10yr-24hr West Pond

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Type II 24-hr Rainfall=1.57"

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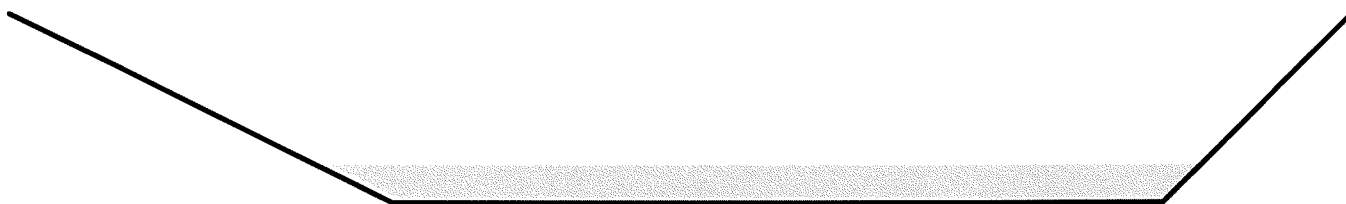
Summary for Reach 15R: W-2 Ditch

Inflow Area = 128,724 sf, 0.00% Impervious, Inflow Depth = 0.58"
Inflow = 2.50 cfs @ 12.04 hrs, Volume= 6,268 cf
Outflow = 2.36 cfs @ 12.12 hrs, Volume= 6,268 cf, Atten= 6%, Lag= 4.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.72 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 0.71 fps, Avg. Travel Time= 11.8 min

Peak Storage= 433 cf @ 12.07 hrs, Average Depth at Peak Storage= 0.20'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 37.48 cfs

4.00' x 1.00' deep channel, n= 0.022
Side Slope Z-value= 2.0 1.0 '/' Top Width= 7.00'
Length= 500.0' Slope= 0.0158 '/'
Inlet Invert= 5,520.00', Outlet Invert= 5,512.10'



Summary for Pond 10P: West Pond

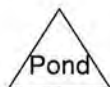
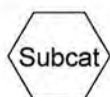
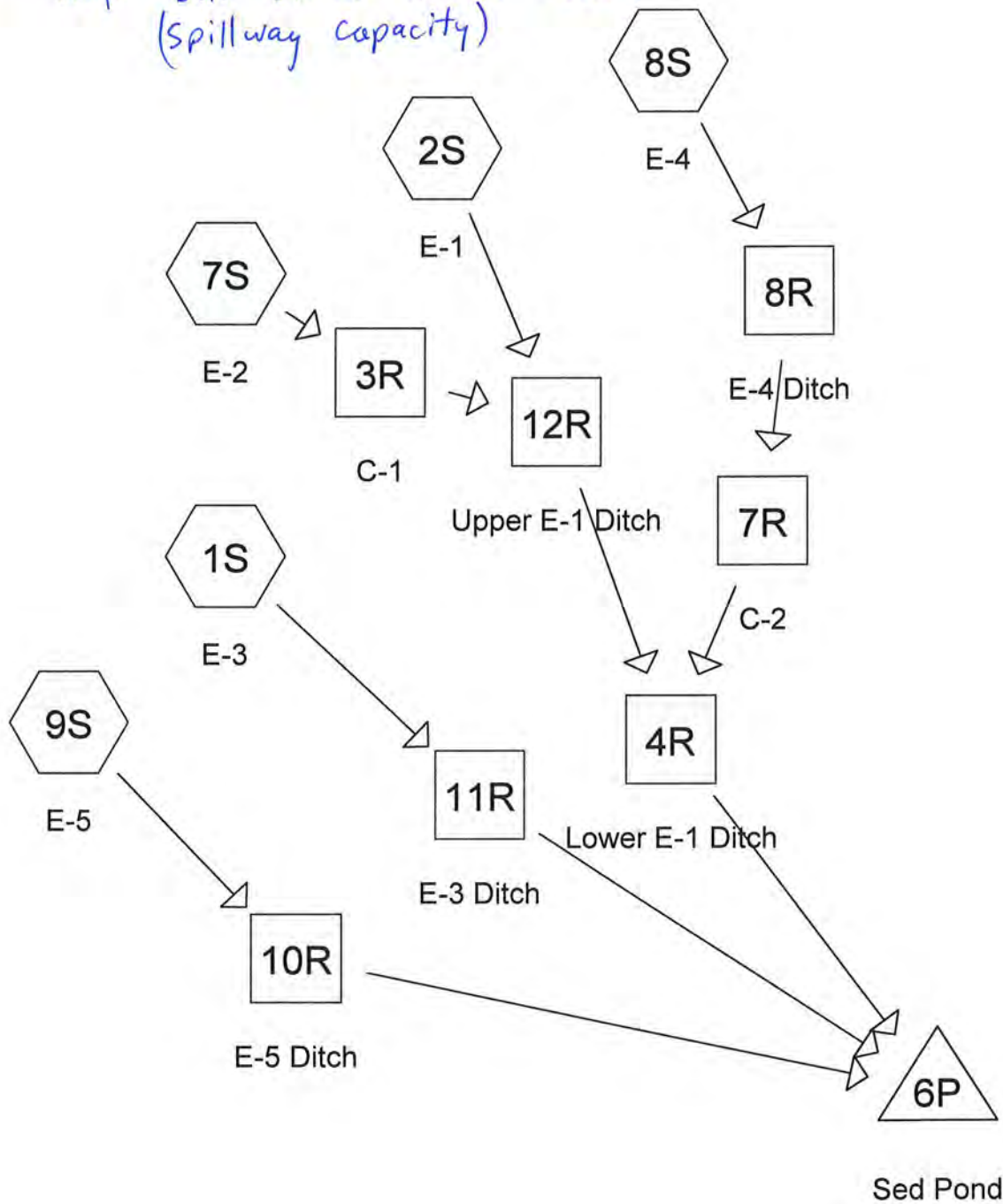
Inflow Area = 305,034 sf, 0.00% Impervious, Inflow Depth = 0.58"
Inflow = 3.50 cfs @ 12.18 hrs, Volume= 14,853 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 5,503.96' @ 30.00 hrs Surf.Area= 4,030 sf Storage= 14,852 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	5,498.23'	36,065 cf	17.00'W x 78.00'L x 9.77'H Prismatic Z=2.0

East Sedimentation Pond
 25yr - 6hr Storm Runoff Model
 (Spillway Capacity)



Drainage Diagram for 25yr-6hr East Pond

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25yr-6hr East Pond

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
759,267	87	(1S,2S,7S,8S,9S)
759,267		TOTAL AREA

25yr-6hr East Pond

Type II 24-hr 6.00 hrs Rainfall=1.29"

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Time span=0.00-40.00 hrs, dt=0.05 hrs, 801 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: E-3Runoff Area=289,991 sf 0.00% Impervious Runoff Depth=0.40"
Flow Length=1,091' Slope=0.0300 '/' Tc=15.5 min CN=87 Runoff=4.88 cfs 9,552 cf**Subcatchment2S: E-1**Runoff Area=88,103 sf 0.00% Impervious Runoff Depth=0.40"
Flow Length=1,752' Slope=0.0210 '/' Tc=27.1 min CN=87 Runoff=0.98 cfs 2,902 cf**Subcatchment7S: E-2**Runoff Area=66,123 sf 0.00% Impervious Runoff Depth=0.40"
Flow Length=581' Slope=0.0210 '/' Tc=11.2 min CN=87 Runoff=1.42 cfs 2,178 cf**Subcatchment8S: E-4**Runoff Area=29,947 sf 0.00% Impervious Runoff Depth=0.40"
Flow Length=561' Slope=0.2500 '/' Tc=3.2 min CN=87 Runoff=1.16 cfs 986 cf**Subcatchment9S: E-5**Runoff Area=285,103 sf 0.00% Impervious Runoff Depth=0.40"
Flow Length=925' Slope=0.0250 '/' Tc=14.9 min CN=87 Runoff=4.98 cfs 9,391 cf**Reach 3R: C-1**Avg. Depth=0.35' Max Vel=4.46 fps Inflow=1.42 cfs 2,178 cf
D=18.0" n=0.020 L=40.0' S=0.0300 '/' Capacity=11.83 cfs Outflow=1.40 cfs 2,178 cf**Reach 4R: Lower E-1 Ditch**Avg. Depth=0.59' Max Vel=3.47 fps Inflow=1.84 cfs 6,066 cf
n=0.022 L=287.0' S=0.0171 '/' Capacity=21.75 cfs Outflow=1.82 cfs 6,066 cf**Reach 7R: C-2**Avg. Depth=0.26' Max Vel=3.73 fps Inflow=0.77 cfs 986 cf
D=18.0" n=0.020 L=40.0' S=0.0300 '/' Capacity=11.83 cfs Outflow=0.75 cfs 986 cf**Reach 8R: E-4 Ditch**Avg. Depth=0.44' Max Vel=2.73 fps Inflow=1.16 cfs 986 cf
n=0.022 L=561.0' S=0.0159 '/' Capacity=11.47 cfs Outflow=0.77 cfs 986 cf**Reach 10R: E-5 Ditch**Avg. Depth=0.61' Max Vel=2.86 fps Inflow=4.98 cfs 9,391 cf
n=0.022 L=746.0' S=0.0091 '/' Capacity=15.92 cfs Outflow=4.22 cfs 9,391 cf**Reach 11R: E-3 Ditch**Avg. Depth=0.78' Max Vel=4.53 fps Inflow=4.88 cfs 9,552 cf
n=0.022 L=283.0' S=0.0194 '/' Capacity=9.33 cfs Outflow=4.77 cfs 9,552 cf**Reach 12R: Upper E-1 Ditch**Avg. Depth=0.70' Max Vel=3.26 fps Inflow=1.75 cfs 5,080 cf
n=0.022 L=720.0' S=0.0150 '/' Capacity=4.14 cfs Outflow=1.60 cfs 5,080 cf**Pond 6P: Sed Pond**Peak Elev=5,504.27' Storage=61,731 cf Inflow=9.99 cfs 25,009 cf
Outflow=2.29 cfs 18,184 cf**Total Runoff Area = 759,267 sf Runoff Volume = 25,009 cf Average Runoff Depth = 0.40"**
100.00% Pervious = 759,267 sf 0.00% Impervious = 0 sf

25yr-6hr East Pond

Type II 24-hr 6.00 hrs Rainfall=1.29"

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Summary for Subcatchment 1S: E-3

Runoff = 4.88 cfs @ 3.18 hrs, Volume= 9,552 cf, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Type II 24-hr 6.00 hrs Rainfall=1.29"

Area (sf)	CN	Description
* 289,991	87	
289,991		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.5	1,091	0.0300	1.17		Lag/CN Method,

Summary for Subcatchment 2S: E-1

Runoff = 0.98 cfs @ 3.34 hrs, Volume= 2,902 cf, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Type II 24-hr 6.00 hrs Rainfall=1.29"

Area (sf)	CN	Description
* 88,103	87	
88,103		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.1	1,752	0.0210	1.08		Lag/CN Method,

Summary for Subcatchment 7S: E-2

Runoff = 1.42 cfs @ 3.12 hrs, Volume= 2,178 cf, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Type II 24-hr 6.00 hrs Rainfall=1.29"

Area (sf)	CN	Description
* 66,123	87	
66,123		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	581	0.0210	0.86		Lag/CN Method,

25yr-6hr East Pond

Type II 24-hr 6.00 hrs Rainfall=1.29"

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Summary for Subcatchment 8S: E-4

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.16 cfs @ 3.01 hrs, Volume= 986 cf, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Type II 24-hr 6.00 hrs Rainfall=1.29"

Area (sf)	CN	Description
* 29,947	87	
29,947		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	561	0.2500	2.96		Lag/CN Method,

Summary for Subcatchment 9S: E-5

Runoff = 4.98 cfs @ 3.17 hrs, Volume= 9,391 cf, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Type II 24-hr 6.00 hrs Rainfall=1.29"

Area (sf)	CN	Description
* 285,103	87	
285,103		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	925	0.0250	1.04		Lag/CN Method,

Summary for Reach 3R: C-1

[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 66,123 sf, 0.00% Impervious, Inflow Depth = 0.40"

Inflow = 1.42 cfs @ 3.12 hrs, Volume= 2,178 cf

Outflow = 1.40 cfs @ 3.12 hrs, Volume= 2,178 cf, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Max. Velocity= 4.46 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 1.99 fps, Avg. Travel Time= 0.3 min

Peak Storage= 13 cf @ 3.12 hrs, Average Depth at Peak Storage= 0.35'

Bank-Full Depth= 1.50', Capacity at Bank-Full= 11.83 cfs

18.0" Diameter Pipe, n= 0.020 Corrugated PE, corrugated interior

Length= 40.0' Slope= 0.0300 1'

Inlet Invert= 5,520.70', Outlet Invert= 5,519.50'

25yr-6hr East Pond

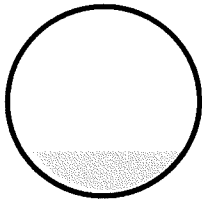
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Type II 24-hr 6.00 hrs Rainfall=1.29"

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Summary for Reach 4R: Lower E-1 Ditch

[62] Warning: Exceeded Reach 7R OUTLET depth by 0.46' @ 3.35 hrs

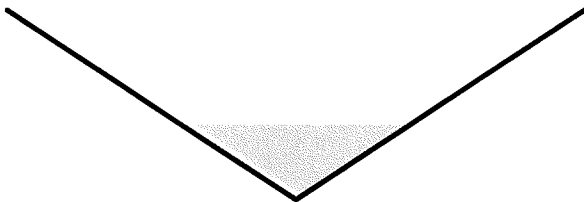
[61] Hint: Exceeded Reach 12R outlet invert by 0.59' @ 3.30 hrs

Inflow Area = 184,173 sf, 0.00% Impervious, Inflow Depth = 0.40"
Inflow = 1.84 cfs @ 3.27 hrs, Volume= 6,066 cf
Outflow = 1.82 cfs @ 3.32 hrs, Volume= 6,066 cf, Atten= 1%, Lag= 2.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.47 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 1.48 fps, Avg. Travel Time= 3.2 min

Peak Storage= 151 cf @ 3.29 hrs, Average Depth at Peak Storage= 0.59'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 21.75 cfs

0.00' x 1.50' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 1.5 '/' Top Width= 4.50'
Length= 287.0' Slope= 0.0171 '/'
Inlet Invert= 5,508.70', Outlet Invert= 5,503.80'



Summary for Reach 7R: C-2

[52] Hint: Inlet/Outlet conditions not evaluated

[62] Warning: Exceeded Reach 8R OUTLET depth by 0.10' @ 0.00 hrs

Inflow Area = 29,947 sf, 0.00% Impervious, Inflow Depth = 0.40"
Inflow = 0.77 cfs @ 3.11 hrs, Volume= 986 cf
Outflow = 0.75 cfs @ 3.12 hrs, Volume= 986 cf, Atten= 2%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.73 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.39 fps, Avg. Travel Time= 0.5 min

Peak Storage= 8 cf @ 3.12 hrs, Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 11.83 cfs

25yr-6hr East Pond

Type II 24-hr 6.00 hrs Rainfall=1.29"

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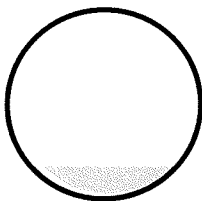
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18.0" Diameter Pipe, $n = 0.020$ Corrugated PE, corrugated interior

Length= 40.0' Slope= 0.0300 '/'

Inlet Invert= 5,509.90', Outlet Invert= 5,508.70'



Summary for Reach 8R: E-4 Ditch

Inflow Area = 29,947 sf, 0.00% Impervious, Inflow Depth = 0.40"
Inflow = 1.16 cfs @ 3.01 hrs, Volume= 986 cf
Outflow = 0.77 cfs @ 3.11 hrs, Volume= 986 cf, Atten= 34%, Lag= 6.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.73 fps, Min. Travel Time= 3.4 min

Avg. Velocity = 1.03 fps, Avg. Travel Time= 9.1 min

Peak Storage= 166 cf @ 3.06 hrs, Average Depth at Peak Storage= 0.44'

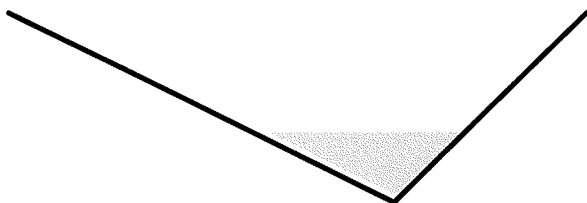
Bank-Full Depth= 1.20', Capacity at Bank-Full= 11.47 cfs

0.00' x 1.20' deep channel, $n = 0.022$

Side Slope Z-value= 2.0 1.0 '/' Top Width= 3.60'

Length= 561.0' Slope= 0.0159 '/'

Inlet Invert= 5,518.70', Outlet Invert= 5,509.80'



Summary for Reach 10R: E-5 Ditch

Inflow Area = 285,103 sf, 0.00% Impervious, Inflow Depth = 0.40"
Inflow = 4.98 cfs @ 3.17 hrs, Volume= 9,391 cf
Outflow = 4.22 cfs @ 3.31 hrs, Volume= 9,391 cf, Atten= 15%, Lag= 8.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.86 fps, Min. Travel Time= 4.3 min

Avg. Velocity = 0.93 fps, Avg. Travel Time= 13.4 min

Peak Storage= 1,116 cf @ 3.23 hrs, Average Depth at Peak Storage= 0.61'

Bank-Full Depth= 1.00', Capacity at Bank-Full= 15.92 cfs

25yr-6hr East Pond

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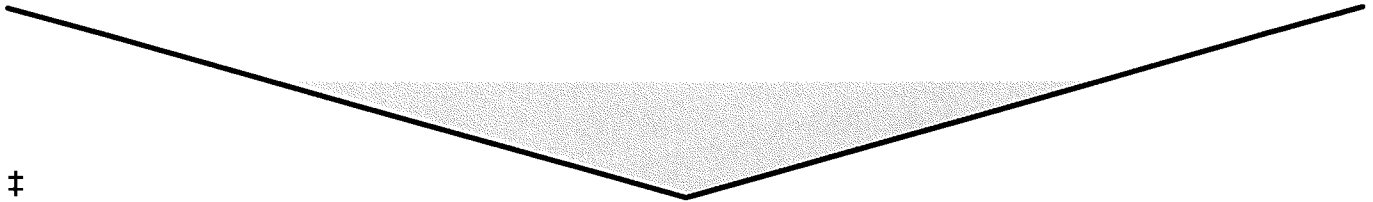
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Type II 24-hr 6.00 hrs Rainfall=1.29"

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0.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 '/' Top Width= 8.00'
Length= 746.0' Slope= 0.0091 '/'
Inlet Invert= 5,510.60', Outlet Invert= 5,503.80'



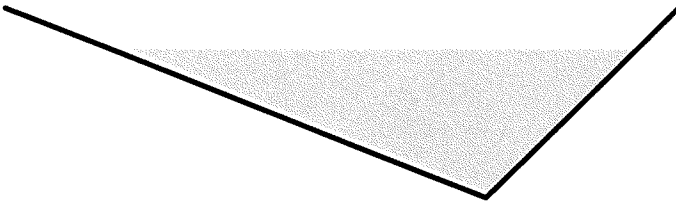
Summary for Reach 11R: E-3 Ditch

Inflow Area = 289,991 sf, 0.00% Impervious, Inflow Depth = 0.40"
Inflow = 4.88 cfs @ 3.18 hrs, Volume= 9,552 cf
Outflow = 4.77 cfs @ 3.21 hrs, Volume= 9,552 cf, Atten= 2%, Lag= 2.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.53 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 2.05 fps, Avg. Travel Time= 2.3 min

Peak Storage= 304 cf @ 3.20 hrs, Average Depth at Peak Storage= 0.78'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 9.33 cfs

0.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.5 1.0 '/' Top Width= 3.50'
Length= 283.0' Slope= 0.0194 '/'
Inlet Invert= 5,509.50', Outlet Invert= 5,504.00'



Summary for Reach 12R: Upper E-1 Ditch

[62] Warning: Exceeded Reach 3R OUTLET depth by 0.49' @ 3.40 hrs

Inflow Area = 154,226 sf, 0.00% Impervious, Inflow Depth = 0.40"
Inflow = 1.75 cfs @ 3.16 hrs, Volume= 5,080 cf
Outflow = 1.60 cfs @ 3.30 hrs, Volume= 5,080 cf, Atten= 8%, Lag= 8.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.26 fps, Min. Travel Time= 3.7 min
Avg. Velocity = 1.38 fps, Avg. Travel Time= 8.7 min

Peak Storage= 354 cf @ 3.23 hrs, Average Depth at Peak Storage= 0.70'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 4.14 cfs

25yr-6hr East Pond

Type II 24-hr 6.00 hrs Rainfall=1.29"

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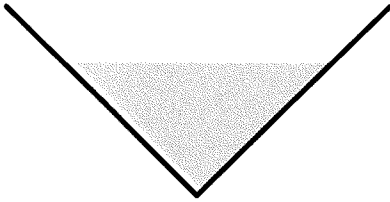
Page 9

0.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight

Side Slope Z-value= 1.0 '/' Top Width= 2.00'

Length= 720.0' Slope= 0.0150 '/'

Inlet Invert= 5,519.50', Outlet Invert= 5,508.70'

**Summary for Pond 6P: Sed Pond**

[62] Warning: Exceeded Reach 4R OUTLET depth by 0.09' @ 4.10 hrs

[62] Warning: Exceeded Reach 10R OUTLET depth by 0.16' @ 4.00 hrs

[61] Hint: Exceeded Reach 11R outlet invert by 0.27' @ 3.85 hrs

Inflow Area = 759,267 sf, 0.00% Impervious, Inflow Depth = 0.40"
 Inflow = 9.99 cfs @ 3.27 hrs, Volume= 25,009 cf
 Outflow = 2.29 cfs @ 3.85 hrs, Volume= 18,184 cf, Atten= 77%, Lag= 34.7 min
 Primary = 2.29 cfs @ 3.85 hrs, Volume= 18,184 cf

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Starting Elev= 5,503.00' Surf.Area= 9,328 sf Storage= 48,972 cf

Peak Elev= 5,504.27' @ 3.85 hrs Surf.Area= 10,663 sf Storage= 61,731 cf (12,759 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= 75.1 min (311.7 - 236.6)

Volume	Invert	Avail.Storage	Storage Description
#1	5,493.80'	78,991 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5,493.80	2,550	0	0
5,494.80	2,601	2,576	2,576
5,495.80	3,214	2,908	5,483
5,496.80	3,909	3,562	9,045
5,497.80	4,637	4,273	13,318
5,498.80	5,425	5,031	18,349
5,499.80	6,243	5,834	24,183
5,500.80	7,158	6,701	30,883
5,501.80	8,125	7,642	38,525
5,502.80	9,087	8,606	47,131
5,503.80	10,291	9,689	56,820
5,505.80	11,880	22,171	78,991

