

## **APPENDIX K**

### **WETLAND HABITAT QUALITY ASSESSMENT DATA SHEETS FOR THE PROPOSED LIBERTY FUELS MINE**

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**WETLAND HABITAT QUALITY ASSESSMENT  
DATA SHEETS**

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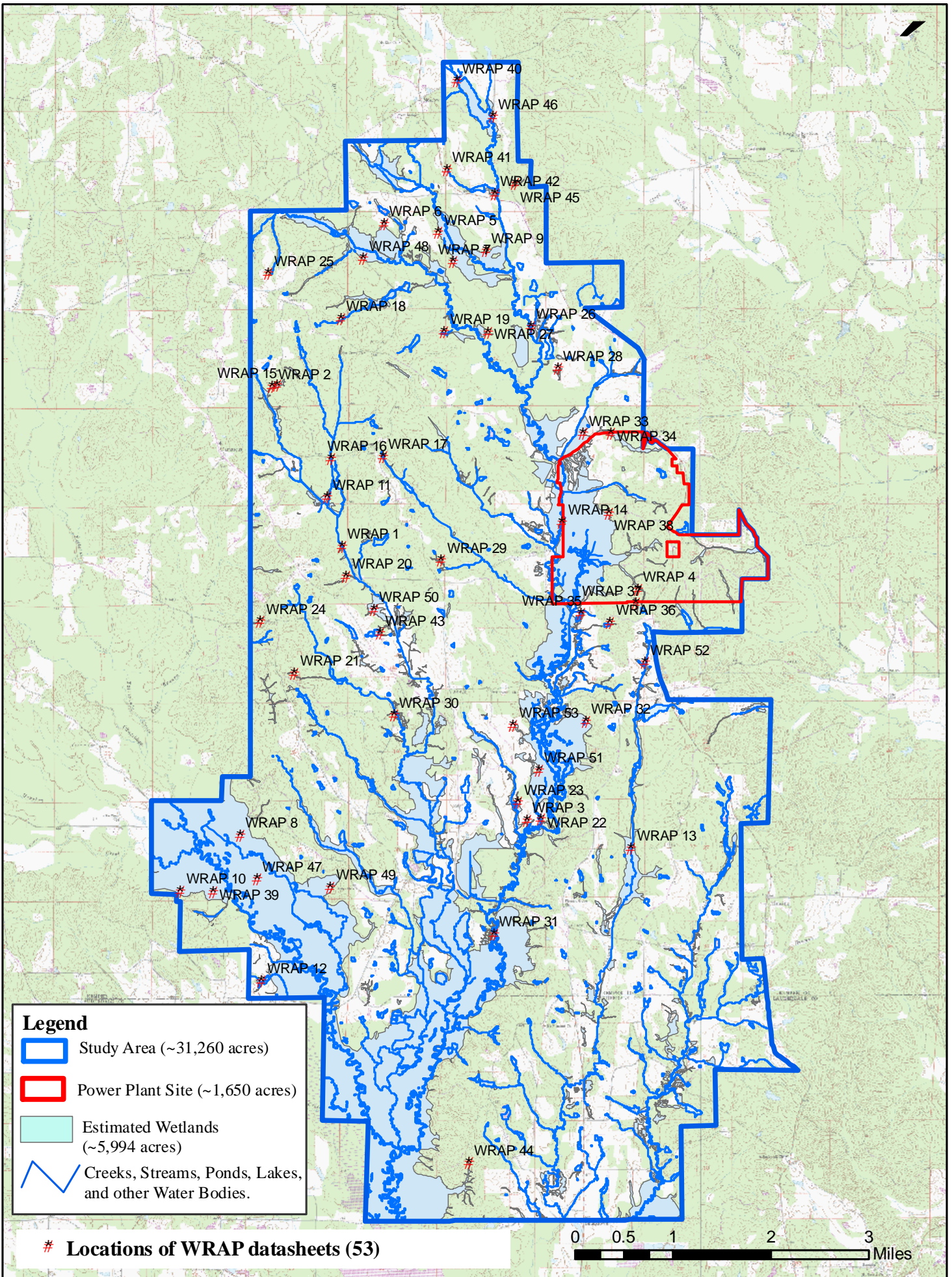
Barry A. Vittor & Associates, Inc. conducted wetland surveys of the study area between the months of June and October, 2008. Vittor & Associates biologists documented the quality of wetland habitat at 53 individual locations within the study area. Due to the limited access to private lands during wetland surveys, the location of WRAP points were arbitrarily selected in the field and do not represent a true random sample.

