

# Table of Contents

## Volume 1

Confidential Submittal Volume 1 E-Logs (USB)  
Confidential Submittal Volume 2 G-Logs, including Geologist's Note (USB)  
Leases and Lease Supplements to LOC LSM-5 (USB)

### **PART I GENERAL INFORMATION**

Application  
Figure I. Location Map  
Definitions  
Acronyms  
Units of Measure

### **CHAPTER 23. SURFACE MINING PERMIT APPLICATIONS: MINIMUM REQUIREMENTS FOR LEGAL, FINANCIAL, COMPLIANCE AND RELATED INFORMATION**

#### **PART II ADMINISTRATIVE INFORMATION**

**2301. Responsibility**

**2303. Applicability**

#### **PART II-A 2305. Identification of Interests**

Table 2305-1. Five Forks Mining, LLC Organization Structure and Ownership and Control Information

Table 2305-2. Current Permits and Permit Applications, Including Pending Applications Held by Five Forks Mining, LLC

#### **PART II-B 2307. Compliance Information**

#### **PART II-C 2309. Right of Entry and Operation Information**

Table 2309-1. Right of Entry Information for Permit Area

Appendix 2309-1. Tract Owner Names

Exhibit 2309-1. Land Map

#### **PART II-D 2311. Relationship to Areas Designated Unsuitable for Mining**

Appendix 2311-1. Contractual Agreements for Occupied Dwellings

Exhibit 2311-1. Surface Encumbrances

#### **PART II-E 2313. Permit Term Information**

Table 2313-1. Disturbance Acreage

#### **PART II-F 2315. Personal Injury and Property Damage Insurance Information**

Appendix 2315-1. Certificate of Insurance

#### **PART II-G 2317. Identification of Other Licenses and Permits**

Table 2317-1. Identification of Other Licenses and Permits

#### **PART II-H 2319. Identification of Location of Public Office for Filing of Application**

#### **PART II-I 2321. Newspaper Advertisement and Proof of Publication**

Appendix 2321-1. Newspaper Location Map

### **CHAPTER 25. SURFACE MINING PERMIT APPLICATIONS: MINIMUM REQUIREMENTS FOR INFORMATION ON ENVIRONMENTAL RESOURCES**

#### **PART III ENVIRONMENTAL RESOURCES INFORMATION**

**2501. Responsibilities**

**2503. General Requirements**

#### **PART III-A 2505. General Environmental Resources Information and Cultural Resources**

Table 2505-1. Status of Cultural Resources Investigations

Table 2505-2. Status of Archaeological Sites and Standing Structures

Appendix 2505-1. Final Report for DOP-7

Appendix 2505-2. Final Report for LSM-5 Survey

Appendix 2505-3. Final Report for Five Forks South (Addendum 1)

Appendix 2505-4. Final Report for Five Forks Northeast (Addendum 2)

Appendix 2505-5. Final Report for Five Forks North (Addendum 3)

Appendix 2505-6. Final Report for Phase II Survey of Site 16NA710

Appendix 2505-7. Final Report for Five Forks Martin Timber North (Addendum 4)

Exhibit 2505-1. Cultural Resources Map

# Table of Contents

## Volume 2

**PART III-B 2507. Description of Hydrology and Geology**

**PART III-C 2509. Geology Description**

Figure 2509-1. General Area Geology Map

Figure 2509-2. Generalized Surface Stratigraphic Column, Natchitoches Parish, Louisiana

Appendix 2509-1. Inventory of Drill Holes

Appendix 2509-2. Lithology Logs

Appendix 2509-3. Analytical Results of Overburden Continuous Cores

Appendix 2509-4. Overburden Laboratory Reports

Appendix 2509-5. Lignite Laboratory Reports

Appendix 2509-6. Report of Exploration Operations

Exhibit 2509-1. Cross Section Location

Exhibit 2509-2. Cross Section 1 - 1'

Exhibit 2509-3. Cross Section 2 - 2'

Exhibit 2509-4. Cross Section 3 - 3'

Exhibit 2509-5. Cross Section 4 - 4'

Exhibit 2509-6. Cross Section 5 - 5'

Exhibit 2509-7. Cross Section 6 - 6'

Exhibit 2509-8. Cross Section 7 - 7'

Exhibit 2509-9. Cross Section 8 - 8'

Exhibit 2509-10. Cross Section 9 - 9'