Device	Routing	Invert	Outlet Devices
#1	Primary	5,503.70'	2.0' long x 3.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50

25yr-6hr East Pond

Type II 24-hr 6.00 hrs Rainfall=1.29"

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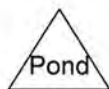
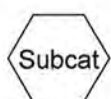
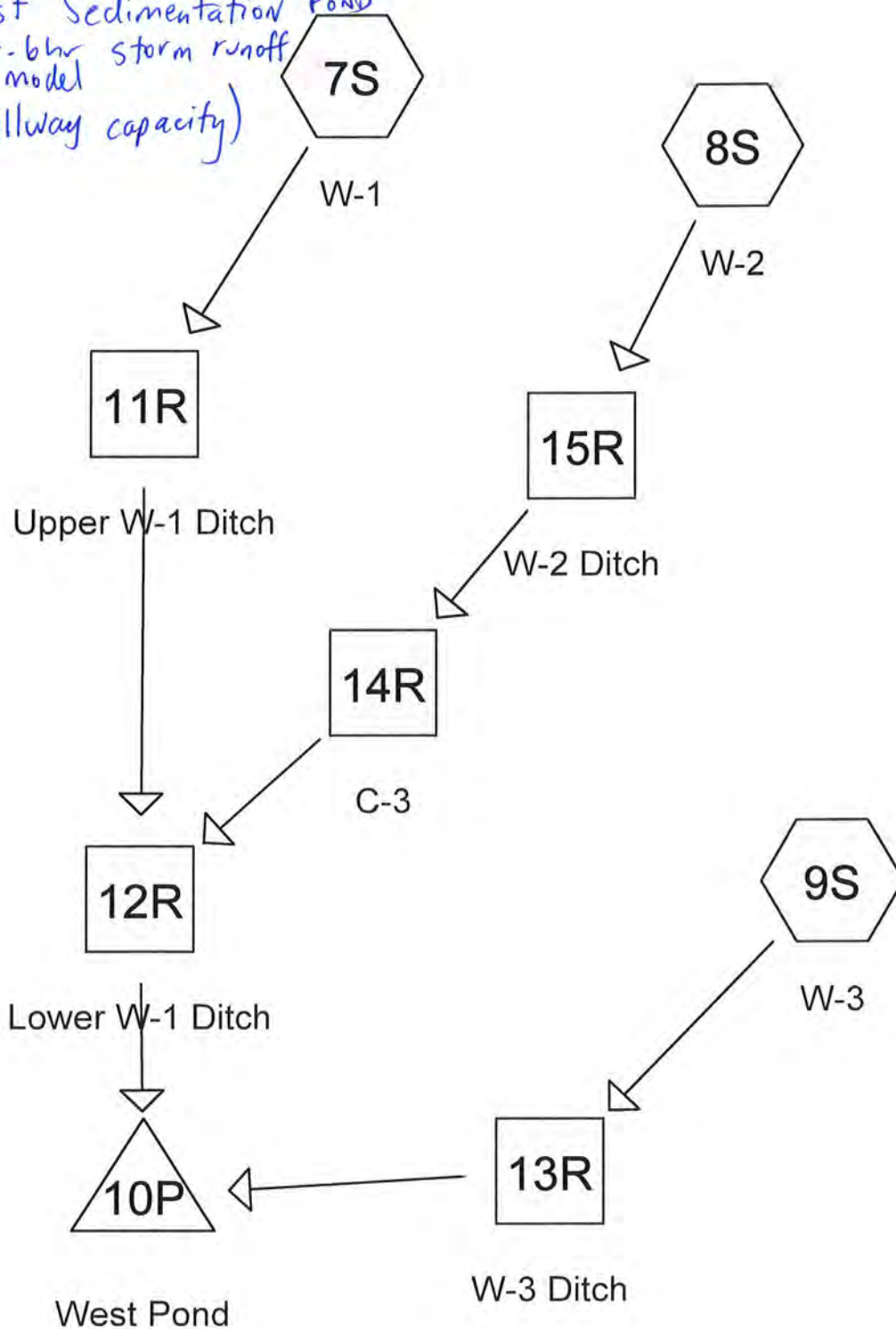
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Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=2.29 cfs @ 3.85 hrs HW=5,504.27' (Free Discharge)

↑1=Broad-Crested Rectangular Weir (Weir Controls 2.29 cfs @ 2.01 fps)

West Sedimentation Pond
 25yr-6hr storm runoff
 model
 (spillway capacity)



Drainage Diagram for 25yr-6hr West Pond

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25yr-6hr West Pond

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
305,034	87	(7S,8S,9S)
305,034		TOTAL AREA

25yr-6hr West Pond

Type II 24-hr 6.00 hrs Rainfall=1.29"

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 7S: W-1Runoff Area=105,474 sf 0.00% Impervious Runoff Depth=0.40"
Flow Length=1,297' Slope=0.0250 '/' Tc=19.5 min CN=87 Runoff=1.50 cfs 3,474 cf**Subcatchment 8S: W-2**Runoff Area=128,724 sf 0.00% Impervious Runoff Depth=0.40"
Flow Length=635' Slope=0.0250 '/' Tc=11.0 min CN=87 Runoff=2.79 cfs 4,240 cf**Subcatchment 9S: W-3**Runoff Area=70,836 sf 0.00% Impervious Runoff Depth=0.40"
Flow Length=447' Slope=0.0270 '/' Tc=8.0 min CN=87 Runoff=1.81 cfs 2,333 cf**Reach 11R: Upper W-1 Ditch**Avg. Depth=0.48' Max Vel=2.90 fps Inflow=1.50 cfs 3,474 cf
n=0.022 L=963.0' S=0.0145 '/' Capacity=60.48 cfs Outflow=1.31 cfs 3,474 cf**Reach 12R: Lower W-1 Ditch**Avg. Depth=0.70' Max Vel=2.90 fps Inflow=2.84 cfs 7,714 cf
n=0.022 L=320.0' S=0.0088 '/' Capacity=46.92 cfs Outflow=2.79 cfs 7,714 cf**Reach 13R: W-3 Ditch**Avg. Depth=0.47' Max Vel=3.03 fps Inflow=1.81 cfs 2,333 cf
n=0.022 L=160.0' S=0.0156 '/' Capacity=13.77 cfs Outflow=1.73 cfs 2,333 cf**Reach 14R: C-3**Avg. Depth=0.46' Max Vel=5.47 fps Inflow=2.54 cfs 4,240 cf
D=18.0" n=0.020 L=40.0' S=0.0325 '/' Capacity=12.31 cfs Outflow=2.52 cfs 4,240 cf**Reach 15R: W-2 Ditch**Avg. Depth=0.21' Max Vel=2.80 fps Inflow=2.79 cfs 4,240 cf
n=0.022 L=500.0' S=0.0158 '/' Capacity=37.48 cfs Outflow=2.54 cfs 4,240 cf**Pond 10P: West Pond**Peak Elev=5,508.03' Storage=36,279 cf Inflow=3.24 cfs 10,047 cf
Outflow=0.08 cfs 407 cf**Total Runoff Area = 305,034 sf Runoff Volume = 10,047 cf Average Runoff Depth = 0.40"**
100.00% Pervious = 305,034 sf 0.00% Impervious = 0 sf

25yr-6hr West Pond

Type II 24-hr 6.00 hrs Rainfall=1.29"

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Summary for Subcatchment 7S: W-1

Runoff = 1.50 cfs @ 3.23 hrs, Volume= 3,474 cf, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 6.00 hrs Rainfall=1.29"

	Area (sf)	CN	Description
*	105,474	87	
	105,474		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.5	1,297	0.0250	1.11		Lag/CN Method,

Summary for Subcatchment 8S: W-2

Runoff = 2.79 cfs @ 3.12 hrs, Volume= 4,240 cf, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 6.00 hrs Rainfall=1.29"

	Area (sf)	CN	Description
*	128,724	87	
	128,724		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	635	0.0250	0.96		Lag/CN Method,

Summary for Subcatchment 9S: W-3

Runoff = 1.81 cfs @ 3.08 hrs, Volume= 2,333 cf, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 6.00 hrs Rainfall=1.29"

	Area (sf)	CN	Description
*	70,836	87	
	70,836		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	447	0.0270	0.93		Lag/CN Method,

25yr-6hr West Pond

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Type II 24-hr 6.00 hrs Rainfall=1.29"

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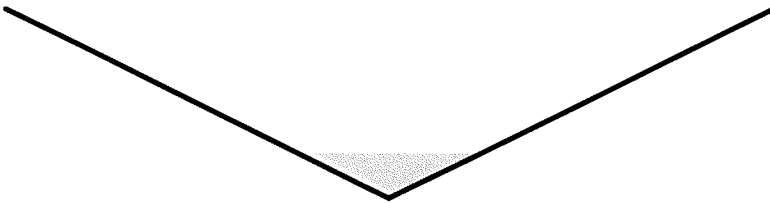
Summary for Reach 11R: Upper W-1 Ditch

Inflow Area = 105,474 sf, 0.00% Impervious, Inflow Depth = 0.40"
Inflow = 1.50 cfs @ 3.23 hrs, Volume= 3,474 cf
Outflow = 1.31 cfs @ 3.41 hrs, Volume= 3,474 cf, Atten= 13%, Lag= 10.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.90 fps, Min. Travel Time= 5.5 min
Avg. Velocity = 1.17 fps, Avg. Travel Time= 13.7 min

Peak Storage= 436 cf @ 3.31 hrs, Average Depth at Peak Storage= 0.48'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 60.48 cfs

0.00' x 2.00' deep channel, n= 0.022
Side Slope Z-value= 2.0 ' Top Width= 8.00'
Length= 963.0' Slope= 0.0145 '
Inlet Invert= 5,524.80', Outlet Invert= 5,510.80'



Summary for Reach 12R: Lower W-1 Ditch

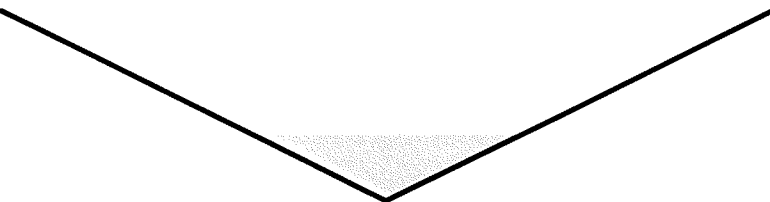
[62] Warning: Exceeded Reach 11R OUTLET depth by 0.24' @ 3.25 hrs
[62] Warning: Exceeded Reach 14R OUTLET depth by 0.37' @ 3.45 hrs

Inflow Area = 234,198 sf, 0.00% Impervious, Inflow Depth = 0.40"
Inflow = 2.84 cfs @ 3.24 hrs, Volume= 7,714 cf
Outflow = 2.79 cfs @ 3.31 hrs, Volume= 7,714 cf, Atten= 2%, Lag= 4.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.90 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 1.09 fps, Avg. Travel Time= 4.9 min

Peak Storage= 314 cf @ 3.27 hrs, Average Depth at Peak Storage= 0.70'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 46.92 cfs

0.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 ' Top Width= 8.00'
Length= 320.0' Slope= 0.0088 '
Inlet Invert= 5,510.80', Outlet Invert= 5,508.00'



25yr-6hr West Pond

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Type II 24-hr 6.00 hrs Rainfall=1.29"

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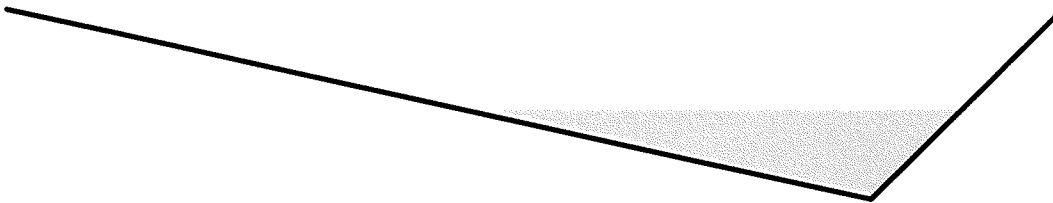
Summary for Reach 13R: W-3 Ditch

Inflow Area = 70,836 sf, 0.00% Impervious, Inflow Depth = 0.40"
Inflow = 1.81 cfs @ 3.08 hrs, Volume= 2,333 cf
Outflow = 1.73 cfs @ 3.11 hrs, Volume= 2,333 cf, Atten= 4%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.03 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.35 fps, Avg. Travel Time= 2.0 min

Peak Storage= 98 cf @ 3.10 hrs, Average Depth at Peak Storage= 0.47'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 13.77 cfs

0.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.5 1.0 ' / ' Top Width= 5.50'
Length= 160.0' Slope= 0.0156 ' / '
Inlet Invert= 5,510.50', Outlet Invert= 5,508.00'



Summary for Reach 14R: C-3

[52] Hint: Inlet/Outlet conditions not evaluated

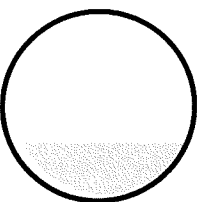
[62] Warning: Exceeded Reach 15R OUTLET depth by 0.27' @ 3.25 hrs

Inflow Area = 128,724 sf, 0.00% Impervious, Inflow Depth = 0.40"
Inflow = 2.54 cfs @ 3.21 hrs, Volume= 4,240 cf
Outflow = 2.52 cfs @ 3.21 hrs, Volume= 4,240 cf, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.47 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.94 fps, Avg. Travel Time= 0.3 min

Peak Storage= 19 cf @ 3.21 hrs, Average Depth at Peak Storage= 0.46'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 12.31 cfs

18.0" Diameter Pipe, n= 0.020
Length= 40.0' Slope= 0.0325 ' / '
Inlet Invert= 5,512.10', Outlet Invert= 5,510.80'



25yr-6hr West Pond

Type II 24-hr 6.00 hrs Rainfall=1.29"

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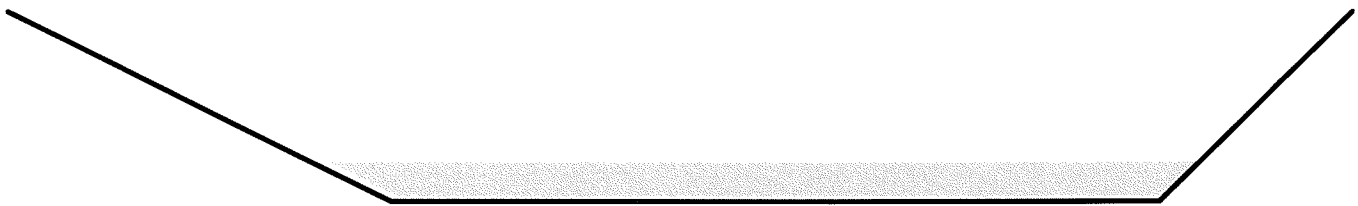
Summary for Reach 15R: W-2 Ditch

Inflow Area = 128,724 sf, 0.00% Impervious, Inflow Depth = 0.40"
 Inflow = 2.79 cfs @ 3.12 hrs, Volume= 4,240 cf
 Outflow = 2.54 cfs @ 3.21 hrs, Volume= 4,240 cf, Atten= 9%, Lag= 5.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.80 fps, Min. Travel Time= 3.0 min
 Avg. Velocity = 0.85 fps, Avg. Travel Time= 9.9 min

Peak Storage= 453 cf @ 3.16 hrs, Average Depth at Peak Storage= 0.21'
 Bank-Full Depth= 1.00', Capacity at Bank-Full= 37.48 cfs

4.00' x 1.00' deep channel, n= 0.022
 Side Slope Z-value= 2.0 1.0 '/' Top Width= 7.00'
 Length= 500.0' Slope= 0.0158 '/'
 Inlet Invert= 5,520.00', Outlet Invert= 5,512.10'

**Summary for Pond 10P: West Pond**

[61] Hint: Exceeded Reach 12R outlet invert by 0.03' @ 6.55 hrs
 [62] Warning: Exceeded Reach 13R OUTLET depth by 0.02' @ 6.80 hrs

Inflow Area = 305,034 sf, 0.00% Impervious, Inflow Depth = 0.40"
 Inflow = 3.24 cfs @ 3.30 hrs, Volume= 10,047 cf
 Outflow = 0.08 cfs @ 6.53 hrs, Volume= 407 cf, Atten= 97%, Lag= 194.3 min
 Primary = 0.08 cfs @ 6.53 hrs, Volume= 407 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Starting Elev= 5,506.40' Surf.Area= 5,499 sf Storage= 26,424 cf
 Peak Elev= 5,508.03' @ 6.53 hrs Surf.Area= 6,588 sf Storage= 36,279 cf (9,855 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= 186.7 min (425.4 - 238.6)

Volume	Invert	Avail.Storage	Storage Description
#1	5,498.23'	50,624 cf	17.00'W x 78.00'L x 11.77'H Prismatic Z=2.0

Device	Routing	Invert	Outlet Devices
#1	Primary	5,508.00'	3.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

25yr-6hr West Pond

Type II 24-hr 6.00 hrs Rainfall=1.29"

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Primary OutFlow Max=0.04 cfs @ 6.53 hrs HW=5,508.03' (Free Discharge)

↑1=Broad-Crested Rectangular Weir (Weir Controls 0.04 cfs @ 0.46 fps)

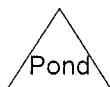
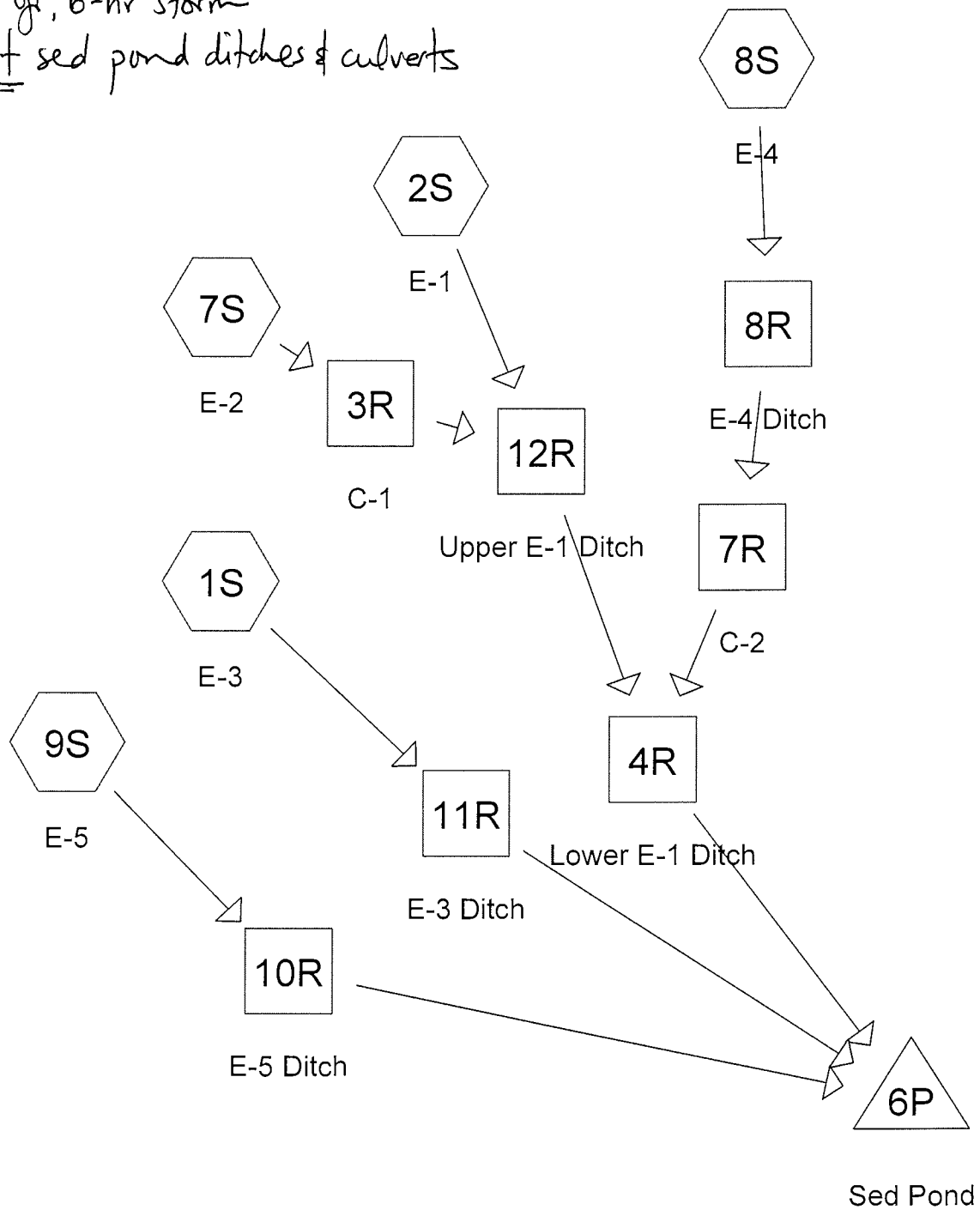
BRC Wellington LLC
Dry-Coal Cleaning Facility

Permit Application
October 2013

APPENDIX 7-8

Drainage Channel and Culvert
Hydrology Calculations

Drainage ditch hydro calcs.
 100-yr, 6-hr storm
East sed pond ditches & culverts



100yr-6hr East Pond

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
759,267	87	(1S,2S,7S,8S,9S)
759,267		TOTAL AREA