The quality of each wetland habitat was evaluated using the Wetland Rapid Assessment Procedure (WRAP). The WRAP is a rating index that was developed by the South Florida Water Management District to assist in the regulatory evaluation of mitigation sites. In 2007, the Mobile, Alabama District Corps of Engineers (COE) began using the WRAP to evaluate the habitat quality of jurisdictional wetlands as defined by the 1987 Corps of Engineers Wetland Delineation Manual. The objectives of the WRAP are: 1. to establish an accurate, consistent, and timely regulatory tool; 2. to track trends over time (land use vs. wetland impacts); and 3. to offer guidance for environmental site plan development.

When determining wetland quality using the WRAP methodology the following 6 variables are assessed: Wildlife Utilization, Wetland Overstory/Shrub Canopy, Wetland Vegetative Ground Cover, Adjacent Upland Support/Wetland Buffer, Field Indicators of Wetland Hydrology, and Water Quality Input and Treatment Systems. For each wetland evaluated a score between 0 and 3 is assigned to each of the 6 parameters. A score of 3 indicates the evaluated parameter meets all the criteria required for a system to be classified as 100% functional, and a score of 0 represents no functionality. The evaluator has the option to score each parameter in half (0.5) increments; half increments are utilized on the point scale from 0.5 through 2.5. This allows the evaluator to assess the value of the system more accurately. After assigning a value to each of the 6 parameters the sum of all scores is then divided by 18 (the maximum combined score) to obtain a final rating, which is expressed numerically by a number between 0 and 1. A final rating score of 1 indicates that a wetland is functioning at 100% of its capacity; whereas, a final score of 0 indicates a wetland has no functional value. The Mobile District COE uses the final WRAP score to determine overall quality of a wetland. For the purpose of assessing ratios for mitigation banking and mitigating wetland impacts the Mobile District COE uses the following range of WRAP scores to describe overall quality of a wetland: high quality (0.75-1), medium quality (0.50-0.74), and low quality (0-0.49). Calculations of wetland quality were derived in the office after fieldwork was completed.

BVA categorized each of the 53 evaluated wetlands as one of the following vegetation/land use types: planted pine (PP), hardwood forest (H), pine-hardwood forest (PH), hardwood-pine forest (HP), bottomland forest (BF), shrub land (S), and fields (F). Wetlands that were classified as vegetation types PP, H, PH, HP, and BF are forested wetlands. Wetlands that possess vegetative cover dominated by herbaceous plant species were classified as fields (pastures, hay fields, "deer plots", or any area cleared of forest cover and maintained in an herbaceous state), and scrub-shrub wetlands were designated as shrub land under the vegetation/land use types. The most common forested wetlands evaluated by BVA were Planted Pine and Bottomland Forest. Wetlands were frequently documented in fields during the survey due to the common occurrence of maintained pastureland in floodplains. Only two shrub land wetlands were evaluated during the WRAP surveys. Shrub land wetlands are uncommon inside the study area.

Wrap locations are depicted in the attached study area wetland map, and data sheets are attached.