Exhibit 2509-11. Fence Diagram

# Table of Contents

## Volume 3

<b>PART III-D</b>	<b>2511. Groundwater Information</b>
	Table 2511-1. Completion Information for Baseline Monitoring Wells
	Table 2511-2. Summary of 2009 - 2010 Water Quality Data
	Table 2511-3. Summary of 2010 - 2012 Water Quality Data
	Table 2511-4. Slug Test Results
	Table 2511-5. Summary of Private Wells
	Figure 2511-1. Aquifer Map
	Figure 2511-2. E-logs Showing Bottom of Regional USDW
	Appendix 2511-1. Monitoring Well Construction Diagrams
	Appendix 2511-2. 2009-2010 Baseline Groundwater Monitoring Data
	Appendix 2511-3. 2009-2010 Groundwater Laboratory Reports*Volume 3(a) and on USB
	Appendix 2511-4. 2010-2012 Baseline Groundwater Monitoring Data
	Appendix 2511-5. 2014 Slug Test Data and Results
	Exhibit 2511-1. Baseline Groundwater Monitoring Well Locations
	Exhibit 2511-1a. Potentiometric Surface Map - Lower Wilcox
	Exhibit 2511-2. Private Wells and Springs
<b>PART III-E</b>	<b>2513. Surface Water Information</b>
	Table 2513-1. Hydrologic Data
	Table 2513-2. Estimated Peak Flow Rates and Runoff Volumes - Premining
	Appendix 2513-1. Surface Water Monitoring Data
	Appendix 2513-2. Surface Water Laboratory Reports*Volume 3(b) and on USB
	Appendix 2513-3. Premining SedCad Modeling Results*Volume 3(c) and on USB
	Appendix 2513-4. Supplemental Baseline Surface Water Monitoring Data 2010-2012
	Exhibit 2513-1. Surface Water Sample Location Map
<b>PART III-F</b>	<b>2515. Supplemental Information</b>
<b>PART III-G</b>	<b>2517. Baseline Cumulative Impact Area Information</b>
<b>PART III-H</b>	<b>2519. Modeling</b>
<b>PART III-I</b>	<b>2521. Alternative Water Source Information</b>
<b>PART III-J</b>	<b>2523. Probable Hydrologic Consequences Determination</b>
	Table 2523-1. 2010-2014 Water Level Changes in Long-Term Monitoring Wells
	Table 2523-2. Summary of 2010-2014 Water Quality Data for Long-Term Monitoring Wells
	Table 2523-3. Estimated Peak Flow Rates and Runoff Volumes During Mining
	Table 2523-4. Summary of 2010-2014 Long-Term Surface Data
	Appendix 2523-1. Long-Term Groundwater Monitoring Data 2010-2014
	Appendix 2523-2. Water-Level Graphs for Long-Term Monitoring Wells
	Appendix 2523-3. TDS Graphs for Long-Term Monitoring Wells
	Appendix 2523-4. During Mining SedCad Modeling Results*Volume 3(c) and on USB
	Appendix 2523-5. Long-Term Surface Water Monitoring Data 2010-2014
<b>PART III-K</b>	<b>2525. Cumulative Hydrologic Impact Assessment</b>

# Table of Contents

## Volume 4

<b>PART III-L</b>	<b>2527. Climatological Information</b>
	Table 2527-1. Rainfall Events
	Appendix 2527-1. Climatological Data
<b>PART III-M</b>	<b>2529. Vegetation Information</b>
	Appendix 2529-1. Methodology
	Appendix 2529-2. Vegative Plants
	Exhibit 2529-1. Premining Vegetation
<b>PART III-N</b>	<b>2531. Soil Resources Information</b>
	Appendix 2531-1. Selected Portions of the Soil Survey of Natchitoches Parish, Louisiana
	Appendix 2531-2. Topsoil Substitution Analysis (TSRA-1)
	Appendix 2531-3. Laboratory Data
	Appendix 2531-4. Technical Guidelines for Surface Mining
	Appendix 2531-5. Topsoil Substitution Analysis (TSRA-2)
	Appendix 2531-6. Overburden Quality Laboratory Results (Now also included in Appendix 2509-4)
	Appendix 2531-7. Topsoil Substitution Analysis (TSRA-3)
	Appendix 2531-8. Topsoil Substitution Analysis (TSRA-4)
	Exhibit 2531-1. Premining Soils
<b>PART III-O</b>	<b>2533. Land-Use Information</b>
	Exhibit 2533-1. Premining Land Use
<b>PART III-P</b>	<b>2535. Maps: General Requirements</b>
	<b>2537. Cross-Sections, Maps, and Plans</b>
<b>PART III-Q</b>	<b>2539. Prime Farmland Investigation</b>
	Appendix 2539-1. Prime Farmland Affidavit
	Appendix 2539-2. Historical Aerial Photographs for Proposed Expansion Area

# Table of Contents

## Volume 5

### CHAPTER 27. RECLAMATION AND OPERATION PLAN

**PART IV OPERATION PLAN**

**2701. Responsibilities**

**PART IV-A 2703. Operation Plan: General Requirements**

- Table 2703-1. Major Equipment List
- Figure 2703-1. Typical Truck/Shovel Pit Cross Section
- Figure 2703-2. Typical Dozer-Truck/Shovel Pit Cross Section
- Figure 2703-3. Typical Dragline Simple Side Cast Pit Cross Section
- Figure 2703-4. Typical Dozer-Dragline Pit Cross Section