100yr-6hr East Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: E-3Runoff Area=289,991 sf 0.00% Impervious Runoff Depth=0.71"
Flow Length=1,091' Slope=0.0300 '/' Tc=15.5 min CN=87 Runoff=9.41 cfs 17,098 cf**Subcatchment 2S: E-1**Runoff Area=88,103 sf 0.00% Impervious Runoff Depth=0.71"
Flow Length=1,752' Slope=0.0210 '/' Tc=27.1 min CN=87 Runoff=1.88 cfs 5,195 cf**Subcatchment 7S: E-2**Runoff Area=66,123 sf 0.00% Impervious Runoff Depth=0.71"
Flow Length=581' Slope=0.0210 '/' Tc=11.2 min CN=87 Runoff=2.70 cfs 3,899 cf**Subcatchment 8S: E-4**Runoff Area=29,947 sf 0.00% Impervious Runoff Depth=0.71"
Flow Length=561' Slope=0.2500 '/' Tc=3.2 min CN=87 Runoff=2.20 cfs 1,766 cf**Subcatchment 9S: E-5**Runoff Area=285,103 sf 0.00% Impervious Runoff Depth=0.71"
Flow Length=925' Slope=0.0250 '/' Tc=14.9 min CN=87 Runoff=9.49 cfs 16,810 cf**Reach 3R: C-1**Avg. Depth=0.49' Max Vel=5.39 fps Inflow=2.70 cfs 3,899 cf
D=18.0" n=0.020 L=40.0' S=0.0300 '/' Capacity=11.83 cfs Outflow=2.68 cfs 3,899 cf**Reach 4R: Lower E-1 Ditch**Avg. Depth=0.89' Max Vel=2.87 fps Inflow=3.44 cfs 10,862 cf
n=0.035 L=287.0' S=0.0171 '/' Capacity=13.67 cfs Outflow=3.40 cfs 10,862 cf**Reach 7R: C-2**Avg. Depth=0.34' Max Vel=4.20 fps Inflow=1.27 cfs 1,766 cf
D=18.0" n=0.020 L=40.0' S=0.0275 '/' Capacity=11.32 cfs Outflow=1.24 cfs 1,769 cf**Reach 8R: E-4 Ditch**Avg. Depth=0.65' Max Vel=2.22 fps Inflow=2.20 cfs 1,766 cf
n=0.035 L=561.0' S=0.0159 '/' Capacity=7.21 cfs Outflow=1.27 cfs 1,766 cf**Reach 10R: E-5 Ditch**Avg. Depth=0.91' Max Vel=2.35 fps Inflow=9.49 cfs 16,810 cf
n=0.035 L=746.0' S=0.0091 '/' Capacity=10.01 cfs Outflow=7.79 cfs 16,810 cf**Reach 11R: E-3 Ditch**Avg. Depth=1.05' Max Vel=3.77 fps Inflow=9.41 cfs 17,098 cf
n=0.035 L=283.0' S=0.0194 '/' Capacity=21.95 cfs Outflow=9.05 cfs 17,098 cf**Reach 12R: Upper E-1 Ditch**Avg. Depth=1.06' Max Vel=2.70 fps Inflow=3.37 cfs 9,093 cf
n=0.035 L=720.0' S=0.0150 '/' Capacity=7.67 cfs Outflow=3.02 cfs 9,093 cf**Pond 6P: Sed Pond**Peak Elev=5,502.54' Storage=44,769 cf Inflow=18.07 cfs 44,770 cf
Outflow=0.00 cfs 0 cfTotal Runoff Area = 759,267 sf Runoff Volume = 44,768 cf Average Runoff Depth = 0.71"
100.00% Pervious = 759,267 sf 0.00% Impervious = 0 sf

100yr-6hr East Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Subcatchment 1S: E-3

Runoff = 9.41 cfs @ 3.17 hrs, Volume= 17,098 cf, Depth= 0.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

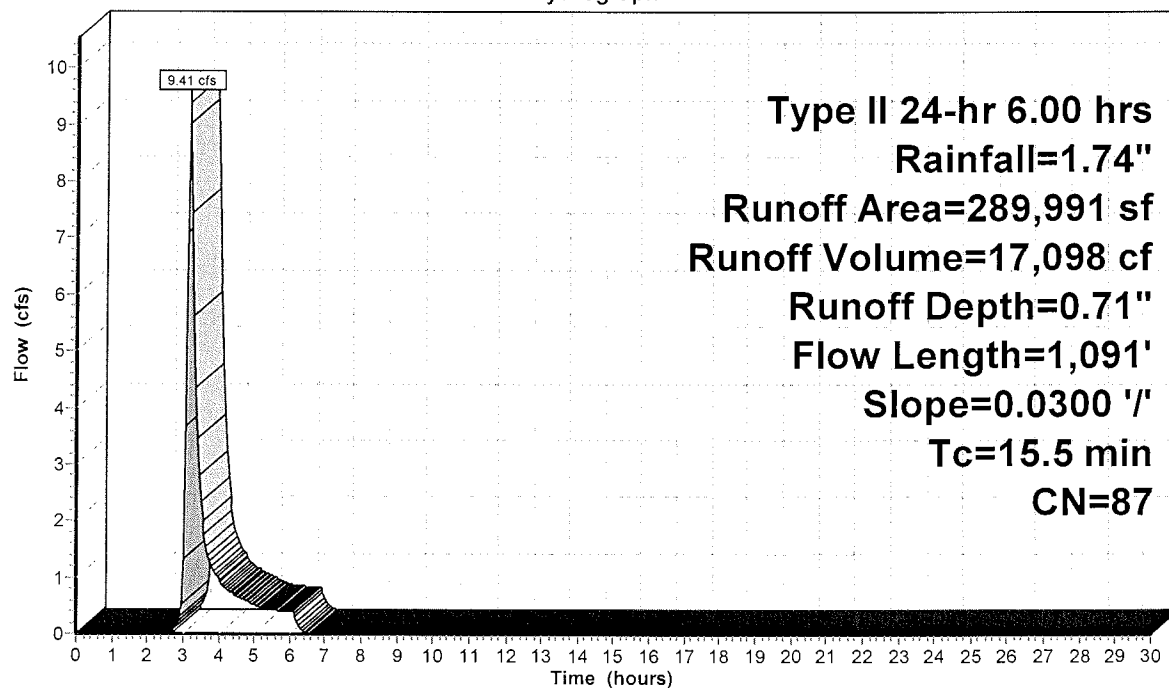
Type II 24-hr 6.00 hrs Rainfall=1.74"

	Area (sf)	CN	Description
*	289,991	87	
	289,991		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.5	1,091	0.0300	1.17		Lag/CN Method,

Subcatchment 1S: E-3

Hydrograph



100yr-6hr East Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Subcatchment 2S: E-1

Runoff = 1.88 cfs @ 3.33 hrs, Volume= 5,195 cf, Depth= 0.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

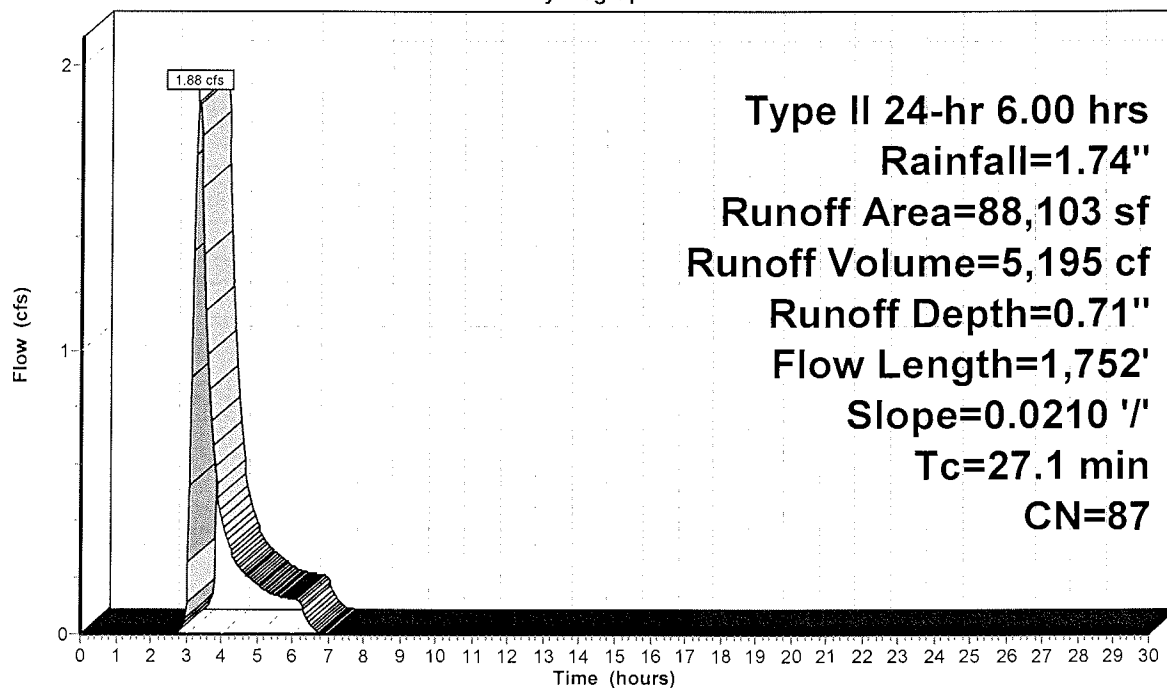
Type II 24-hr 6.00 hrs Rainfall=1.74"

Area (sf)	CN	Description
* 88,103	87	
88,103		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.1	1,752	0.0210	1.08		Lag/CN Method,

Subcatchment 2S: E-1

Hydrograph



100yr-6hr East Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Subcatchment 7S: E-2

Runoff = 2.70 cfs @ 3.12 hrs, Volume= 3,899 cf, Depth= 0.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

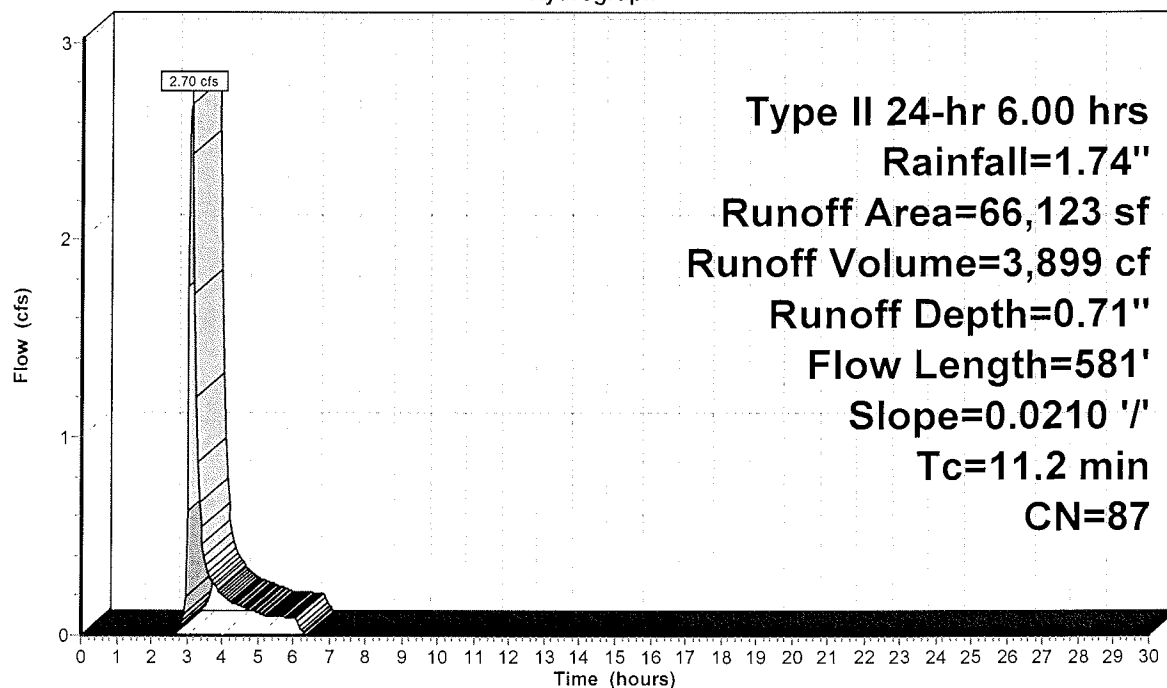
Type II 24-hr 6.00 hrs Rainfall=1.74"

Area (sf)	CN	Description
* 66,123	87	
66,123		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	581	0.0210	0.86		Lag/CN Method,

Subcatchment 7S: E-2

Hydrograph



100yr-6hr East Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Subcatchment 8S: E-4[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 2.20 cfs @ 3.01 hrs, Volume= 1,766 cf, Depth= 0.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, $dt=0.05$ hrs

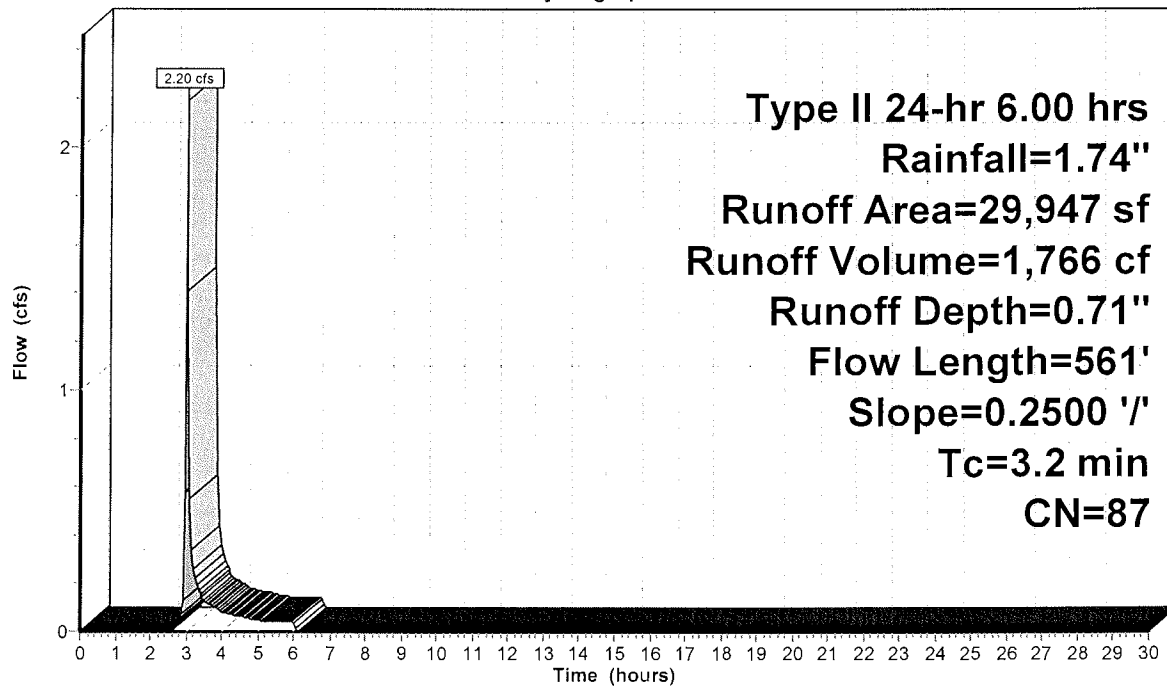
Type II 24-hr 6.00 hrs Rainfall=1.74"

	Area (sf)	CN	Description
*	29,947	87	
	29,947		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	561	0.2500	2.96		Lag/CN Method,

Subcatchment 8S: E-4

Hydrograph



□ Runoff

100yr-6hr East Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Subcatchment 9S: E-5

Runoff = 9.49 cfs @ 3.16 hrs, Volume= 16,810 cf, Depth= 0.71"

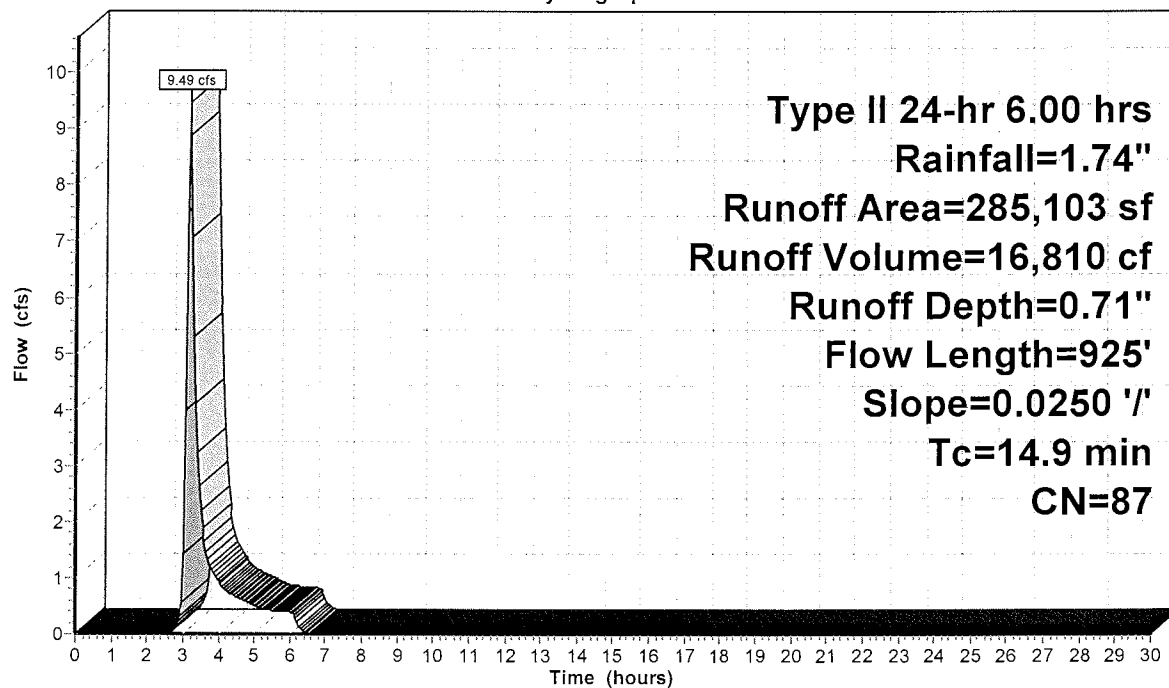
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 6.00 hrs Rainfall=1.74"

Area (sf)	CN	Description
* 285,103	87	
285,103		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	925	0.0250	1.04		Lag/CN Method,

Subcatchment 9S: E-5

Hydrograph



100yr-6hr East Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Reach 3R: C-1

[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 66,123 sf, 0.00% Impervious, Inflow Depth = 0.71"
 Inflow = 2.70 cfs @ 3.12 hrs, Volume= 3,899 cf
 Outflow = 2.68 cfs @ 3.12 hrs, Volume= 3,899 cf, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Max. Velocity= 5.39 fps, Min. Travel Time= 0.1 min

Avg. Velocity= 2.26 fps, Avg. Travel Time= 0.3 min

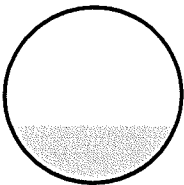
Peak Storage= 20 cf @ 3.12 hrs, Average Depth at Peak Storage= 0.49'

Bank-Full Depth= 1.50', Capacity at Bank-Full= 11.83 cfs

18.0" Diameter Pipe, n= 0.020 Corrugated PE, corrugated interior

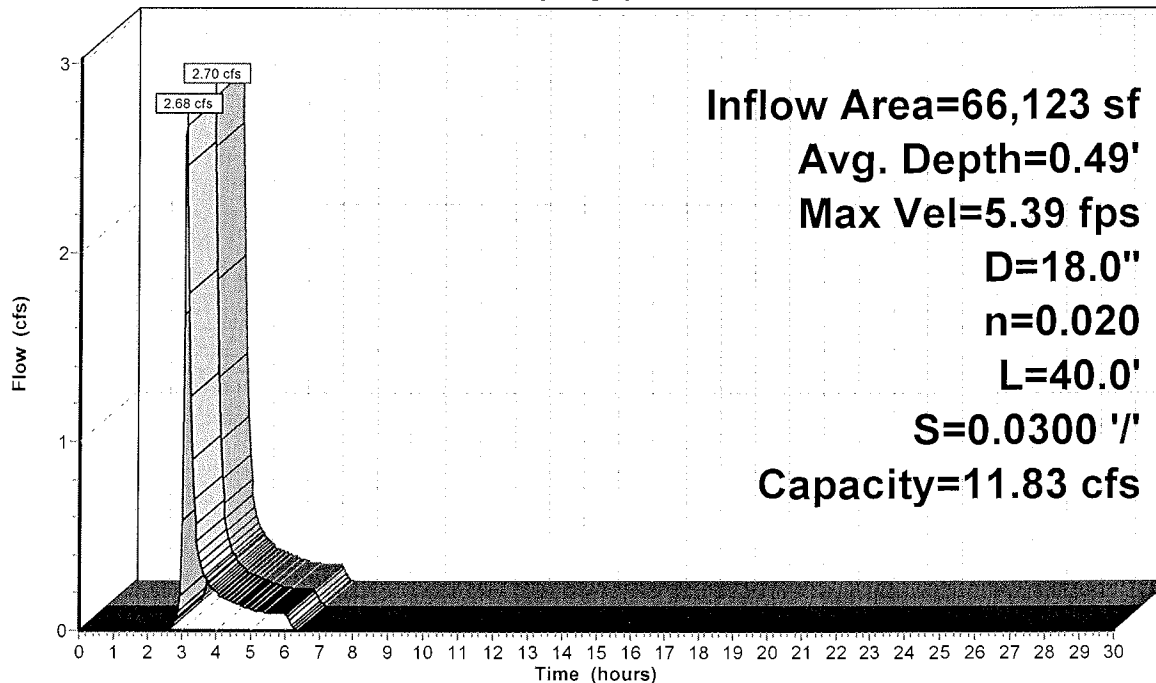
Length= 40.0' Slope= 0.0300 '/'

Inlet Invert= 5,520.70', Outlet Invert= 5,519.50'



Reach 3R: C-1

Hydrograph



☒ Inflow
☐ Outflow

100yr-6hr East Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Reach 4R: Lower E-1 Ditch

[62] Warning: Exceeded Reach 7R OUTLET depth by 0.71' @ 3.35 hrs

[61] Hint: Exceeded Reach 12R outlet invert by 0.89' @ 3.30 hrs

Inflow Area = 184,173 sf, 0.00% Impervious, Inflow Depth = 0.71"
 Inflow = 3.44 cfs @ 3.28 hrs, Volume= 10,862 cf
 Outflow = 3.40 cfs @ 3.34 hrs, Volume= 10,862 cf, Atten= 1%, Lag= 3.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.87 fps, Min. Travel Time= 1.7 min

Avg. Velocity= 0.98 fps, Avg. Travel Time= 4.9 min

Peak Storage= 344 cf @ 3.31 hrs, Average Depth at Peak Storage= 0.89'

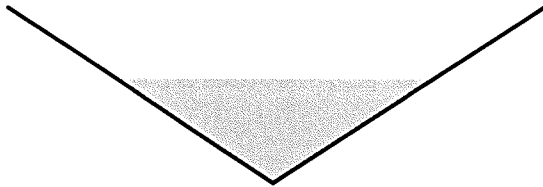
Bank-Full Depth= 1.50', Capacity at Bank-Full= 13.67 cfs

0.00' x 1.50' deep channel, n= 0.035

Side Slope Z-value= 1.5 ' ' Top Width= 4.50'