WRAP 40

WRAP 46

WRAP 41

WRAP 42

WRAP 45

WRAP 6

WRAP 5

WRAP 9

WRAP 25

WRAP 48

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# Wetland Rapid Assessment Procedure

WRAP #1

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number \_\_\_\_\_ Project Name North American Coal Date 06/23/08 Evaluator Matt Stowe Wetland Type Bottomland Forest

Land Use Forest Management FLUCCS Code \_\_\_\_\_ Description: \_\_\_\_\_

Wildlife Utilization (WU) 2 Wetland Canopy (O/S) 2.5 Wetland Ground Cover (GC) 1.5

Habitat Support/Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
>300' average, consisting of >75% nuisance species	1	100	1
			TOTAL
			1

Field Hydrology (HYD) 2

WQ Input & Treatment (WQ)\* 1.5

Land use Category (LU)

Land use Category	(Score) X	(% of area)	=Sub Totals
Planted Pine	1.5	100%	1.5
			(LU) TOTAL
			1.5

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Undeveloped	1.5	100	1.5
Pine Plantation			
			PT TOTAL
			1.5

WRAP Score 0.58

Wildlife Utilization (WU) <u>2</u>	Evidence of wildlife utilization by large mammals. Adequate upland food sources and habitat.
Wetland Canopy (O/S) <u>2.5</u>	*evidence of natural recruitment. *healthy canopy *no exotic species present *less than 10% invasive species composition.
Wetland Ground Cover (GC) <u>1.5</u>	<20% vegetated ground cover with <10% exotic species. Siltation occurring in the wetland. Canopy appeared healthy.
Habitat Support/Buffer <u>1.0</u>	* >300' Buffer with > 75% nuisance species * Connected to offsite corridor
Field Hydrology (HYD) <u>2</u>	Hydroperiod adequate enough to support a viable wetland. Plants appear to be healthy. Some areas exhibited evidence of siltation.
WQ Input & Treatment (WQ) <u>1.5</u>	(LU) -Pine Plantation. (PT) -Undeveloped Pine Plantation.

# Wetland Rapid Assessment Procedure

WRAP #2

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number	Project Name North American Coal	Date 06/24/08	Evaluator Matt Stowe	Wetland Type Hardwood-Pine Forest
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Land Use Forest Management	FLUCCS Code [ ] Description:	[ ]
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Wildlife Utilization (WU) 1	Wetland Canopy (O/S) 1.5	Wetland Ground Cover (GC) 2
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Habitat Support/Buffer			
Buffer type	(Score) X	(% of area)	=Sub Totals
>300' average, consisting of >75% nuisance species.	1.0	100	1.0
TOTAL			1.0

Field Hydrology (HYD) 2.5	WQ Input & Treatment (WQ)* 1.5
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Land use Category (LU)			
Land use Category	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1.5	100%	1.5
(LU) TOTAL			1.5

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Und Pine Plantation	1.5	100	1.5
PT TOTAL			1.5

WRAP Score  
0.53

<b>Wildlife Utilization (WU)</b>	Minimal evidence of utilization by wildlife. Wetland newly planted with <i>Pinus taeda</i> (loblolly). Minimal habitat or food source.
<b>Wetland Canopy (O/S)</b>	<ul style="list-style-type: none"> <li>- Less than 25% undesirable species.</li> <li>- Canopy provides habitat</li> <li>- Soil subsidence has adversely impacted the canopy species</li> </ul>
<b>Wetland Ground Cover (GC)</b>	<25% undesirable species composition, no recorded exotic species. Siltation occurring around edges of wetlands.
<b>Habitat Support/Buffer</b>	>300' but dominated by >75% nuisance species ( <i>Pinus taeda</i> ). Connected to offsite corridor.
<b>Field Hydrology (HYD)</b>	High levels of soil subsidence occur at the wetland boundary. Hydroperiod adequate to support viable wetland.
<b>WQ Input &amp; Treatment (WQ)</b>	LU - Monoculture Pine Plantation – 100% PT - Undeveloped Land/Planted Pine – 100%

# Wetland Rapid Assessment Procedure

WRAP #3

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number \_\_\_\_\_ Project Name North American Coal Date 06/26/08 Evaluator Matt Stowe Wetland Type Planted Pine