Exhibit 2703-1. Mine Plan Map

**PART IV-B 2705. Operation Plan: Existing Structures**

**PART IV-C 2707. Operation Plan: Blasting**

**PART IV-D 2709. Operation Plan: Maps and Plans**

**PART IV-E 2711. Operation Plan: Air Pollution Control Plan**

**PART IV-F 2713. Operation Plan: Fish and Wildlife Plan**

- Figure 2713-1. Typical Postmining Reclamation/Wildlife Integration Plan
- Figure 2713-2. Typical Pastureland/Grazingland Enhancement for Wildlife
- Figure 2713-3. Wetland Enhancement for Surface Mining Retention Ponds
- Figure 2713-4. Typical Section/Ephemeral Streams
- Figure 2713-5. Typical Section/Intermittent Streams
- Appendix 2713-1. List of Threatened and Endangered Species
- Appendix 2713-2. USACE Preliminary Jurisdictional Determination
- Appendix 2713-3. Public Notice for Section 404 Permit
- Appendix 2713-4. Preliminary Jurisdictional Determination Re-verification Correspondence
- Appendix 2713-5. USACE Permit Extension

**PART V RECLAMATION PLAN**

**PART V-A 2715. Reclamation Plan: General Requirements**

- Table 2715-1. Premining and Postmining Topography Slopes
- Table 2715-2. General Reclamation and Revegetation Equipment
- Table 2715-3. Postmining Soil Performance Standards
- Table 2715-3. General Reclamation and Revegetation Equipment
- Figure 2715-1. Reclamation Timetable

Appendix 2715-1. Reclamation Bond Calculation

Appendix 2715-2. Plant Selection List

Exhibit 2715-1. Bond Area Map

Exhibit 2715-2. Worst Case Pit Sections

Exhibit 2715-3. Postmining Topography Cross Sections

**PART V-B 2717. Reclamation Plan: Protection of Hydrologic Balance**

**PART V-C 2719. Groundwater Monitoring Plan**

- Table 2719-1. Proposed Long-Term Groundwater Monitoring Wells
- Table 2719-2. Completion Information for Proposed Long-Term Monitoring Wells
- Exhibit 2719-1. Proposed Long-Term Groundwater Monitoring Well Locations

**PART V-D 2721. Surface Water Monitoring Plan**

- Table 2721-1. Proposed Long-Term Surface Water Monitoring Stations
- Exhibit 2721-1. Proposed Long-Term Surface Water Monitoring Locations

**PART V-E 2723. Reclamation Plan: Postmining Land Uses**

- Appendix 2723-1. Landowner Consultation Documentation
- Exhibit 2723-1. Postmining Land Use

**PART V-F 2725. Reclamation Plan: Ponds, Impoundments, Banks, Dams, and Embankments**

Table 2725-1. Sedimentation Pond Schedule

Appendix 2725-1. Sedimentation Pond SP-001

Appendix 2725-2. Sedimentation Pond SP-002 and Collection Ditches CD-2A and CD-2B

Appendix 2725-3. SP-003 and Collection Ditch CD-3

Appendix 2725-4. Sedimentation Pond SP-004

Appendix 2725-5. Sedimentation Pond SP-005

Appendix 2725-6. Sedimentation Pond SP-006 and Collection Ditch CD-4

# Table of Contents

## Volume 6

	<b>2727. Reclamation Plan: Surface Mining Near Underground Mining</b>
<b>PART V-G</b>	<b>2729. Reclamation Plan: Diversions</b>
	Appendix 2729-1. Storm Event Routing for Diversions Channel D-1
	Exhibit 2729-1. Diversion D-1
	Appendix 2729-2. Diversion D-2
	Appendix 2729-3. Diversion D-3
<b>PART V-H</b>	<b>2731. Reclamation Plan: Protection of Public Parks and Historic Places</b>
<b>PART V-I</b>	<b>2733. Reclamation Plan: Relocation or Use of Public Roads</b>
	Appendix 2733-1. Existing Parish Road Variance Approval
	Appendix 2733-2. Parish Road Variance Approvals
	Appendix 2733-3. Proposed State Road Variance Approval
	Exhibit 2733-1. Road Variance Map
<b>PART V-J</b>	<b>2735. Reclamation Plan: Disposal of Excess Spoil</b>
<b>PART V-K</b>	<b>2737. Road Systems</b>
	Table 2737-1. Primary Road Schedule
	Appendix 2737-1. Haulroad "HR-1"
	Appendix 2737-2. Mine Support Facilities Access Road
	Appendix 2737-3. Stockpile/Boxcut Haulroad
	Appendix 2737-4. North Spoil Side Access Road
	Appendix 2737-5. West Haulroad Sta. 0+00 to 57+00
	Appendix 2737-6. West Haulroad Sta. 57+00 to 94+97
	Appendix 2737-7. Culvert Design Table
	Appendix 2737-8. Mine Access Road
	Appendix 2737-9. North Loop Haulroad
	Appendix 2737-10. North Extension 1
<b>PART V-L</b>	<b>2739. Support Facilities</b>
	Exhibit 2739-1. Mine Support Facilities