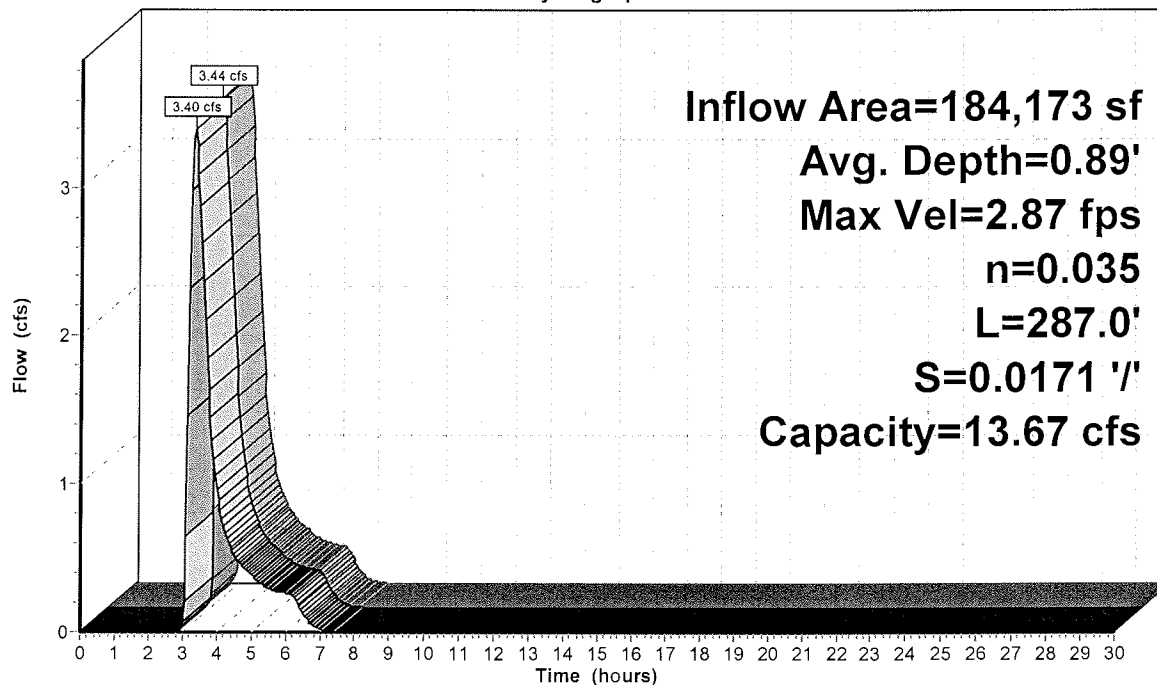
Length= 287.0' Slope= 0.0171 ' '

Inlet Invert= 5,508.70', Outlet Invert= 5,503.80'



Reach 4R: Lower E-1 Ditch

Hydrograph



100yr-6hr East Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Reach 7R: C-2

[52] Hint: Inlet/Outlet conditions not evaluated

[61] Hint: Exceeded Reach 8R outlet invert by 0.33' @ 3.15 hrs

Inflow Area = 29,947 sf, 0.00% Impervious, Inflow Depth = 0.71"
 Inflow = 1.27 cfs @ 3.13 hrs, Volume= 1,766 cf
 Outflow = 1.24 cfs @ 3.14 hrs, Volume= 1,769 cf, Atten= 2%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2

Max. Velocity= 4.20 fps, Min. Travel Time= 0.2 min

Avg. Velocity= 1.42 fps, Avg. Travel Time= 0.5 min

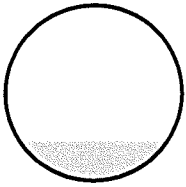
Peak Storage= 12 cf @ 3.13 hrs, Average Depth at Peak Storage= 0.34'

Bank-Full Depth= 1.50', Capacity at Bank-Full= 11.32 cfs

18.0" Diameter Pipe, n= 0.020 Corrugated PE, corrugated interior

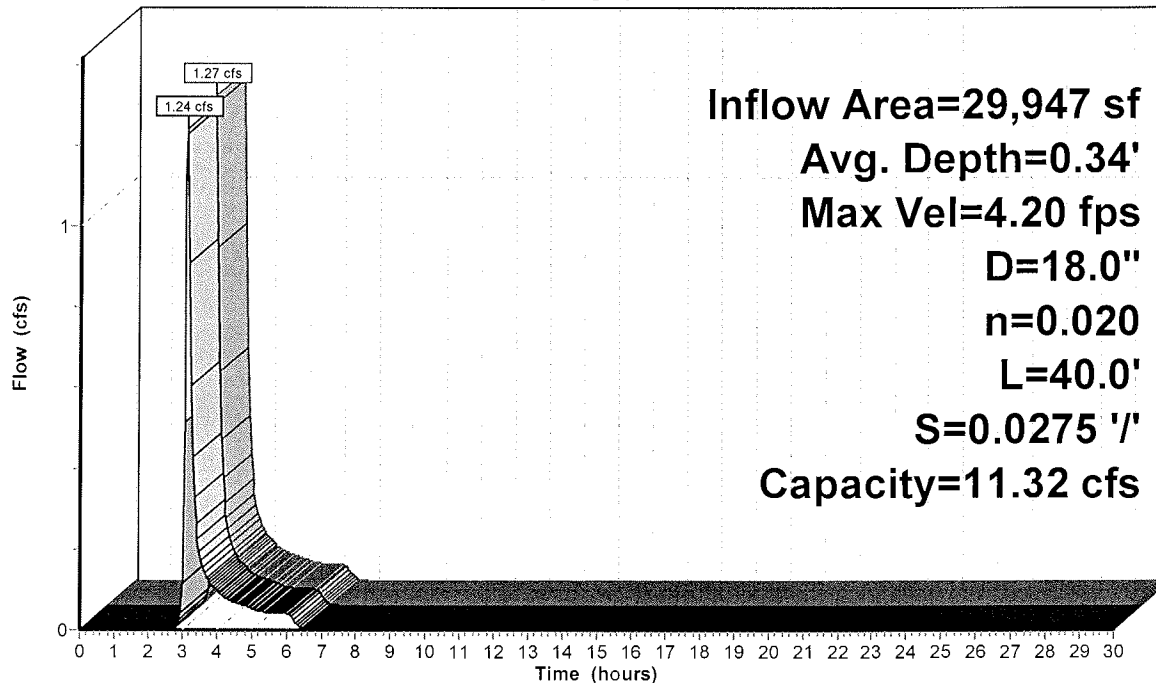
Length= 40.0' Slope= 0.0275 '/'

Inlet Invert= 5,509.80', Outlet Invert= 5,508.70'



Reach 7R: C-2

Hydrograph



■ Inflow
 □ Outflow

100yr-6hr East Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Reach 8R: E-4 Ditch

Inflow Area = 29,947 sf, 0.00% Impervious, Inflow Depth = 0.71"
 Inflow = 2.20 cfs @ 3.01 hrs, Volume= 1,766 cf
 Outflow = 1.27 cfs @ 3.13 hrs, Volume= 1,766 cf, Atten= 42%, Lag= 7.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.22 fps, Min. Travel Time= 4.2 min

Avg. Velocity= 0.71 fps, Avg. Travel Time= 13.2 min

Peak Storage= 359 cf @ 3.06 hrs, Average Depth at Peak Storage= 0.65'

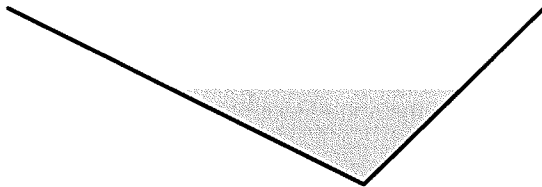
Bank-Full Depth= 1.20', Capacity at Bank-Full= 7.21 cfs

0.00' x 1.20' deep channel, n= 0.035

Side Slope Z-value= 2.0 1.0 '/' Top Width= 3.60'

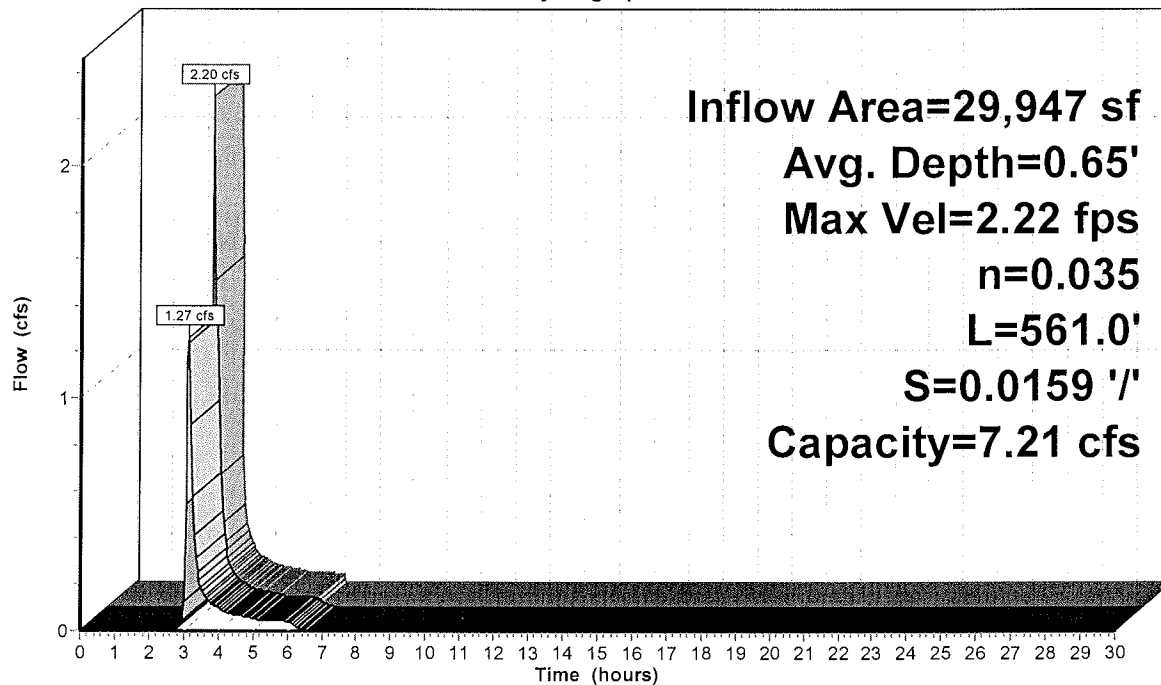
Length= 561.0' Slope= 0.0159 '/'

Inlet Invert= 5,518.70', Outlet Invert= 5,509.80'



Reach 8R: E-4 Ditch

Hydrograph



100yr-6hr East Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Reach 10R: E-5 Ditch

Inflow Area = 285,103 sf, 0.00% Impervious, Inflow Depth = 0.71"
 Inflow = 9.49 cfs @ 3.16 hrs, Volume= 16,810 cf
 Outflow = 7.79 cfs @ 3.32 hrs, Volume= 16,810 cf, Atten= 18%, Lag= 9.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.35 fps, Min. Travel Time= 5.3 min

Avg. Velocity= 0.60 fps, Avg. Travel Time= 20.8 min

Peak Storage= 2,486 cf @ 3.24 hrs, Average Depth at Peak Storage= 0.91'

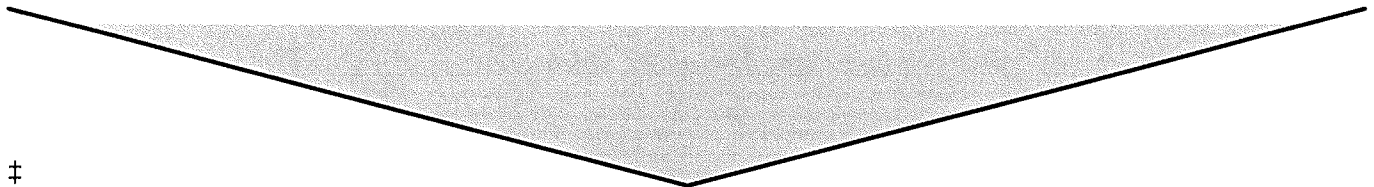
Bank-Full Depth= 1.00', Capacity at Bank-Full= 10.01 cfs

0.00' x 1.00' deep channel, n= 0.035

Side Slope Z-value= 4.0 '/' Top Width= 8.00'

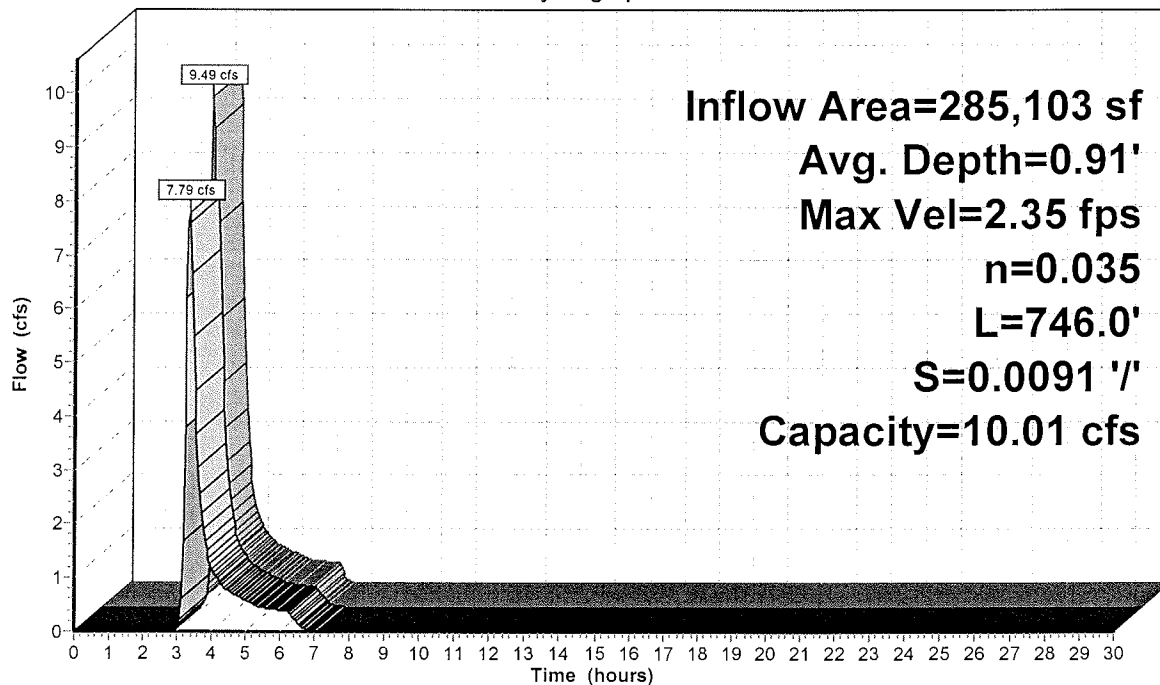
Length= 746.0' Slope= 0.0091 '/'

Inlet Invert= 5,510.60', Outlet Invert= 5,503.80'



Reach 10R: E-5 Ditch

Hydrograph



100yr-6hr East Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Reach 11R: E-3 Ditch

Inflow Area = 289,991 sf, 0.00% Impervious, Inflow Depth = 0.71"
Inflow = 9.41 cfs @ 3.17 hrs, Volume= 17,098 cf
Outflow = 9.05 cfs @ 3.21 hrs, Volume= 17,098 cf, Atten= 4%, Lag= 2.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.77 fps, Min. Travel Time= 1.2 min

Avg. Velocity = 1.54 fps, Avg. Travel Time= 3.1 min

Peak Storage= 694 cf @ 3.19 hrs, Average Depth at Peak Storage= 1.05'

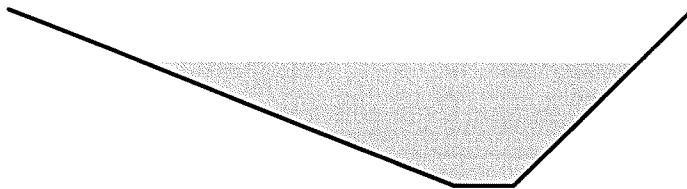
Bank-Full Depth= 1.50', Capacity at Bank-Full= 21.95 cfs

0.50' x 1.50' deep channel, n= 0.035

Side Slope Z-value= 2.5 1.0 '/' Top Width= 5.75'

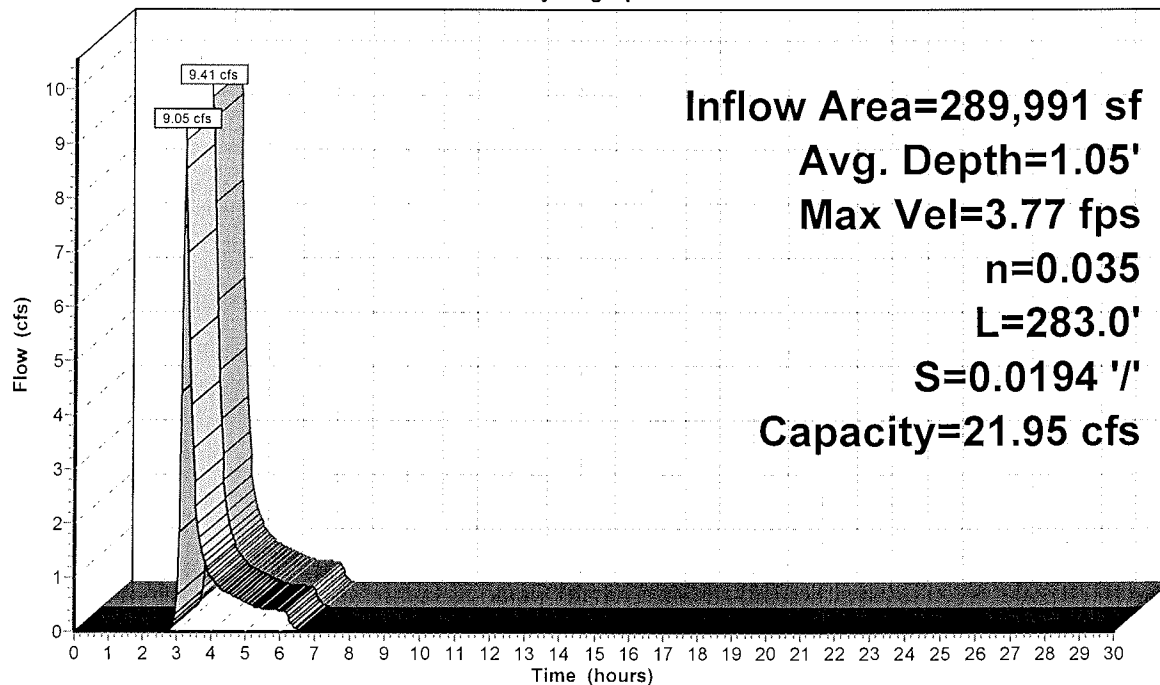
Length= 283.0' Slope= 0.0194 '/'

Inlet Invert= 5,509.50', Outlet Invert= 5,504.00'



Reach 11R: E-3 Ditch

Hydrograph



100yr-6hr East Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Reach 12R: Upper E-1 Ditch

[62] Warning: Exceeded Reach 3R OUTLET depth by 0.78' @ 3.35 hrs

Inflow Area = 154,226 sf, 0.00% Impervious, Inflow Depth = 0.71"
 Inflow = 3.37 cfs @ 3.15 hrs, Volume= 9,093 cf
 Outflow = 3.02 cfs @ 3.32 hrs, Volume= 9,093 cf, Atten= 10%, Lag= 10.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.70 fps, Min. Travel Time= 4.4 min

Avg. Velocity= 0.94 fps, Avg. Travel Time= 12.7 min

Peak Storage= 806 cf @ 3.23 hrs, Average Depth at Peak Storage= 1.06'

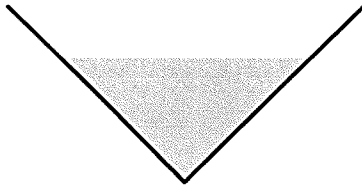
Bank-Full Depth= 1.50', Capacity at Bank-Full= 7.67 cfs

0.00' x 1.50' deep channel, n= 0.035

Side Slope Z-value= 1.0 '/' Top Width= 3.00'

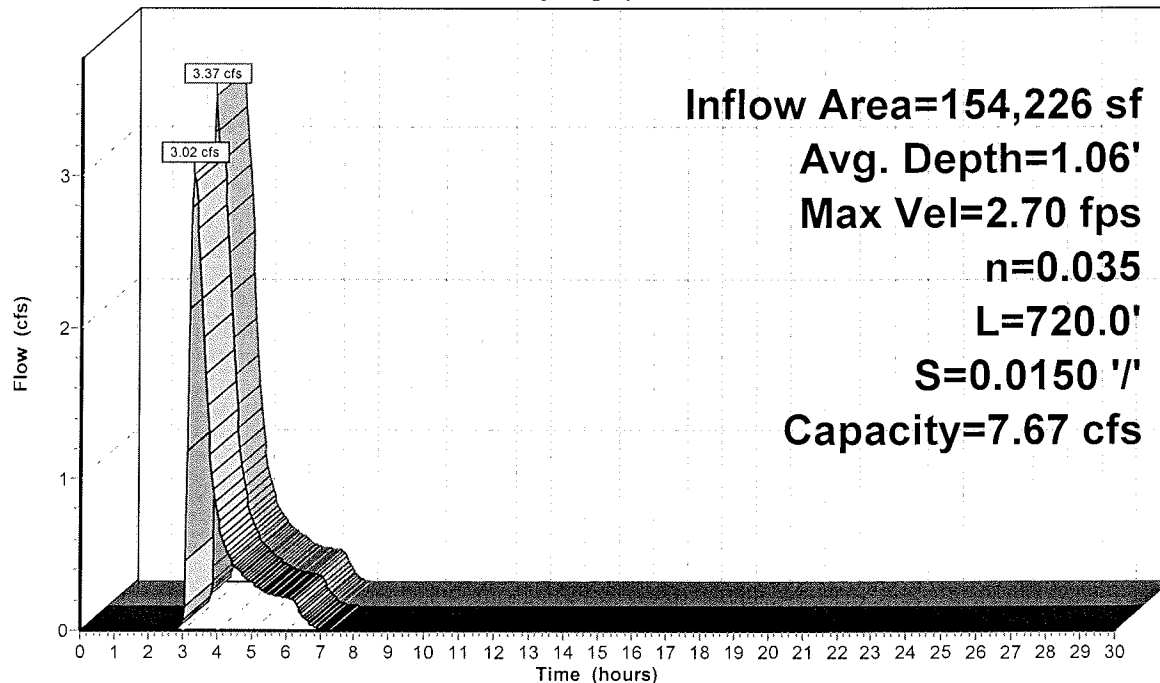
Length= 720.0' Slope= 0.0150 '/'

Inlet Invert= 5,519.50', Outlet Invert= 5,508.70'



Reach 12R: Upper E-1 Ditch

Hydrograph



100yr-6hr East Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Pond 6P: Sed Pond

Inflow Area = 759,267 sf, 0.00% Impervious, Inflow Depth = 0.71"
 Inflow = 18.07 cfs @ 3.28 hrs, Volume= 44,770 cf
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 5,502.54' @ 30.00 hrs Surf.Area= 8,833 sf Storage= 44,769 cf