Land Use Forest Management FLUCCS Code \_\_\_\_\_

Wildlife Utilization (WU) 1.5 Wetland Canopy (O/S) 1.5 Wetland Ground Cover (GC) 1.0

Buffer type	Habitat Support/Buffer (Score) X	(% of area)	=Sub Totals
>300', consisting of >75% nuisance species.	1.0	100	1.0
TOTAL			1.0

Field Hydrology (HYD) 2.0

WQ Input & Treatment (WQ)\* 1.9

Land use Category (LU)			
Land use Category	(Score) X	(% of area)	=Sub Totals
Natural Undeveloped	2.5	40%	1
Pine Plantation	1.5	60%	0.9
(LU) TOTAL			1.9

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural Undeveloped	2.5	40	1.0
Pine Plantation	1.5	60	0.6
PT TOTAL			1.9

WRAP Score 0.49

Wildlife Utilization (WU) 1.5	Tracks and visual observation provide evidence of utilization of the wetland and adjacent uplands by white-tailed deer and songbirds. Frequent human disturbance. Limited adjacent upland habitat.
Wetland Canopy (O/S) 1.5	<ul style="list-style-type: none"> <li>* &lt;25 % undesirable cover</li> <li>* no exotics present</li> <li>* minimal evidence of recruitment of native species</li> </ul>
Wetland Ground Cover (GC) 1.0	~50 % undesirable cover. Cover slightly impacted by humans. Frequent human activity (recreation).
Habitat Support/Buffer 1.0	>300' buffer; however, buffer consists of >75% nuisance species ( <i>Pinus taeda</i> ). Connected to offsite wildlife corridor.
Field Hydrology (HYD) 2.0	Wetland hydrology is adequate, but ditches are present and adversely affect hydrology. Little evidence of soil subsidence.
WQ Input & Treatment (WQ) 1.9	(LU) 60% Monocultured Pine Plantation 40% Natural undeveloped (PT) 40% Natural Undeveloped 60% Planted Pine



**WETLAND RAPID ASSESSMENT PROCEDURE**

Check One  
 Proposed Conditions     Current Conditions

**(WRAP)**

WRAP Location

WRAP 4

Application Number	Project Name	Date	Evaluator	Wetland Type
	North American Coal	7/9/2008	D.K.	Planted Pine

Land Use	Description	Wetland Acreage

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Ground Cover
2	1	1

Habitat Support Buffer	Field Hydrology (HYD)	WQ Input & Treatment *
Buffer Type (Score) X (% of area)= Sub Totals	2	1.75

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>30<300'	1		100	1
& consisting of >75% nuisance sp.				
<b>Total</b>				1

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)			
LU Category	(Score)	X	(% of area)= Sub Totals
Planted Pine	1.5		75 1.125
Nat Undevelop	2.5		25 0.625
<b>LU Total</b>			1.75

Pretreatment Category (PT)			
PT Category	(Score)	X	(% of area)= Sub Totals
Planted Pine	1.5		75 1.125
Nat Undevelop	2.5		25 0.625
<b>PT Total</b>			1.75

**WRAP Score**

0.49

**Field Notes:**

**Wildlife Utilization (WU)**  
Utilized by mammals, birds, macroinvertebrates, amphibians and reptiles. Adequate adjacent upland food sources. Minimal human intervention. Adequate cover and habitat.

**Wetland Canopy (O/S)**  
~50% undesirable species.

**Wetland Ground Cover**  
~50% undesirable species. Chinese privet present in the understory, cover significantly impacted by humans.

**Habitat Support/Buffer**  
Upland buffer has been recently clear-cut and provides little food or cover. Wetland buffer is connected to off-site corridors.

**Field Hydrology (HYD)**  
Adequate hydroperiod. Plants healthy. Berms present in places. Erosion evident at the edge of clearcuts.

**WQ Input & Treatment**  
Surrounding land use can best be described as a mix between natural undeveloped land and silvicultural practices. Pre-treatment of water is a mix between natural undeveloped lands and run-off from pine plantation.

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions    Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 5

Application Number \_\_\_\_\_ Project Name North American Coal Date 7/10/2008 Evaluator D.K. Wetland Type Bottomland Forest

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 2 Wetland Canopy (O/S) 2 Wetland Ground Cover 2

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 2 WQ Input & Treatment \* 2.25

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>30<300', ~50 undesirable species	1.5		100	1.5
<b>Total</b>				1.5

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

LU Category	(Score)	X	(% of area)=	Sub Totals
Planted Pine	1.5		50	0.75
Natural	2.5		50	1.25
Undeveloped				
<b>LU Total</b>				2.00

PT Category	(Score)	X	(% of area)=	Sub Totals
Berms	2.5		50	1.25
Natural	2.5		50	1.25
Undeveloped				
<b>PT Total</b>				2.5

**WRAP Score**  
0.65

**Field Notes:**

**Wildlife Utilization (WU)**  
 Utilized by mammals, birds, macroinvertebrates, amphibians and reptiles. Adequate adjacent upland food sources. Moderate human intervention. Adequate cover and habitat.

**Wetland Canopy (O/S)**  
 <25% Undesirable cover. Evidence of natural recruitment. Healthy canopy with no sign of disease. Few snags.

**Wetland Ground Cover**  
 <25% Undesirable species. Cover impacted by recent clear-cut.

**Habitat Support/Buffer**  
 Upland buffers consist of forested hardwoods and planted pine, ~50% of the buffer consists of undesirable loblolly pine.

**Field Hydrology (HYD)**  
 Adequate hydroperiod. Plants healthy. Berms present in places. Erosion evident at the edges of wetlands.

**WQ Input & Treatment**  
 Surrounding land use can best be described as ongoing silvicultural operations. Pre-treatment of water is a mix between undeveloped bottomland hardwood forest and berms that minimize erosion.

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions  Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 6

Application Number \_\_\_\_\_ Project Name North American Coal Date 7/10/2008 Evaluator D.K. Wetland Type Planted Pine

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 2 Wetland Canopy (O/S) 1 Wetland Ground Cover 1

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 2 WQ Input & Treatment \* 1.38

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>300' w/ 75% nuisance species	1		100	1
<b>Total</b>				<b>1</b>

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Planted Pine	1.5		75	1.125
Improved pasture	1		25	0.25
<b>LU Total</b>				<b>1.38</b>

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Planted Pine	1.5		75	1.125
grass swales	1		25	0.25
<b>PT Total</b>				<b>1.38</b>

**WRAP Score**  
0.47

**Field Notes:**

**Wildlife Utilization (WU)**  
 Utilized by mammals, birds, macroinvertebrates, amphibians and reptiles. Adequate adjacent upland food sources. Minimal human intervention. Adequate cover and habitat.

**Wetland Canopy (O/S)**  
 ~50% Undesirable cover. Minimal signs of natural recruitment. Healthy canopy with no sign of disease.

**Wetland Ground Cover**  
 ~50% undesirable species. Cover significantly impacted by humans.

**Habitat Support/Buffer**  
 Upland buffers consist of improved pasture and planted pine.

**Field Hydrology (HYD)**  
 Adequate hydroperiod. Plants healthy. Berms present in places. Erosion evident at the edges of wetlands.

**WQ Input & Treatment**  
 Surrounding land use can best be described as a mix between improved pasture and silvicultural practices. Pre-treatment of water is a mix between grass swales and berms that minimize erosion.