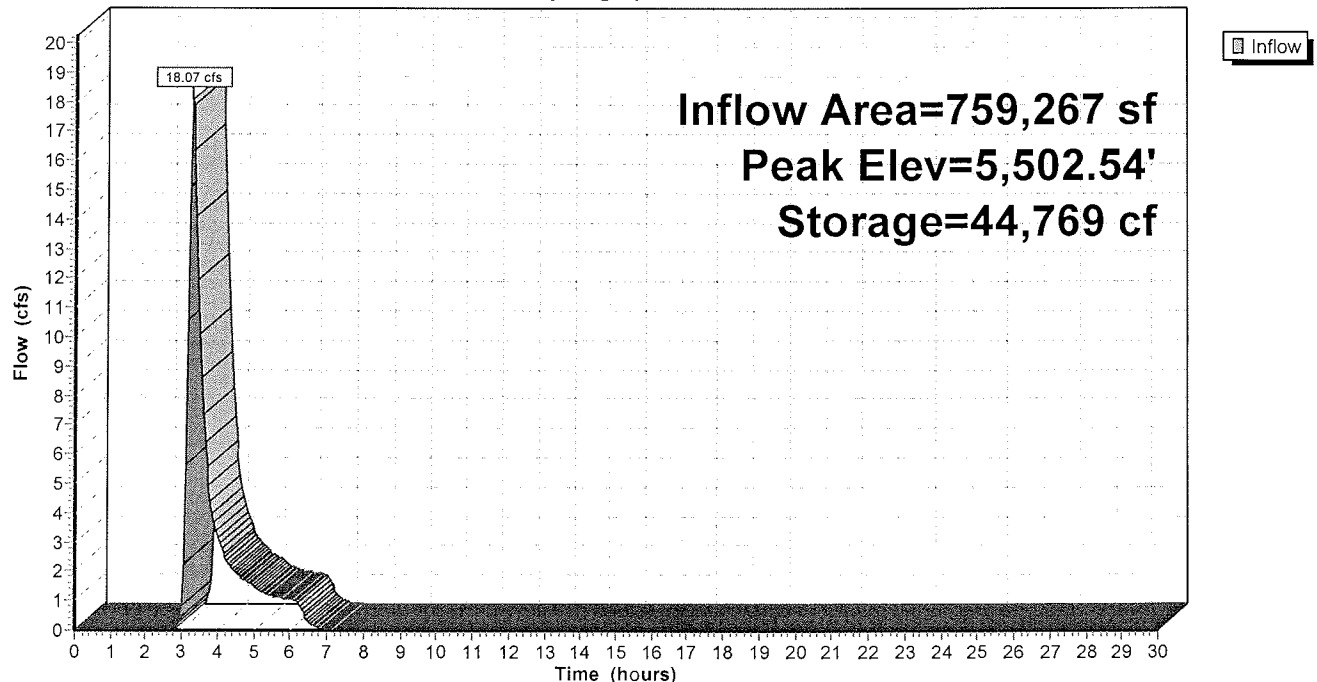
Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

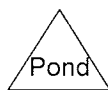
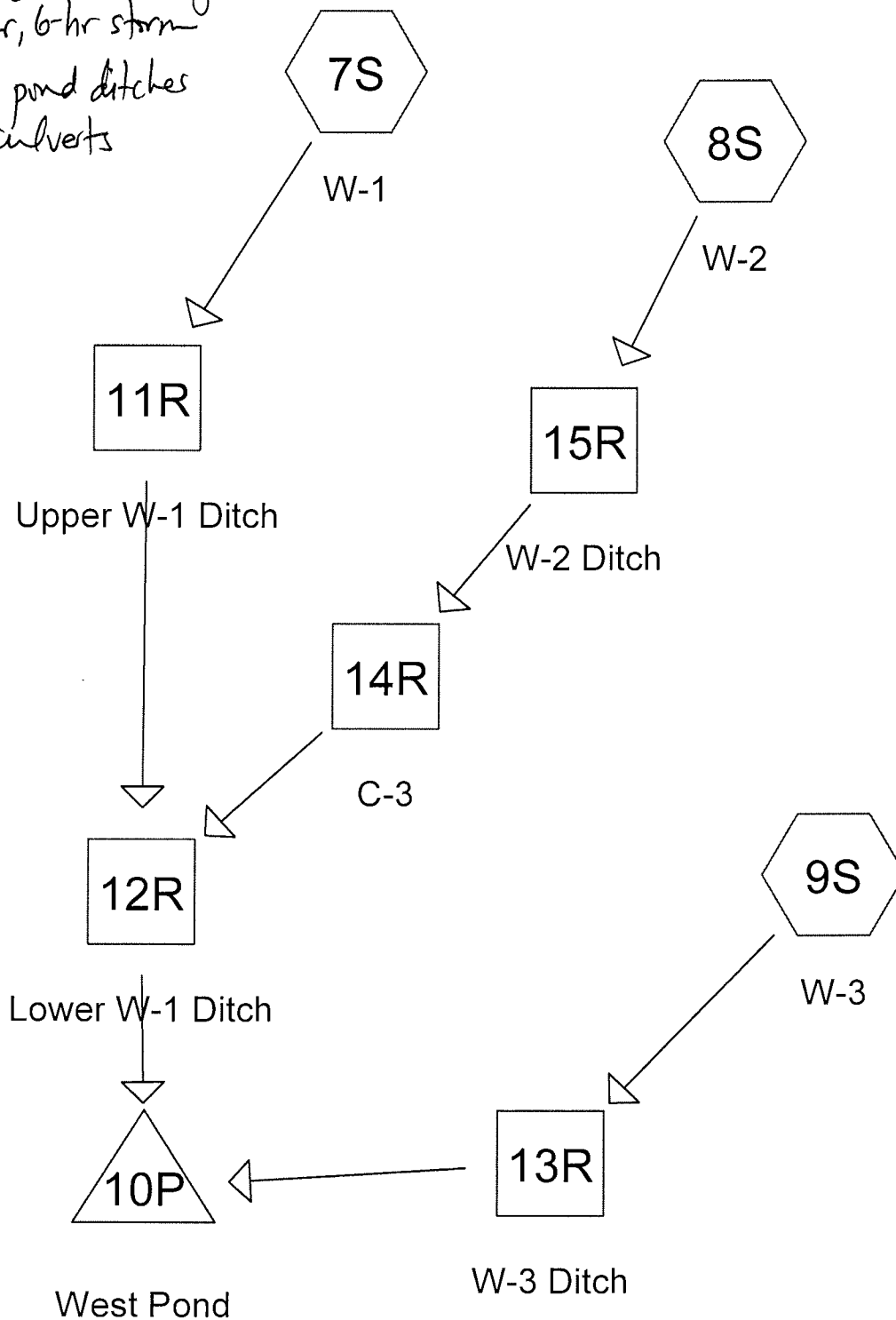
Volume	Invert	Avail.Storage	Storage Description
#1	5,493.80'	56,820 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5,493.80	2,550	0	0
5,494.80	2,601	2,576	2,576
5,495.80	3,214	2,908	5,483
5,496.80	3,909	3,562	9,045
5,497.80	4,637	4,273	13,318
5,498.80	5,425	5,031	18,349
5,499.80	6,243	5,834	24,183
5,500.80	7,158	6,701	30,883
5,501.80	8,125	7,642	38,525
5,502.80	9,087	8,606	47,131
5,503.80	10,291	9,689	56,820

Pond 6P: Sed Pond

Hydrograph



Drainage ditch hydro calcs.
 100-yr, 6-hr storm
 West pond ditches
 & culverts



Drainage Diagram for 100yr-6hr West Pond

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100yr-6hr West Pond

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Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
305,034	87	(7S,8S,9S)
305,034		TOTAL AREA

100yr-6hr West Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 7S: W-1	Runoff Area=105,474 sf 0.00% Impervious Runoff Depth=0.71"
Flow Length=1,297'	Slope=0.0250 '/' Tc=19.5 min CN=87 Runoff=2.88 cfs 6,219 cf
Subcatchment 8S: W-2	Runoff Area=128,724 sf 0.00% Impervious Runoff Depth=0.71"
Flow Length=635'	Slope=0.0250 '/' Tc=11.0 min CN=87 Runoff=5.32 cfs 7,590 cf
Subcatchment 9S: W-3	Runoff Area=70,836 sf 0.00% Impervious Runoff Depth=0.71"
Flow Length=447'	Slope=0.0270 '/' Tc=8.0 min CN=87 Runoff=3.52 cfs 4,177 cf
Reach 11R: Upper W-1 Ditch	Avg. Depth=0.71' Max Vel=2.38 fps Inflow=2.88 cfs 6,219 cf
	n=0.035 L=963.0' S=0.0145 '/' Capacity=38.02 cfs Outflow=2.37 cfs 6,219 cf
Reach 12R: Lower W-1 Ditch	Avg. Depth=1.04' Max Vel=2.36 fps Inflow=5.13 cfs 13,809 cf
	n=0.035 L=320.0' S=0.0088 '/' Capacity=29.49 cfs Outflow=5.02 cfs 13,809 cf
Reach 13R: W-3 Ditch	Avg. Depth=0.71' Max Vel=2.50 fps Inflow=3.52 cfs 4,177 cf
	n=0.035 L=160.0' S=0.0156 '/' Capacity=8.65 cfs Outflow=3.21 cfs 4,177 cf
Reach 14R: C-3	Avg. Depth=0.64' Max Vel=6.47 fps Inflow=4.68 cfs 7,590 cf
	D=18.0" n=0.020 L=40.0' S=0.0325 '/' Capacity=12.31 cfs Outflow=4.65 cfs 7,590 cf
Reach 15R: W-2 Ditch	Avg. Depth=0.40' Max Vel=2.58 fps Inflow=5.32 cfs 7,590 cf
	n=0.035 L=500.0' S=0.0158 '/' Capacity=23.56 cfs Outflow=4.68 cfs 7,590 cf
Pond 10P: West Pond	Peak Elev=5,504.70' Storage=17,985 cf Inflow=5.79 cfs 17,985 cf
	Outflow=0.00 cfs 0 cf

Total Runoff Area = 305,034 sf Runoff Volume = 17,985 cf Average Runoff Depth = 0.71"
100.00% Pervious = 305,034 sf 0.00% Impervious = 0 sf

100yr-6hr West Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Subcatchment 7S: W-1

Runoff = 2.88 cfs @ 3.22 hrs, Volume= 6,219 cf, Depth= 0.71"

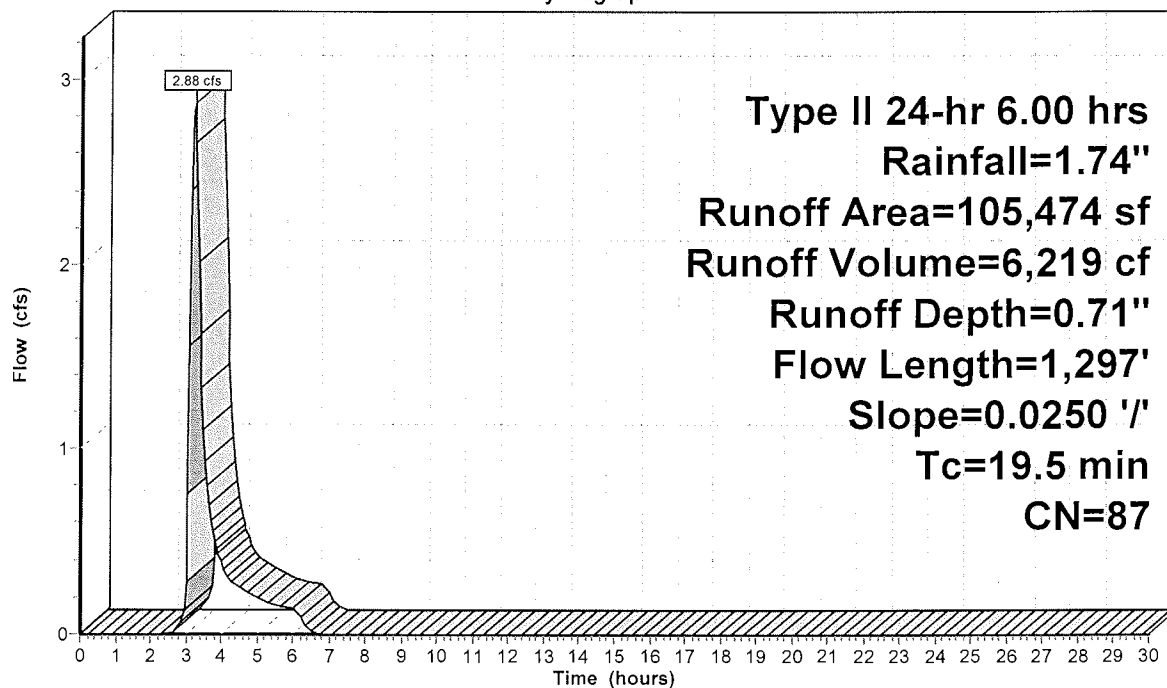
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 6.00 hrs Rainfall=1.74"

	Area (sf)	CN	Description
*	105,474	87	
	105,474		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.5	1,297	0.0250	1.11		Lag/CN Method,

Subcatchment 7S: W-1

Hydrograph



Runoff

100yr-6hr West Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Subcatchment 8S: W-2

Runoff = 5.32 cfs @ 3.11 hrs, Volume= 7,590 cf, Depth= 0.71"

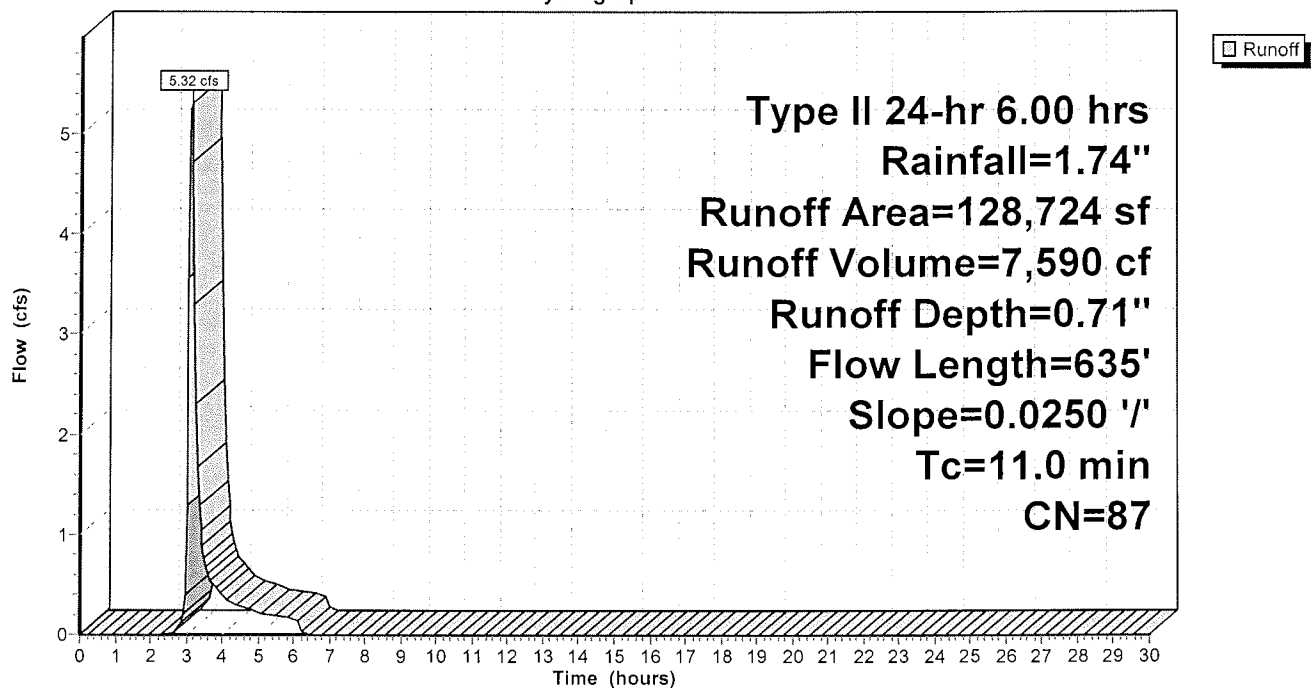
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 6.00 hrs Rainfall=1.74"

Area (sf)	CN	Description
* 128,724	87	
128,724		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	635	0.0250	0.96		Lag/CN Method,

Subcatchment 8S: W-2

Hydrograph



100yr-6hr West Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Subcatchment 9S: W-3

Runoff = 3.52 cfs @ 3.07 hrs, Volume= 4,177 cf, Depth= 0.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

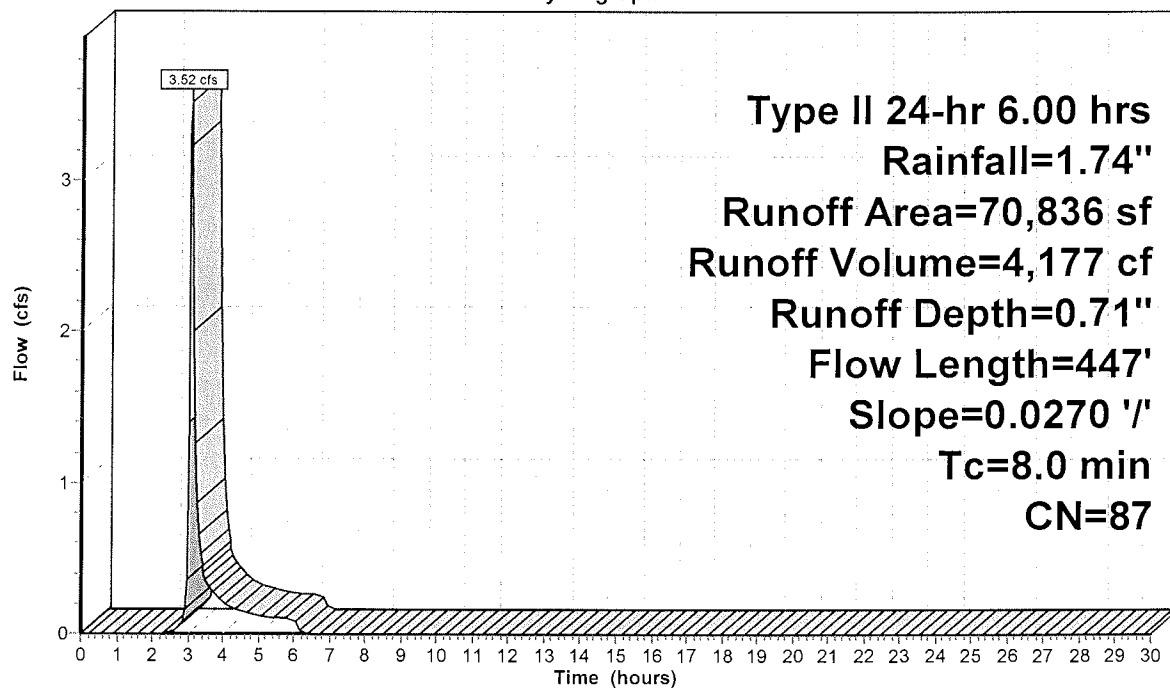
Type II 24-hr 6.00 hrs Rainfall=1.74"

Area (sf)	CN	Description
* 70,836	87	
70,836		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	447	0.0270	0.93		Lag/CN Method,

Subcatchment 9S: W-3

Hydrograph



100yr-6hr West Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Reach 11R: Upper W-1 Ditch

Inflow Area = 105,474 sf, 0.00% Impervious, Inflow Depth = 0.71"
 Inflow = 2.88 cfs @ 3.22 hrs, Volume= 6,219 cf
 Outflow = 2.37 cfs @ 3.43 hrs, Volume= 6,219 cf, Atten= 18%, Lag= 12.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.38 fps, Min. Travel Time= 6.7 min

Avg. Velocity= 0.77 fps, Avg. Travel Time= 20.8 min

Peak Storage= 971 cf @ 3.31 hrs, Average Depth at Peak Storage= 0.71'

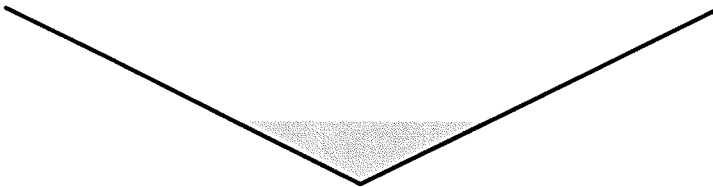
Bank-Full Depth= 2.00', Capacity at Bank-Full= 38.02 cfs

0.00' x 2.00' deep channel, n= 0.035

Side Slope Z-value= 2.0 '/' Top Width= 8.00'

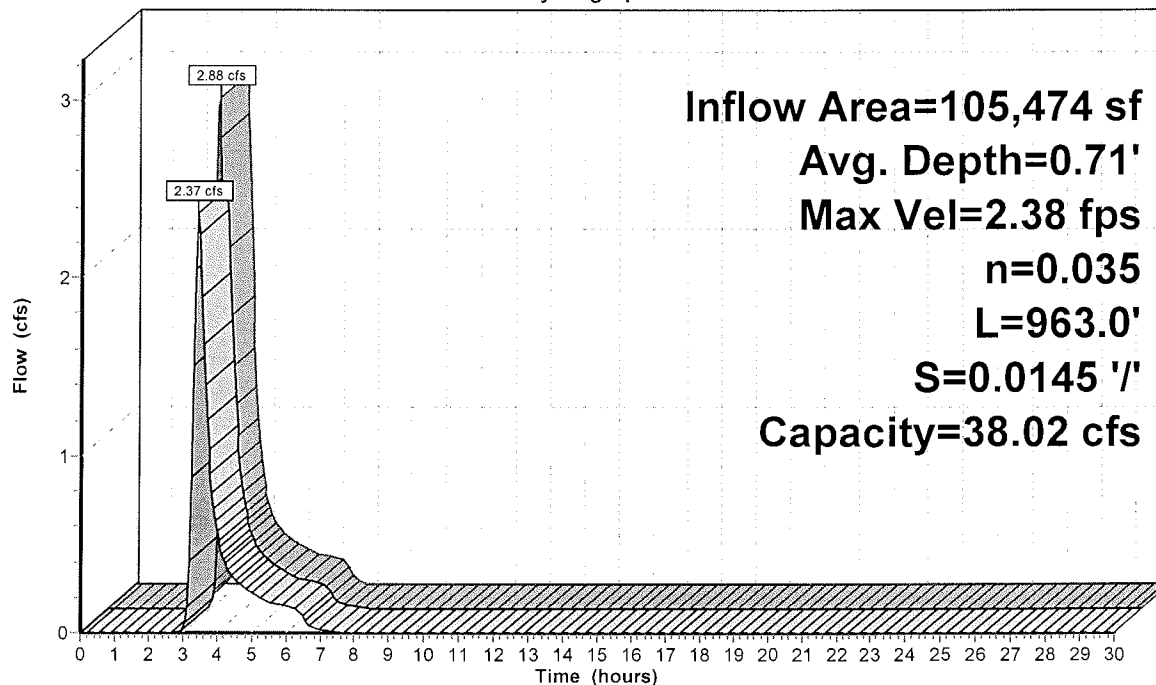
Length= 963.0' Slope= 0.0145 '/'

Inlet Invert= 5,524.80', Outlet Invert= 5,510.80'



Reach 11R: Upper W-1 Ditch

Hydrograph



☒ Inflow
☐ Outflow

100yr-6hr West Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Reach 12R: Lower W-1 Ditch

[62] Warning: Exceeded Reach 11R OUTLET depth by 0.34' @ 3.25 hrs

[62] Warning: Exceeded Reach 14R OUTLET depth by 0.60' @ 3.45 hrs

Inflow Area = 234,198 sf, 0.00% Impervious, Inflow Depth = 0.71"
 Inflow = 5.13 cfs @ 3.24 hrs, Volume= 13,809 cf
 Outflow = 5.02 cfs @ 3.32 hrs, Volume= 13,809 cf, Atten= 2%, Lag= 4.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.36 fps, Min. Travel Time= 2.3 min

Avg. Velocity= 0.71 fps, Avg. Travel Time= 7.5 min

Peak Storage= 685 cf @ 3.27 hrs, Average Depth at Peak Storage= 1.04'

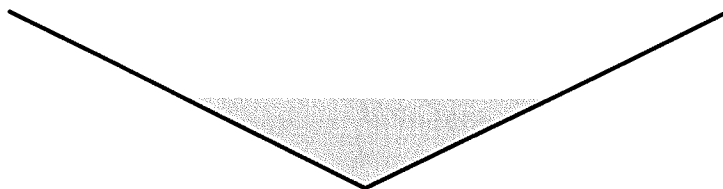
Bank-Full Depth= 2.00', Capacity at Bank-Full= 29.49 cfs

0.00' x 2.00' deep channel, n= 0.035

Side Slope Z-value= 2.0 '/' Top Width= 8.00'

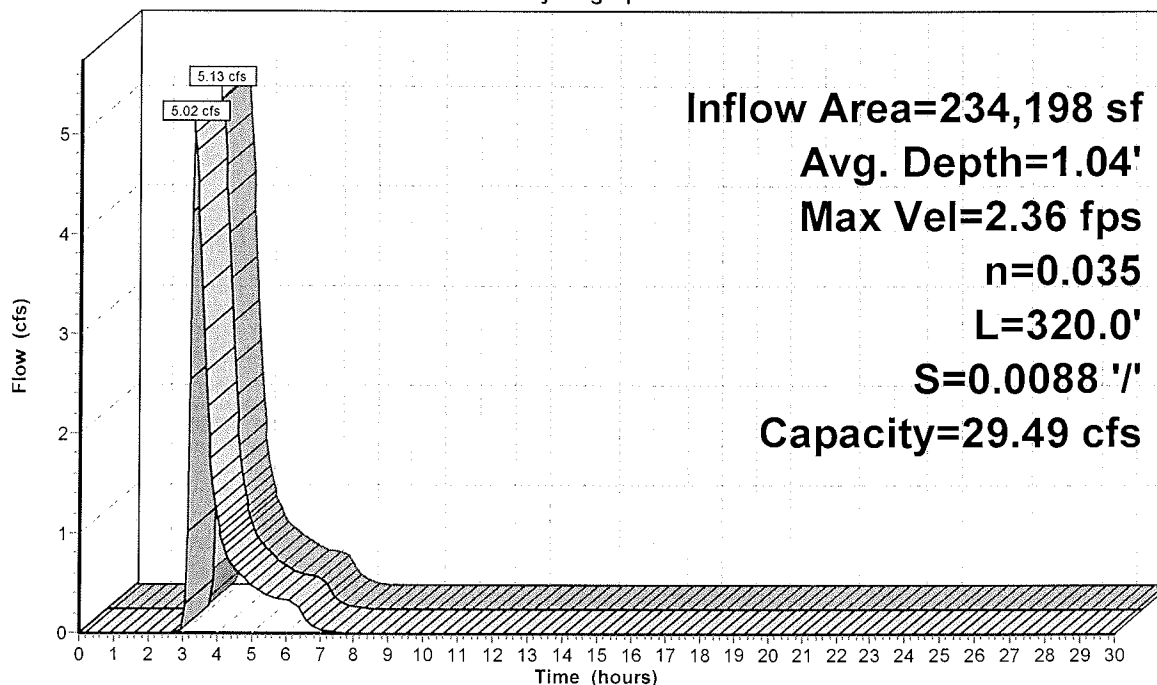
Length= 320.0' Slope= 0.0088 '/'

Inlet Invert= 5,510.80', Outlet Invert= 5,508.00'



Reach 12R: Lower W-1 Ditch

Hydrograph



■ Inflow
 □ Outflow

100yr-6hr West Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Reach 13R: W-3 Ditch

Inflow Area = 70,836 sf, 0.00% Impervious, Inflow Depth = 0.71"
 Inflow = 3.52 cfs @ 3.07 hrs, Volume= 4,177 cf
 Outflow = 3.21 cfs @ 3.11 hrs, Volume= 4,177 cf, Atten= 9%, Lag= 2.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.50 fps, Min. Travel Time= 1.1 min

Avg. Velocity = 0.98 fps, Avg. Travel Time= 2.7 min

Peak Storage= 221 cf @ 3.10 hrs, Average Depth at Peak Storage= 0.71'

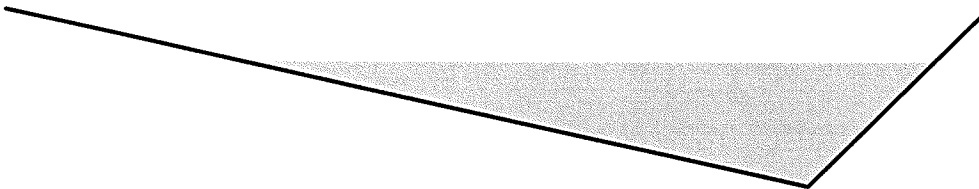
Bank-Full Depth= 1.00', Capacity at Bank-Full= 8.65 cfs

0.00' x 1.00' deep channel, n= 0.035

Side Slope Z-value= 4.5 1.0 '/' Top Width= 5.50'

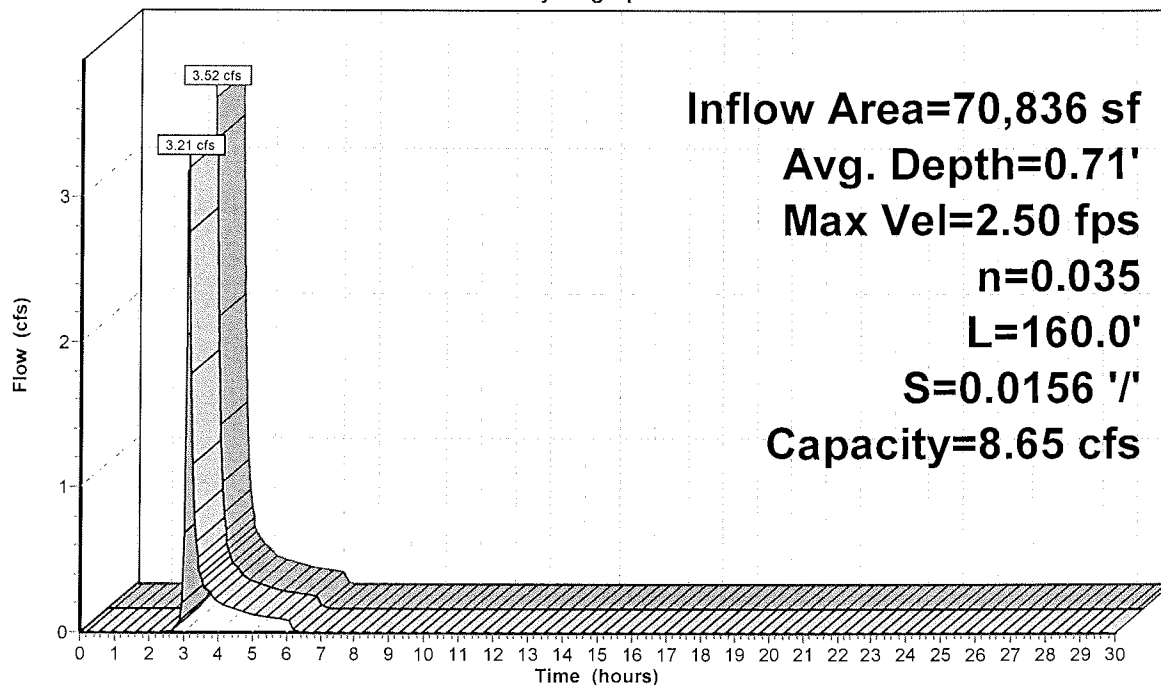
Length= 160.0' Slope= 0.0156 '/'

Inlet Invert= 5,510.50', Outlet Invert= 5,508.00'



Reach 13R: W-3 Ditch

Hydrograph



100yr-6hr West Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Reach 14R: C-3

[52] Hint: Inlet/Outlet conditions not evaluated

[62] Warning: Exceeded Reach 15R OUTLET depth by 0.29' @ 3.25 hrs

Inflow Area = 128,724 sf, 0.00% Impervious, Inflow Depth = 0.71"
 Inflow = 4.68 cfs @ 3.21 hrs, Volume= 7,590 cf
 Outflow = 4.65 cfs @ 3.21 hrs, Volume= 7,590 cf, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Max. Velocity= 6.47 fps, Min. Travel Time= 0.1 min

Avg. Velocity= 1.96 fps, Avg. Travel Time= 0.3 min

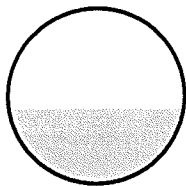
Peak Storage= 29 cf @ 3.21 hrs, Average Depth at Peak Storage= 0.64'

Bank-Full Depth= 1.50', Capacity at Bank-Full= 12.31 cfs

18.0" Diameter Pipe, n= 0.020

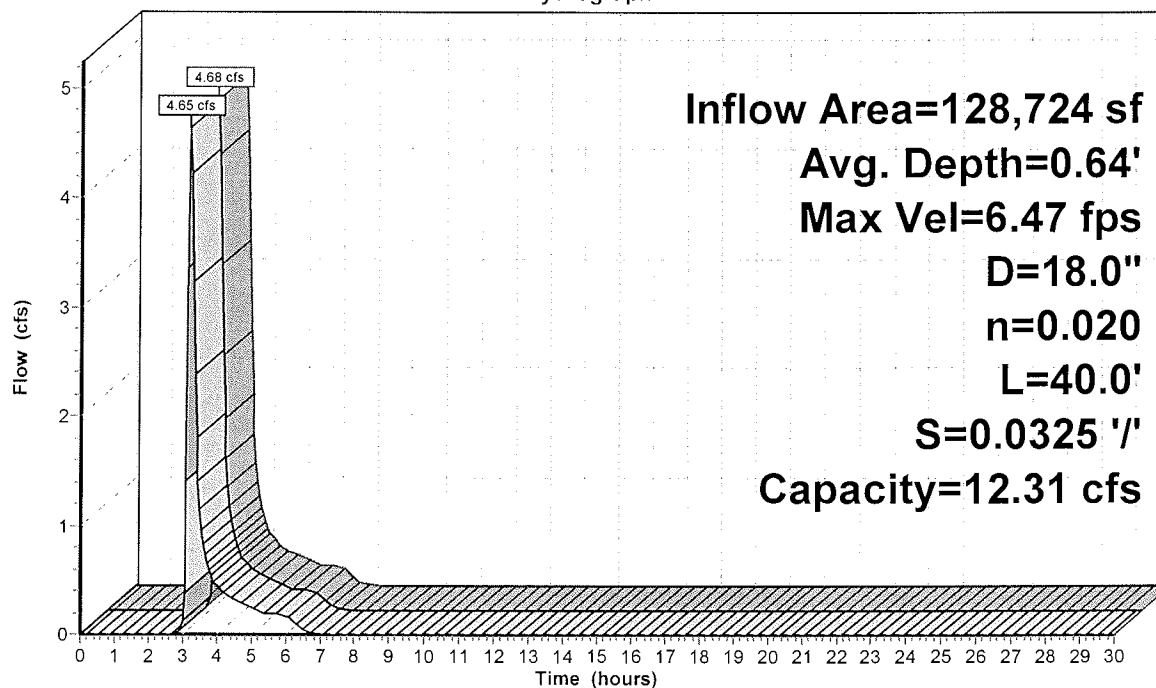
Length= 40.0' Slope= 0.0325 '/'

Inlet Invert= 5,512.10', Outlet Invert= 5,510.80'



Reach 14R: C-3

Hydrograph



☒ Inflow
☐ Outflow

100yr-6hr West Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Reach 15R: W-2 Ditch

Inflow Area = 128,724 sf, 0.00% Impervious, Inflow Depth = 0.71"
 Inflow = 5.32 cfs @ 3.11 hrs, Volume= 7,590 cf
 Outflow = 4.68 cfs @ 3.21 hrs, Volume= 7,590 cf, Atten= 12%, Lag= 5.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.58 fps, Min. Travel Time= 3.2 min

Avg. Velocity = 0.62 fps, Avg. Travel Time= 13.3 min

Peak Storage= 918 cf @ 3.16 hrs, Average Depth at Peak Storage= 0.40'

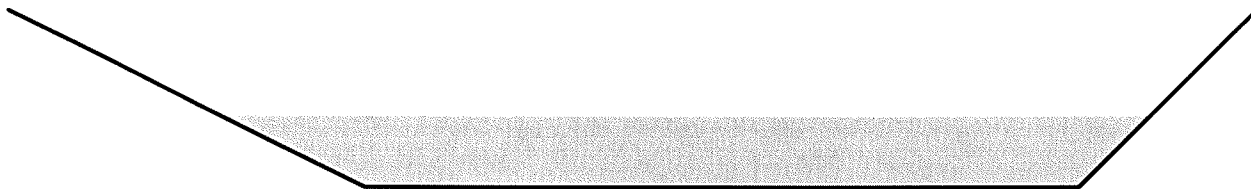
Bank-Full Depth= 1.00', Capacity at Bank-Full= 23.56 cfs

4.00' x 1.00' deep channel, n= 0.035

Side Slope Z-value= 2.0 1.0 '/' Top Width= 7.00'

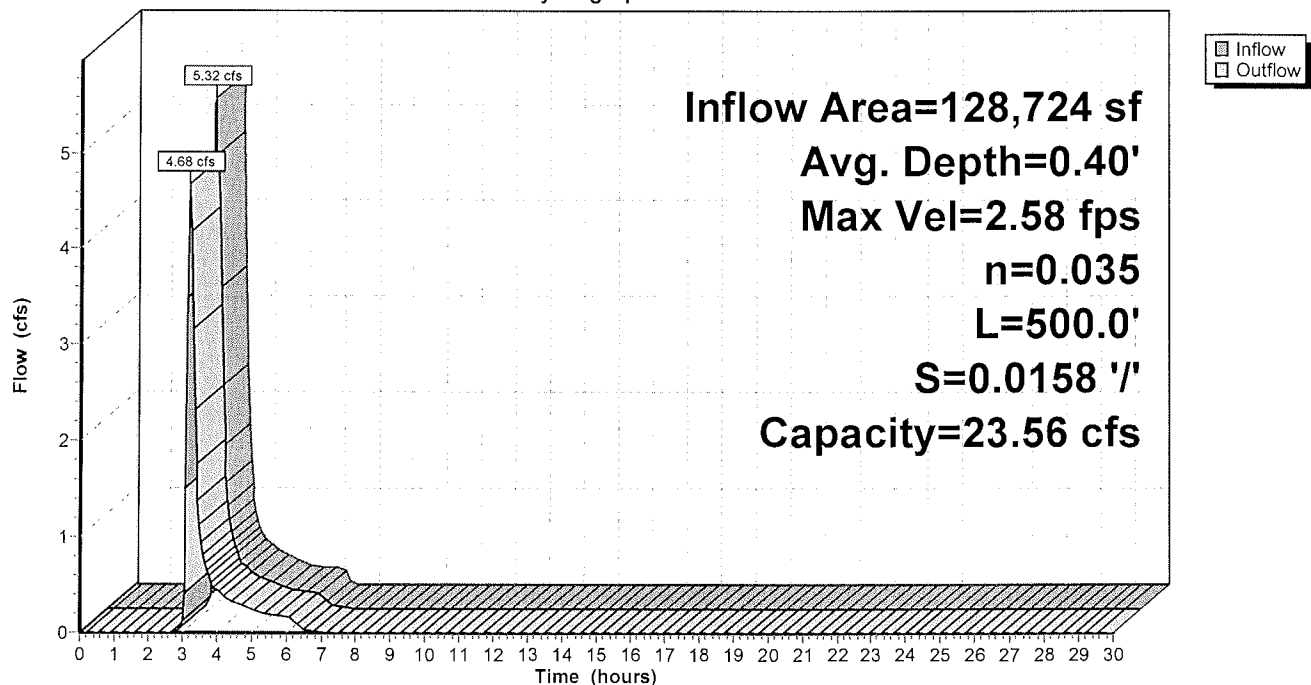
Length= 500.0' Slope= 0.0158 '/'

Inlet Invert= 5,520.00', Outlet Invert= 5,512.10'



Reach 15R: W-2 Ditch

Hydrograph



100yr-6hr West Pond

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Type II 24-hr 6.00 hrs Rainfall=1.74"

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Summary for Pond 10P: West Pond

Inflow Area = 305,034 sf, 0.00% Impervious, Inflow Depth = 0.71"
 Inflow = 5.79 cfs @ 3.30 hrs, Volume= 17,985 cf
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 5,504.70' @ 29.95 hrs Surf.Area= 4,455 sf Storage= 17,985 cf

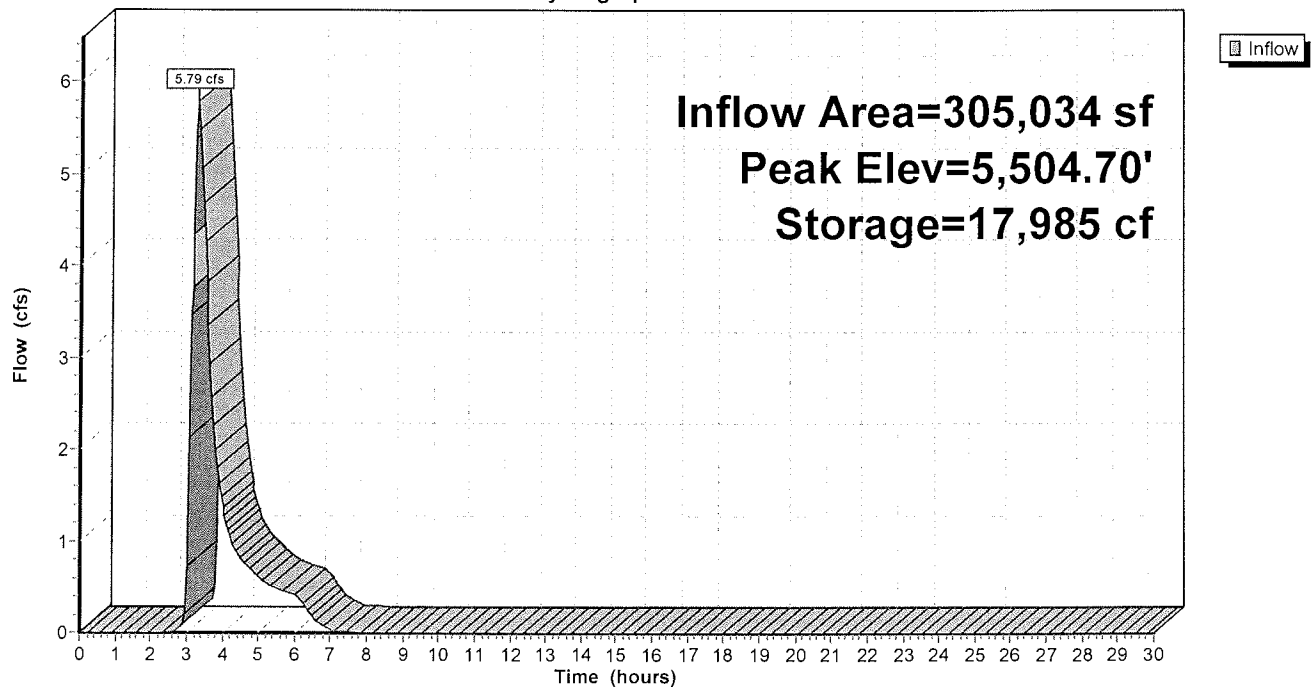
Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	5,498.23'	36,065 cf	17.00'W x 78.00'L x 9.77'H Prismatoid Z=2.0

Pond 10P: West Pond

Hydrograph



Upper E-1 Min Slope Worksheet for Triangular Channel

Project Description	
Worksheet	Triangular Channel - 1
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.035
Slope	0.011000 ft/ft
Left Side Slope	1.00 H : V
Right Side Slope	1.00 H : V
Discharge	3.37 cfs

Results	
Depth	1.17 ft
Flow Area	1.4 ft ²
Wetted Perimeter	3.30 ft
Top Width	2.34 ft
Critical Depth	0.93 ft
Critical Slope	0.036540 ft/ft
Velocity	2.47 ft/s
Velocity Head	0.09 ft
Specific Energy	1.26 ft
Froude Number	0.57
Flow Type	Subcritical

Upper E-1 Max Slope

Worksheet for Triangular Channel

Project Description	
Worksheet	Triangular Channel - 1
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.035
Slope	0.019000 ft/ft
Left Side Slope	1.00 H : V
Right Side Slope	1.00 H : V
Discharge	3.37 cfs

Results	
Depth	1.05 ft
Flow Area	1.1 ft ²
Wetted Perimeter	2.98 ft
Top Width	2.11 ft
Critical Depth	0.93 ft
Critical Slope	0.036539 ft/ft
Velocity	3.03 ft/s
Velocity Head	0.14 ft
Specific Energy	1.20 ft
Froude Number	0.74
Flow Type	Subcritical

Lower E-1 Min Slope Worksheet for Triangular Channel

Project Description	
Worksheet	Triangular Channel - 1
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.035
Slope	0.013000 ft/ft
Left Side Slope	1.50 H : V
Right Side Slope	1.50 H : V
Discharge	3.44 cfs