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Proposed Conditions     Check One  
 Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 7

Application Number \_\_\_\_\_ Project Name North American Coal Date 7/10/2008 Evaluator D.K. Wetland Type Bottomland Forest

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 2.5 Wetland Canopy (O/S) 3 Wetland Ground Cover 3

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 2.5 WQ Input & Treatment \* 2.26

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>300'	2.5		75	1.88
>300' w/ >75% nuisance species	1		25	0.25
<b>Total</b>				<b>2.13</b>

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Planted Pine	1.5		25	0.375
Natural Undev	2.5		75	1.88
<b>LU Total</b>				<b>2.26</b>

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Planted Pine	1.5		25	0.375
Natural Undev	2.5		75	1.88
<b>PT Total</b>				<b>2.26</b>

**WRAP Score**  
0.85

**Field Notes:**

**Wildlife Utilization (WU)**  
 Utilized by mammals, birds, macroinvertebrates, amphibians and reptiles. Adequate adjacent upland food sources. Minimal human intervention. Adequate cover and habitat.

**Wetland Canopy (O/S)**  
 <10% invasive canopy with no exotics. Strong evidence of natural recruitment. Healthy canopy with no sign of disease. Few snags.

**Wetland Ground Cover**  
 <10% Undesirable species with no exotics. Good habitat, minimal disturbance to ground cover.

**Habitat Support/Buffer**  
 Upland buffers consist of forested hardwoods and planted pine.

**Field Hydrology (HYD)**  
 Exhibits natural hydroperiod. Plants healthy. Berms present in some places. No subsidence.

**WQ Input & Treatment**  
 Surrounding land use can best be described as a natural undeveloped land and infrequent silvicultural practices. Pre-treatment of water is through natural undeveloped land and forested swales.

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Proposed Conditions     Check One  
 Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 8

Application Number \_\_\_\_\_ Project Name North American Coal Date 7/21/2008 Evaluator D.K. Wetland Type Planted Pine

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 2 Wetland Canopy (O/S) 1 Wetland Ground Cover 1

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 2 WQ Input & Treatment \* 1.5

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>300' & >75%	1		100	1
nuisance				
Species				
<b>Total</b>				<b>1</b>

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Pine	1.5		100	1.5
Plantation				
<b>LU Total</b>				<b>1.50</b>

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Undeveloped	1.5		100	1.5
Planted				
Pine				
<b>PT Total</b>				<b>1.5</b>

**WRAP Score**  
0.47

**Field Notes:**

**Wildlife Utilization (WU)**  
 Utilized by small and large mammals, and a small number of songbirds. Cover is adequate, but poor upland food sources exist adjacent to the wetland.

**Wetland Canopy (O/S)**  
 >50% Undesirable species exist in the pine dominated canopy. There are hydrology problems associated with the rowed pine trees.

**Wetland Ground Cover**  
 ~50% Undesirable species in the ground cover component. Maintained as a pine plantation, limited diversity of ground cover species.

**Habitat Support/Buffer**  
 >300' buffer, but has a >75% nuisance species composition (pine plantation).

**Field Hydrology (HYD)**  
 Hydroperiod adequate, but rowed swales associated with the planted pine trees has an adverse affect on hydrology.

**WQ Input & Treatment**  
 (LU) - Surrounding land use is primarily planted pine monoculture. (PT) - Undeveloped planted pine.

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions    Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 9

Application Number \_\_\_\_\_ Project Name North American Coal Date 7/25/2008 Evaluator D.K. Wetland Type Bottomland Forest

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 2 Wetland Canopy (O/S) 2.5 Wetland Ground Cover 2

Habitat Support Buffer Field Hydrology (HYD) 2 WQ Input & Treatment \* 2.5

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>300'	2		100	2
<b>Total</b>				<b>2</b>

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Nat Undevelop	2.5		100	2.5
<b>LU Total</b>				<b>2.50</b>

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Nat Undevelop	2.5		100	2.5
<b>PT Total</b>				<b>2.5</b>

**WRAP Score**  
0.72

**Field Notes:**

**Wildlife Utilization (WU)**  
 Utilized by small and large mammals, songbirds and reptiles. Cover and adjacent upland food sources are adequate and human intervention is minimal.

**Wetland Canopy (O/S)**  
 <10% Invasive canopy species are present. The canopy is healthy and there is strong evidence of natural recruitment. Canopy provides habitat.