Results	
Depth	0.94 ft
Flow Area	1.3 ft ²
Wetted Perimeter	3.39 ft
Top Width	2.82 ft
Critical Depth	0.80 ft
Critical Slope	0.030962 ft/ft
Velocity	2.59 ft/s
Velocity Head	0.10 ft
Specific Energy	1.05 ft
Froude Number	0.67
Flow Type	Subcritical

Lower E-1 Max Slope Worksheet for Triangular Channel

Project Description	
Worksheet	Triangular Channel - 1
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.035
Slope	0.021000 ft/ft
Left Side Slope	1.50 H : V
Right Side Slope	1.50 H : V
Discharge	3.44 cfs

Results	
Depth	0.86 ft
Flow Area	1.1 ft ²
Wetted Perimeter	3.10 ft
Top Width	2.58 ft
Critical Depth	0.80 ft
Critical Slope	0.030962 ft/ft
Velocity	3.10 ft/s
Velocity Head	0.15 ft
Specific Energy	1.01 ft
Froude Number	0.83
Flow Type	Subcritical

E-3 Min Slope Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Trapezoidal Channel - 1
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.035
Slope	0.015000 ft/ft
Left Side Slope	2.50 H : V
Right Side Slope	1.00 H : V
Bottom Width	0.50 ft
Discharge	9.41 cfs

Results	
Depth	1.12 ft
Flow Area	2.7 ft ²
Wetted Perimeter	5.08 ft
Top Width	4.40 ft
Critical Depth	0.99 ft
Critical Slope	0.026161 ft/ft
Velocity	3.44 ft/s
Velocity Head	0.18 ft
Specific Energy	1.30 ft
Froude Number	0.77
Flow Type	Subcritical

E-3 Max Slope Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Trapezoidal Channel - 1
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.035
Slope	0.023000 ft/ft
Left Side Slope	2.50 H : V
Right Side Slope	1.00 H : V
Bottom Width	0.50 ft
Discharge	9.41 cfs

Results	
Depth	1.02 ft
Flow Area	2.3 ft ²
Wetted Perimeter	4.69 ft
Top Width	4.07 ft
Critical Depth	0.99 ft
Critical Slope	0.026161 ft/ft
Velocity	4.04 ft/s
Velocity Head	0.25 ft
Specific Energy	1.27 ft
Froude Number	0.94
Flow Type	Subcritical

E-4 (Constant Slope) Worksheet for Triangular Channel

Project Description	
Worksheet	Triangular Channel - 1
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.035
Slope	0.016000 ft/ft
Left Side Slope	2.00 H : V
Right Side Slope	1.00 H : V
Discharge	2.20 cfs

Results	
Depth	0.77 ft
Flow Area	0.9 ft ²
Wetted Perimeter	2.80 ft
Top Width	2.30 ft
Critical Depth	0.67 ft
Critical Slope	0.033408 ft/ft
Velocity	2.49 ft/s
Velocity Head	0.10 ft
Specific Energy	0.86 ft
Froude Number	0.71
Flow Type	Subcritical

E-5 Min Slope Worksheet for Triangular Channel

Project Description	
Worksheet	Triangular Channel - 1
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.035
Slope	0.009500 ft/ft
Left Side Slope	4.00 H : V
Right Side Slope	4.00 H : V
Discharge	9.49 cfs

Results	
Depth	0.97 ft
Flow Area	3.8 ft ²
Wetted Perimeter	8.02 ft
Top Width	7.78 ft
Critical Depth	0.81 ft
Critical Slope	0.025116 ft/ft
Velocity	2.51 ft/s
Velocity Head	0.10 ft
Specific Energy	1.07 ft
Froude Number	0.63
Flow Type	Subcritical

E-5 Max Slope Worksheet for Triangular Channel

Project Description	
Worksheet	Triangular Channel - 1
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.035
Slope	0.033000 ft/ft
Left Side Slope	4.00 H : V
Right Side Slope	4.00 H : V
Discharge	9.49 cfs

Results	
Depth	0.77 ft
Flow Area	2.4 ft ²
Wetted Perimeter	6.35 ft
Top Width	6.16 ft
Critical Depth	0.81 ft
Critical Slope	0.025116 ft/ft
Velocity	4.00 ft/s
Velocity Head	0.25 ft
Specific Energy	1.02 ft
Froude Number	1.14
Flow Type	Supercritical

Upper W-1 Min Slope

Worksheet for Triangular Channel

Project Description	
Worksheet	Triangular Channel - 1
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.035
Slope	0.009100 ft/ft
Left Side Slope	2.00 H : V
Right Side Slope	2.00 H : V
Discharge	2.88 cfs

Results	
Depth	0.83 ft
Flow Area	1.4 ft ²
Wetted Perimeter	3.71 ft
Top Width	3.32 ft
Critical Depth	0.66 ft
Critical Slope	0.029917 ft/ft
Velocity	2.09 ft/s
Velocity Head	0.07 ft
Specific Energy	0.90 ft
Froude Number	0.57
Flow Type	Subcritical

Upper W-1 Max Slope

Worksheet for Triangular Channel

Project Description	
Worksheet	Triangular Channel - 1
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.035
Slope	0.025000 ft/ft
Left Side Slope	2.00 H : V
Right Side Slope	2.00 H : V
Discharge	2.88 cfs

Results	
Depth	0.69 ft
Flow Area	0.9 ft ²
Wetted Perimeter	3.07 ft
Top Width	2.75 ft
Critical Depth	0.66 ft
Critical Slope	0.029917 ft/ft
Velocity	3.06 ft/s
Velocity Head	0.15 ft
Specific Energy	0.83 ft
Froude Number	0.92
Flow Type	Subcritical

Lower W-1 Min Slope Worksheet for Triangular Channel

Project Description	
Worksheet	Triangular Channel - 1
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.035
Slope	0.006700 ft/ft
Left Side Slope	2.00 H : V
Right Side Slope	2.00 H : V
Discharge	5.13 cfs

Results	
Depth	1.09 ft
Flow Area	2.4 ft ²
Wetted Perimeter	4.88 ft
Top Width	4.36 ft
Critical Depth	0.84 ft
Critical Slope	0.027701 ft/ft
Velocity	2.15 ft/s
Velocity Head	0.07 ft
Specific Energy	1.16 ft
Froude Number	0.51
Flow Type	Subcritical

Lower W-1 Max Slope Worksheet for Triangular Channel

Project Description	
Worksheet	Triangular Channel - 1
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.035
Slope	0.017000 ft/ft
Left Side Slope	2.00 H : V
Right Side Slope	2.00 H : V
Discharge	5.13 cfs

Results	
Depth	0.92 ft
Flow Area	1.7 ft ²
Wetted Perimeter	4.10 ft
Top Width	3.67 ft
Critical Depth	0.84 ft
Critical Slope	0.027701 ft/ft
Velocity	3.05 ft/s
Velocity Head	0.14 ft
Specific Energy	1.06 ft
Froude Number	0.80
Flow Type	Subcritical

W-2 Min Slope Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Trapezoidal Channel - 1
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.035
Slope	0.008300 ft/ft
Left Side Slope	1.00 H : V
Right Side Slope	2.00 H : V
Bottom Width	2.00 ft
Discharge	5.32 cfs

Results	
Depth	0.72 ft
Flow Area	2.2 ft ²
Wetted Perimeter	4.65 ft
Top Width	4.17 ft
Critical Depth	0.53 ft
Critical Slope	0.027144 ft/ft
Velocity	2.38 ft/s
Velocity Head	0.09 ft
Specific Energy	0.81 ft
Froude Number	0.57
Flow Type	Subcritical

W-2 Max Slope Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Trapezoidal Channel - 1
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.035
Slope	0.033000 ft/ft
Left Side Slope	1.00 H : V
Right Side Slope	2.00 H : V
Bottom Width	2.00 ft
Discharge	5.32 cfs

Results	
Depth	0.50 ft
Flow Area	1.4 ft ²
Wetted Perimeter	3.82 ft
Top Width	3.49 ft
Critical Depth	0.53 ft
Critical Slope	0.027144 ft/ft
Velocity	3.89 ft/s
Velocity Head	0.24 ft
Specific Energy	0.73 ft
Froude Number	1.10
Flow Type	Supercritical

W-3 Min Slope Worksheet for Triangular Channel

Project Description	
Worksheet	Triangular Channel - 1
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.035
Slope	0.003300 ft/ft
Left Side Slope	4.50 H : V
Right Side Slope	1.00 H : V
Discharge	3.52 cfs

Results	
Depth	0.96 ft
Flow Area	2.5 ft ²
Wetted Perimeter	5.75 ft
Top Width	5.25 ft
Critical Depth	0.63 ft
Critical Slope	0.029568 ft/ft
Velocity	1.40 ft/s
Velocity Head	0.03 ft
Specific Energy	0.99 ft
Froude Number	0.36
Flow Type	Subcritical

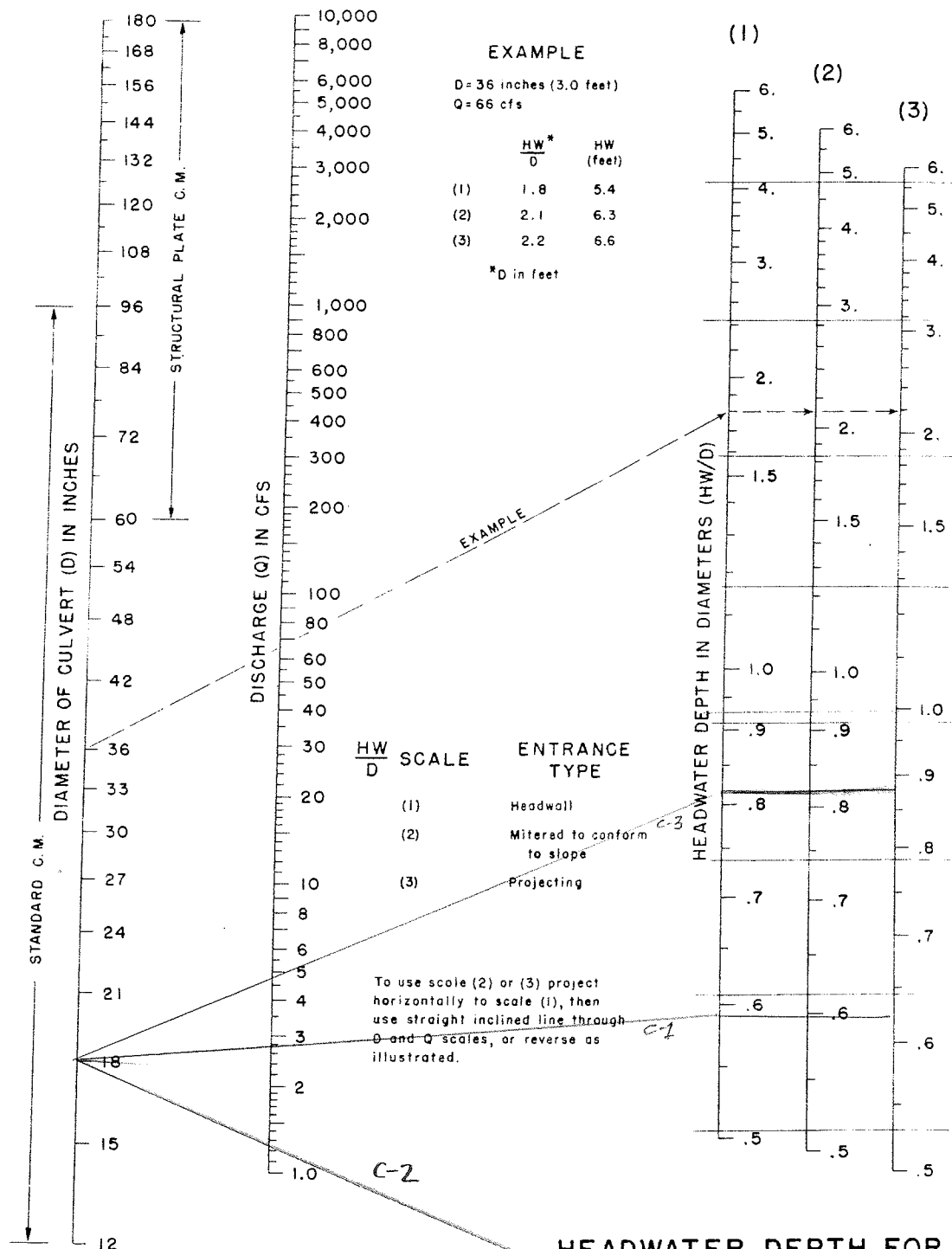
W-3 Max Slope Worksheet for Triangular Channel

Project Description	
Worksheet	Triangular Channel - 1
Flow Element	Triangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.035
Slope	0.025000 ft/ft
Left Side Slope	4.50 H : V
Right Side Slope	1.00 H : V
Discharge	3.52 cfs

Results	
Depth	0.65 ft
Flow Area	1.2 ft ²
Wetted Perimeter	3.94 ft
Top Width	3.59 ft
Critical Depth	0.63 ft
Critical Slope	0.029568 ft/ft
Velocity	3.00 ft/s
Velocity Head	0.14 ft
Specific Energy	0.79 ft
Froude Number	0.92
Flow Type	Subcritical

CHART 5



BRC Wellington LLC
Dry-Coal Cleaning Facility

Permit Application
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APPENDIX 7-9

Alternate Sediment Control Area Calculations

COVOL WELLINGTON PLANT
ASCA DETERMINATION

ASCA-1

Bone yard with minimally-disturbed ground
Partially vegetated with weeds

$$\left. \begin{array}{l} CN = 80 \\ P_{10,24} = 1.57 \text{ in} \\ \text{Arez} = 238 \text{ ac} \end{array} \right\} \begin{array}{l} Q = 0.321 \text{ in} \\ = 0.76 \text{ ac-in} \\ = 2770 \text{ ft}^3 \end{array}$$

Arez of elev. 5510 contour inside fence = 5540 ft²

The above runoff will be contained with a fiber roll with
a height of ≥ 6 inches.

ASCA-2

Conditions as above

$$\left. \begin{array}{l} CN = 80 \\ P_{10,24} = 1.57 \text{ in} \\ \text{Arez} = 0.12 \text{ ac} \end{array} \right\} \begin{array}{l} Q = 0.321 \text{ in} \\ = 140 \text{ ft}^3 \end{array}$$

Arez of elev. 5508 contour inside fence = 610 ft²

The above runoff will be contained if the fiber roll has a
height of ≥ 6 inches.

CHAPTER 8

BONDING AND INSURANCE

8.10 Bonding Definitions and Division Responsibilities

This chapter provides information regarding the bonding for coal mining and reclamation operations at the Wellington Dry Coal Cleaning Facility. The applicant has on file with DOGM a bond made payable to DOGM for performance of all the requirements of the State Program.

8.20 Requirement to File a Bond

The area covered by the bond is outlined on Plate 5-2, which includes all disturbed areas. The disturbed areas and specific acres to be reclaimed are indicated on Plate 5-2. The performance bond period is for the duration of the coal processing and reclamation operations. The bond is in the form of a surety bond and is described in Section 8.60.

8.30 Determination of Bond Amount

The bond amount was determined by using unit costs obtained from RS Means Heavy Construction Cost Data, adjusted for the Price, Utah area. The total estimated bond amount is indicated in Appendix 8-1. The present bond is sufficient to assure the completion of the reclamation plan.

8.40 General Terms and Conditions of the Bond

The performance bond is in the amount determined by DOGM as described in Section 8.30 and payable to DOGM. In the event the surety company becomes insolvent, DOGM will be

notified by the permittee. The surety company and permittee will notify DOGM of any changes in the bonding terms for BRCW. Duration of the bond is described in Section 8.20.

8.50 Bonding Requirements

The applicant qualifies for a long-term period of liability and therefore will comply with the stipulation that the bond coverage be extended 30 days prior to the expiration of the bond term. A performance bond for a new term will be submitted to DOGM 30 days prior to expiration of coverage.

8.60 Forms of Bonds

The surety bond for the applicant has been executed by Western Surety Company, a corporate surety licensed to do business in Utah. The surety bond will be non-cancellable during its term except with the prior consent of DOGM.

8.70 Replacement of Bonds

BRCW does not currently plan to replace the bond for the permit area. However, should a replacement bond be required, the replacement bond will be submitted to and approved by DOGM prior to the cancellation of the original bond.

8.80 Requirements to Release Performance Bonds

The applicant will comply with the requirements described in Section R-645-301-880 of DOGM regulations when applying for the release of performance bonds.

8.90 Terms and Conditions for Liability Insurance

A Certificate of Insurance applicable to the Wellington Dry Coal Cleaning Facility is provided in Appendix 8-2. The policy provides for personal injury and property damage protection consistent with the amounts designated in R645-301-890.100.

The insurance policy will be maintained in full force during the life of the permit including the liability period necessary to complete all reclamation operations. The policy will include a rider stating that DOGM be notified of any changes in the policy including termination or failure to renew.

BRC Wellington LLC
Dry-Coal Cleaning Facility

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APPENDIX 8-1

Reclamation Bond Cost Estimate

EarthFax Engineering, Inc.
Reclamation Cost Estimate

Project: COVOL Reclamation Bond Estimate
 Project #: UC 1091-02
 Estimator: R.B. White
 Date: 29-Mar-11
 Costs: Means 2011 Heavy Construction Cost Data, except as otherwise noted

Means No./Source	Description	Units	Est. Quan.	Unit Price	Adj. Price	Total Price
	Price, Utah cost adjustment	-	-	-	85.3%	-
3123 23.20 4018	Haul residual coal to Commonwealth Coal Services area at Savage facility (2 mi RT)*	LCY	14,815	\$2.57	\$2.19	\$ 32,478
0241 16.17 0440	Demolish concrete slab with rebar	CY	624	\$7.80	\$6.65	\$ 4,152
0241 16.17 1140	Demolish footing, 2'x3' with rebar	LF	1,856	\$26.00	\$22.18	\$ 41,162
0241 16.17 2500	Demolish concrete, 12" thick with rebar	CY	188	\$25.85	\$22.05	\$ 4,145
0241 16.13 0500	Demolish small building, steel	CF	576	\$0.33	\$0.28	\$ 162
0241 13.38 2700	Demolish water pipe, 4" diameter	LF	220	\$5.75	\$4.90	\$ 1,079
0241 13.40 0160	Demolish 18" culvert (assume all steel CMP)	LF	255	\$4.58	\$3.91	\$ 996
0241 13.38 1600	Remove electric conduit	LF	1,055	\$2.02	\$1.72	\$ 1,818
0241 13.38 1600	Remove telephone condit	LF	62	\$2.02	\$1.72	\$ 107
G1030 805 1320	Trench for conduit removal**	LF	1,592	\$3.46	\$2.95	\$ 4,699
0241 16.17 4200	On-site disposal of debris	CY	1,320	\$9.15	\$7.80	\$ 10,303
G1030 125 1300	Cut and fill soil to final grade	CY	1,100	\$14.00	\$11.94	\$ 13,136
3123 16 42 1601	Spread topsoil	CY	1,302	\$1.06	\$0.90	\$ 1,177
3123 16 42 0260	Prepare/gouge topsoil	CY	1,302	\$1.76	\$1.50	\$ 1,955
3292 19.14 5300	Apply seed mix***	MSF	453	\$16.50	\$14.07	\$ 6,376
DOGM	COVOL seed mix	ac	10.4	\$620.24	\$529.06	\$ 5,502

SUBTOTAL \$ 129,246

Misc. Costs as a Percent of the Subtotal:

Indirect costs	10 %	\$ 12,925
Mob/Demob	5 %	\$ 6,462
Contingency	2.5 %	\$ 3,231
Engineering	6.8 %	\$ 8,789
Main office expense	2.5 %	\$ 3,231
Project management fee	26.8 %	\$ 34,638

TOTAL ESTIMATED COST \$ 198,522

Bond escalation rate (2011, per DOGM) = 1.004
 Number of years to be escalated = 5
 Escalation factor = 1.02
 Escalated bond amount (rounded to nearest \$1,000) = 202,000

*Assumes 10,000 tons of residual coal with a unit weight of 50 lb/ft³ (1350 lb/ton) - see Standard Handbook for Civil Engineers, Fourth Edition (1996), Table 15.2(c), average of anthracite and bituminous piled coal

**Excavating for electrical and telephone conduit, water main and 18" CMP assumed to be 2' wide and 3' deep.

***Unit cost represents total Means cost minus the cost of materials. Seed cost provided on the next line.

- Notes:
1. Adjusted unit price based on total Location Factor of 85.3 for Price, Utah (see Means, p. 568)
 2. Commonwealth Coal Services, Inc. has indicated that they will accept the residual coal at no cost.
 3. Steel demolition cost to be paid for by the salvage value of the structures.

BRC Wellington LLC
Dry-Coal Cleaning Facility

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APPENDIX 8-2

Certificate of Insurance



CERTIFICATE OF LIABILITY INSURANCE

BOWIE-2

OP ID: BH

DATE (MM/DD/YYYY)

09/19/13

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Central Insurance Services 4630 Taylorsville Rd Louisville, KY 40220 Robert P. Wessel, Jr. CPCU	502-493-2370 502-493-2320	CONTACT NAME: PHONE (A/C, No, Ext): E-MAIL ADDRESS:	FAX (A/C, No):
		INSURER(S) AFFORDING COVERAGE	NAIC #
		INSURER A: Federal Insurance Company	20281
		INSURER B:	
		INSURER C:	
		INSURER D:	
		INSURER E:	
		INSURER F:	

COVERAGES	CERTIFICATE NUMBER:	REVISION NUMBER:
THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.		

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> GENERAL LIABILITY			3588-98-32CHI	02/05/13	02/05/14	EACH OCCURRENCE \$ 1,000,000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR						MED EXP (Any one person) \$ 10,000
	<input checked="" type="checkbox"/> Emp/Ben ded of \$1						PERSONAL & ADV INJURY \$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE \$ 2,000,000
	<input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC						PRODUCTS - COMP/OP AGG \$ 2,000,000
	AUTOMOBILE LIABILITY						Emp Ben. \$ 1,000,000
	<input type="checkbox"/> ANY AUTO						COMBINED SINGLE LIMIT (Ea accident) \$
	<input type="checkbox"/> ALL OWNED AUTOS						BODILY INJURY (Per person) \$
	<input type="checkbox"/> HIRED AUTOS						BODILY INJURY (Per accident) \$
	<input type="checkbox"/> SCHEDULED AUTOS						PROPERTY DAMAGE (Per accident) \$
	<input type="checkbox"/> NON-OWNED AUTOS						\$
	UMBRELLA LIAB						EACH OCCURRENCE \$
	<input type="checkbox"/> OCCUR						AGGREGATE \$
	EXCESS LIAB						\$
	<input type="checkbox"/> CLAIMS-MADE						
	DED						
	RETENTION \$						
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						WC STATU-TORY LIMITS
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	Y/N					OTH-ER
	If yes, describe under DESCRIPTION OF OPERATIONS below		N/A				E.L. EACH ACCIDENT \$
							E.L. DISEASE - EA EMPLOYEE \$
							E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Verification of General Liability Coverage for mining operation at Wellington, Utah (Permit C\007\0045)

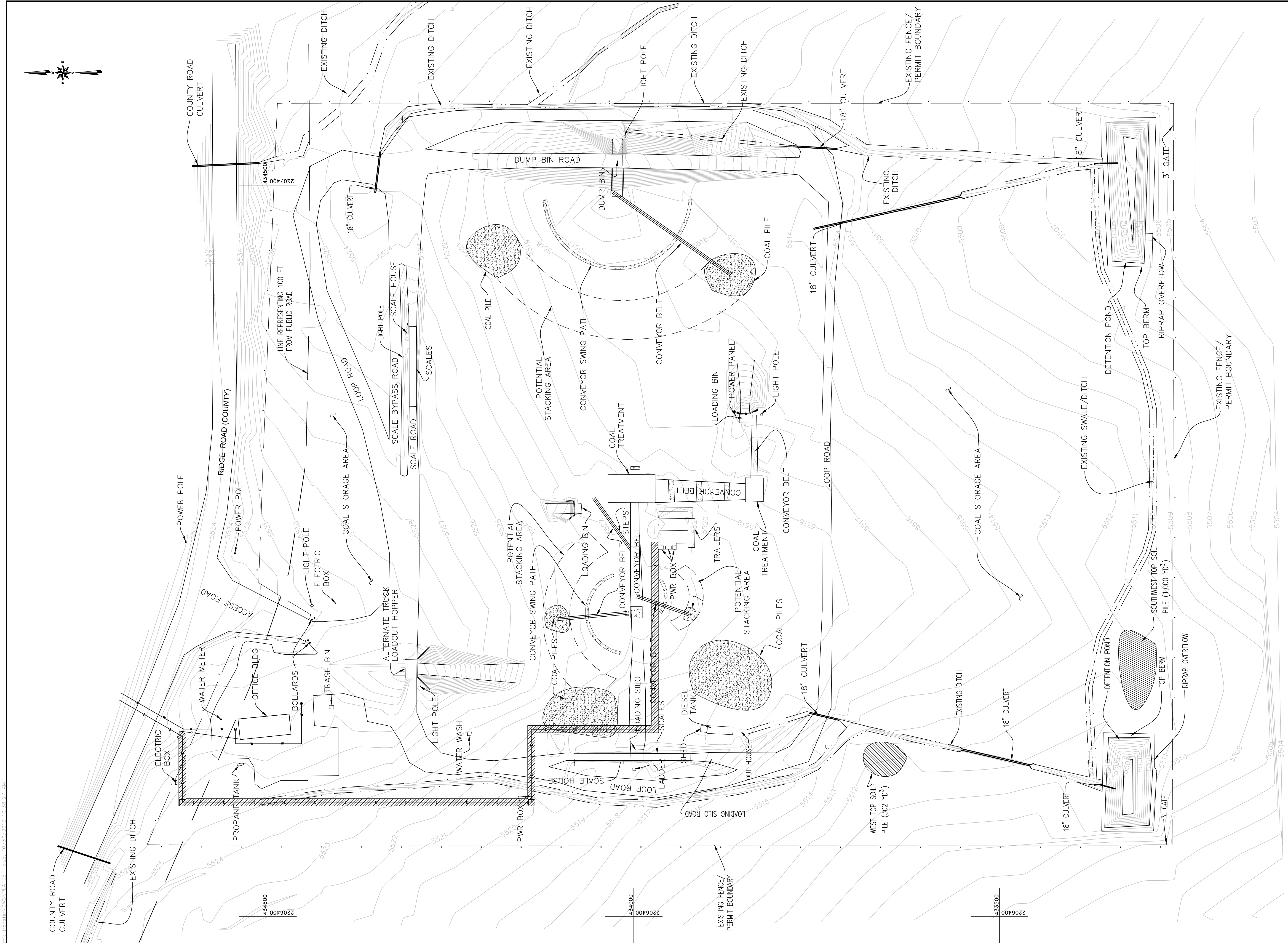
CERTIFICATE HOLDER	CANCELLATION
UTAHDEV	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
Utah Dept of Natural Resources Division of Oil Gas and Mining 1694 W. North Temple Suite 1210 Salt Lake City, UT 84114-5801	AUTHORIZED REPRESENTATIVE Robert P. Wessel, Jr. CPCU <i>Robert P. Wessel, Jr.</i>

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CHAPTER 9

ALLUVIAL VALLEY FLOORS

The Wellington Dry-Coal Cleaning Facility is located in an upland area overlain by a thin veneer of colluvial, slope wash deposits. It is not located within or adjacent to an alluvial valley floor.



LEGEND

W

W

W

MUNICIPAL WATER SUPPLY LINE

T

T

T

TELEPHONE LINE

S

S

S

ELECTRIC POWER LINE WITH UTILITY RIGHT OF WAY

NOTES:

1.

THE SIZE AND LOCATION OF COAL STOCKPILES SHOWN ON THIS MAP ARE CORRECT AS OF THE SEPTEMBER 2008 SURVEY. HOWEVER, THESE STOCKPILES ARE DYNAMIC AND MAY CHANGE IN SIZE WITH TIME. NONETHELESS, PILE LOCATIONS WILL REMAIN GENERALLY AS INDICATED.

2.

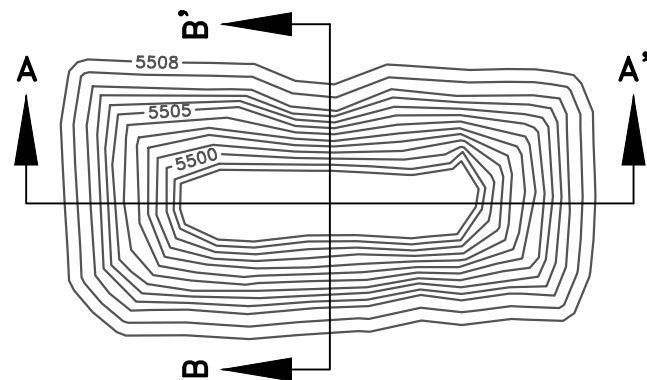
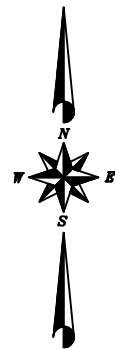
THE ENTIRE FENCED/PERMIT AREA WAS DEVELOPED PRIOR TO INITIAL PERMIT APPLICATION SUBMITTAL ON JANUARY 15, 2008

3.

TYPICAL QUANTITY OF COAL ON SITE = 1500 TONS. QUANTITY MAY VARY SIGNIFICANTLY, DEPENDING ON CONTRACT REQUIREMENTS.

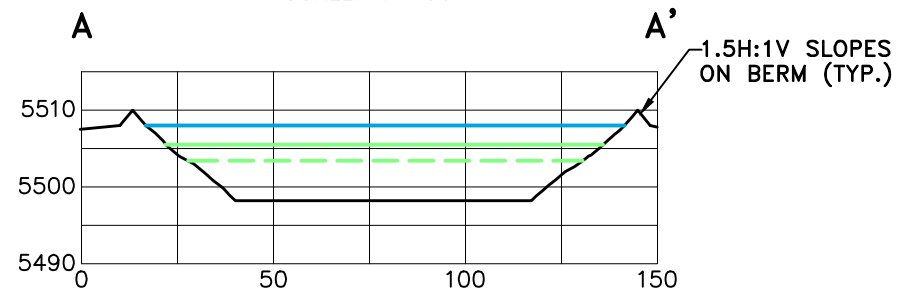


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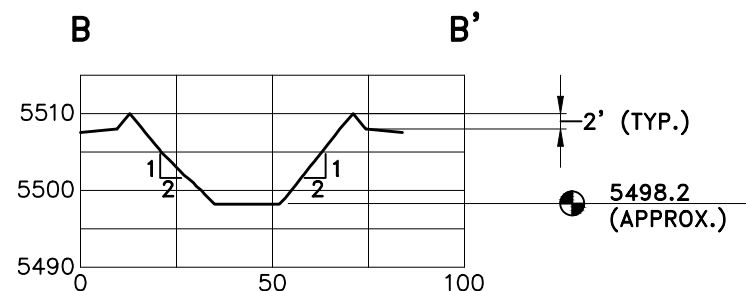
WEST SEDIMENTATION POND

SCALE: 1"=50'



SECTION A-A'

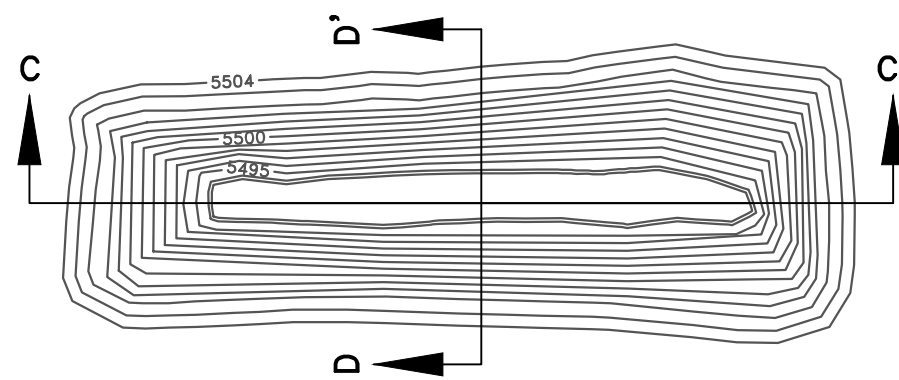
HORZ. SCALE: 1"=50'
VERT. SCALE: 1"=25'



SECTION B-B'

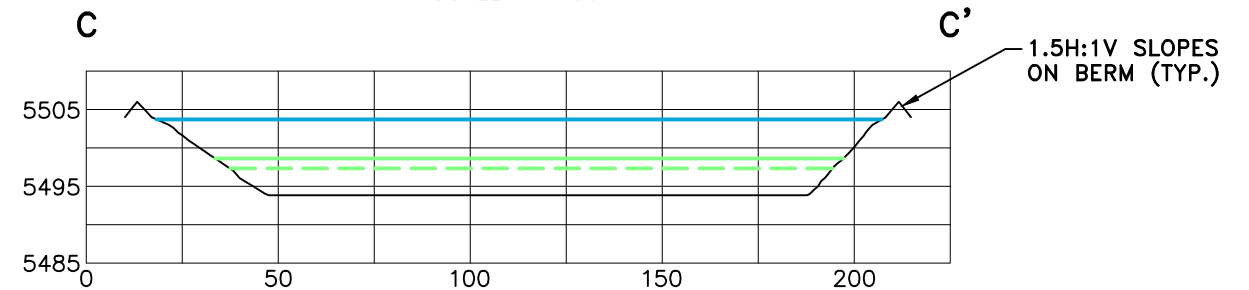
HORZ. SCALE: 1"=50'
VERT. SCALE: 1"=25'

- MAX. WATER STORAGE ELEVATION (APPROX. 5508.0')
- MAX. SED. STORAGE STAGE (APPROX. 5505.4')
- 60% SED. CLEANOUT STAGE (APPROX. 5503.4')



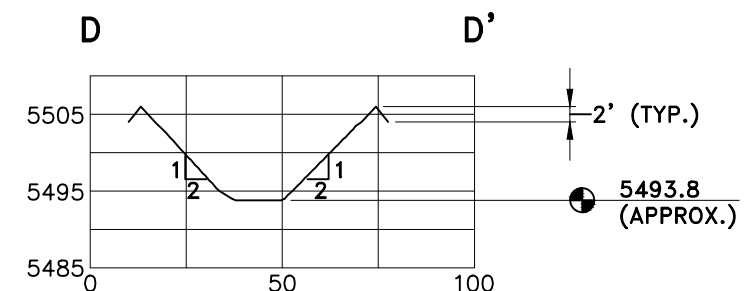
EAST SEDIMENTATION POND

SCALE: 1"=50'



SECTION C-C'

HORZ. SCALE: 1"=50'
VERT. SCALE: 1"=25'



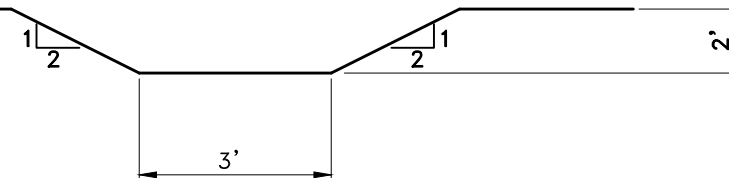
SECTION D-D'

HORZ. SCALE: 1"=50'
VERT. SCALE: 1"=25'

- MAX. WATER STORAGE ELEVATION (APPROX. 5503.7')
- MAX. SED. STORAGE STAGE (APPROX. 5498.6')
- 60% SED. CLEANOUT STAGE (APPROX. 5497.3')

NOTE:

SEDIMENTATION POND DIMENSIONS AND GEOMETRY SURVEYED BY EIS ENVIRONMENTAL AND ENGINEERING NOVEMBER 2007, THEY WERE PLACED ON THE MAP USING AERIAL PHOTOGRAPHY (GOOGLE EARTH) TAKEN IN 2006. ABSOLUTE ELEVATIONS ARE BASED ON PRE-CONSTRUCTION TOPOGRAPHIC DATA PROVIDED BY MINE AND MILLS ENGINEERING AND ARE THUS CONSIDERED TO BE APPROXIMATE.



TYPICAL SPILLWAY CHANNEL SECTION

SCALE: 1"=3'
HORZ" AND VERT.



EarthFax Engineering, Inc.
Engineers/Scientists



SCALE: AS SHOWN

BASE MAP: SURVEY BY EIS ENVIRONMENTAL AND ENGINEERING.

REVISION	DATE	BY	DATE	BY

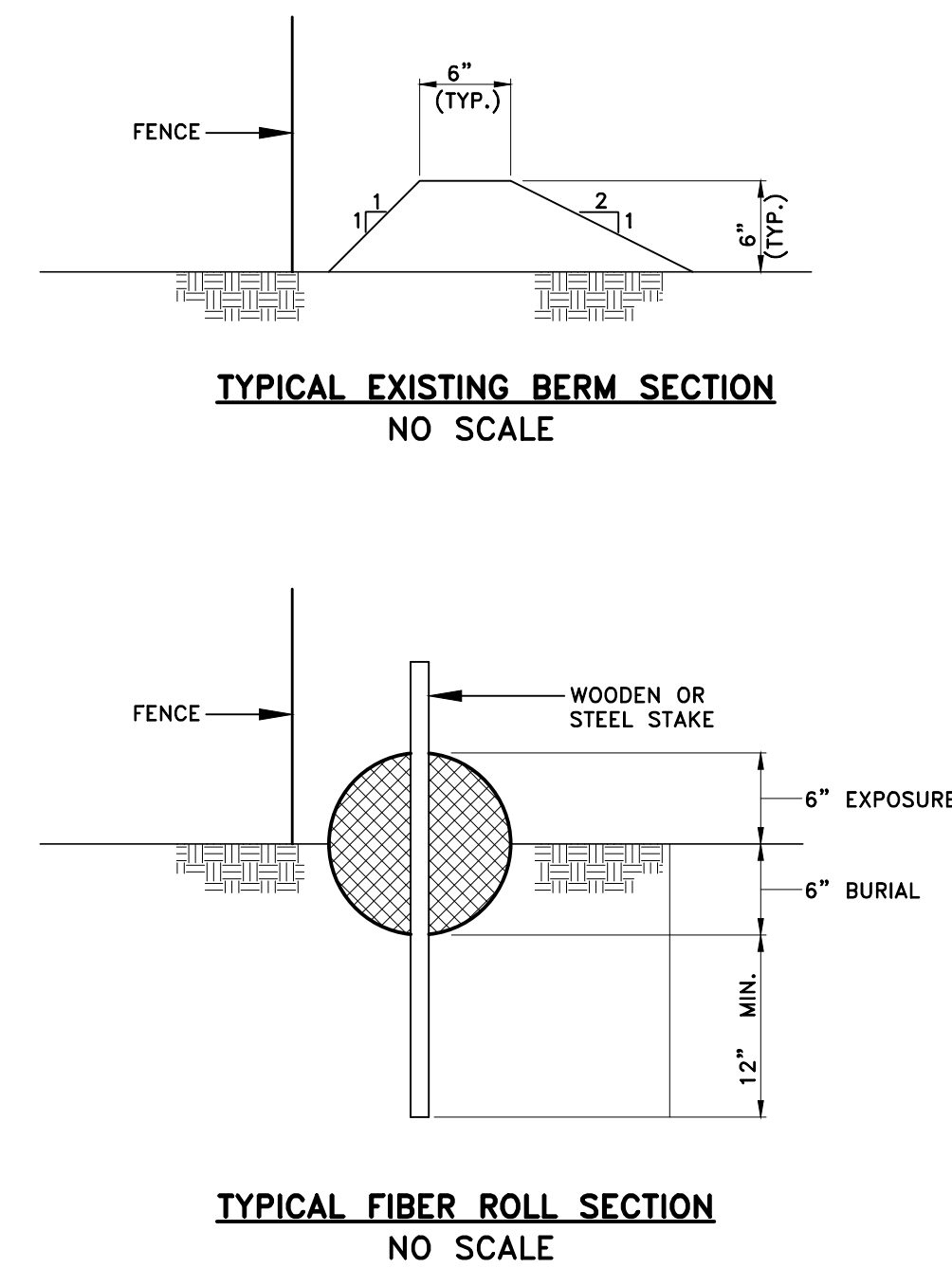
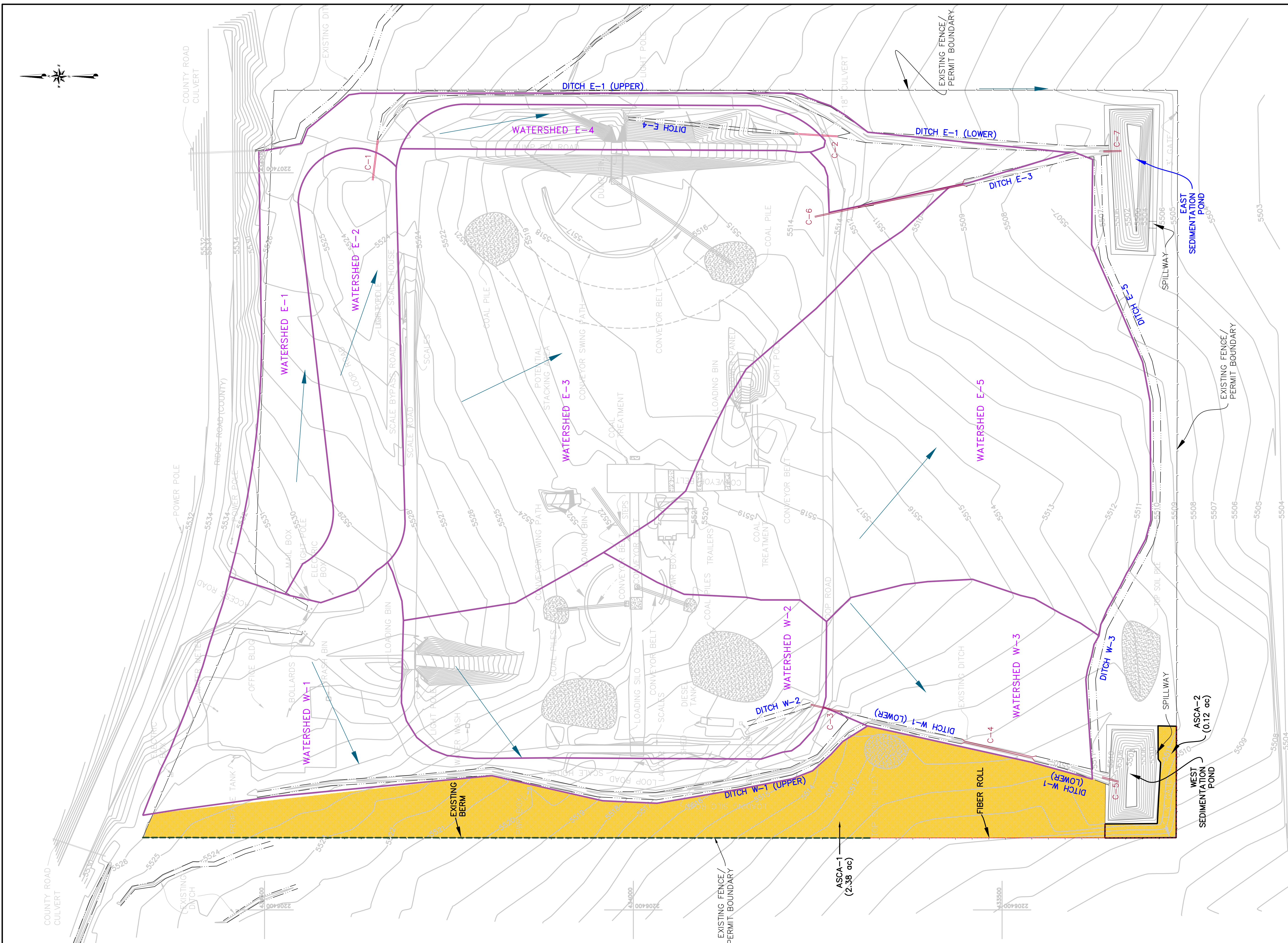
DRAWN BY: SWF
APPROVED BY: RBW







CHECKED BY: AM
DWG DATA: UC1091\02\PERMIT APPLICATION\DRAWINGS\PLATE7-1.DWG

DATE: 01/2008

BRC WELLINGTON, LLC
1865 WEST RIDGE ROAD
WELLINGTON, UTAH 841654

PLATE 7-1
SEDIMENTATION POND MAP



- ## LEGEND
- | | |
|---------------------------------------------------------------------------------------|---------------------------------|
|  | DITCH |
|  | CULVERT |
|  | GENERAL DRAINAGE DIRECTION |
|  | ALTERNATE SEDIMENT CONTROL AREA |
|  | EXISTING BERM |
|  | FIBER ROLL |

- NOTES:
1. THE SIZE AND LOCATION OF COAL STOCKPILES SHOWN THIS MAP ARE CORRECT AS OF THE SEPTEMBER 2008 SURVEY. HOWEVER, THESE STOCKPILES ARE DYNAMIC AND MAY CHANGE IN SIZE WITH TIME. NONETHELESS, PILE LOCATIONS WILL REMAIN GENERALLY AS INDICATED.
 2. THE ENTIRE FENCED/PERMIT AREA WAS DEVELOPED PRIOR TO INITIAL PERMIT APPLICATION SUBMITTAL ON JANUARY 15, 2008