**Wetland Ground Cover**  
 <25% Undesirable species composition in the herbaceous layer. Cover is slightly impacted by human activities.

**Habitat Support/Buffer**  
 >300' buffer on average. There is a <10% exotic species component in the adjacent land. Site is connected to wildlife corridors.

**Field Hydrology (HYD)**  
 Hydroperiod adequate, but swales and adjacent roads may have an adverse affect on hydrology.

**WQ Input & Treatment**  
 (LU) - Natural Undeveloped Land (PT) - Natural Undeveloped Land

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions  Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 10

Application Number \_\_\_\_\_ Project Name North American Coal Date 7/22/2008 Evaluator D.K. Wetland Type Planted Pine

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 1.5 Wetland Canopy (O/S) 1 Wetland Ground Cover 1

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 2 WQ Input & Treatment \* 1.5

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>300'	2		100	2
				<b>Total</b>
				2

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Pine Plantation	1.5		100	1.5
				<b>LU Total</b>
				1.50

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Pine Plantation	1.5		100	1.5
				<b>PT Total</b>
				1.5

**WRAP Score**  
0.50

Field Notes:

**Wildlife Utilization (WU)**  
 Utilized by small and large mammals. No sign of reptiles or amphibians were observed. Limited adjacent upland food source.

**Wetland Canopy (O/S)**  
 >50% Undesirable species composition. Minimal sign of recruitment, intensively maintained as pine monoculture.

**Wetland Ground Cover**  
 ~50% Undesirable species. Routinely managed as pine monoculture, low species diversity.

**Habitat Support/Buffer**  
 >300' buffer on average. Contains some desirable species. Site is connected to wildlife corridors.

**Field Hydrology (HYD)**  
 Hydroperiod adequate, plants appear healthy and disease free. Some subsidence was observed.

**WQ Input & Treatment**  
 (LU) - Pine Plantation (PT) - Undeveloped Pine Plantation

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions  Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 11

Application Number \_\_\_\_\_ Project Name North American Coal Date 7/23/2008 Evaluator D.K. Wetland Type Planted Pine

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 1.5 Wetland Canopy (O/S) 1 Wetland Ground Cover 1

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 2 WQ Input & Treatment \* 1.5

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>30<300'	1.5		100	1.5
				<b>Total</b>
				1.5

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Pine Plantation	1.5		100	1.5
				<b>LU Total</b>
				1.50

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Pine Plantation	1.5		100	1.5
				<b>PT Total</b>
				1.5

**WRAP Score**  
0.47

**Field Notes:**

**Wildlife Utilization (WU)**  
 Utilized by small and large mammals, aquatic fishes, amphibians, reptiles. Limited upland food source.

**Wetland Canopy (O/S)**  
 >50% Undesirable species composition. Limited sign of recruitment was observed. Intensively maintained as pine monoculture.

**Wetland Ground Cover**  
 ~50% Undesirable cover. Routinely managed as pine monoculture, low species diversity and biomass.

**Habitat Support/Buffer**  
 <30>300' buffer on average. Provides cover, limited food source.

**Field Hydrology (HYD)**  
 Hydroperiod adequate, plants appear healthy and disease free. Soil subsidence observed, adversely affecting hydrology.

**WQ Input & Treatment**  
 (LU) - Pine Plantation (PT) - Undeveloped Pine Plantation



**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Proposed Conditions     Check One  
 Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 12

Application Number \_\_\_\_\_ Project Name North American Coal Date 6/12/2008 Evaluator David Knowles Wetland Type Bottomland Forest

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 2 Wetland Canopy (O/S) 2 Wetland Ground Cover 1.5

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 2 WQ Input & Treatment \* 1.5

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>30<300'	1.5		100	1.5
				<b>Total</b>
				1.5

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Livestock	1		100	1
Pasture				
				<b>LU Total</b>
				1.00

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Wet detention w/ grass swales	2			2
				<b>PT Total</b>
				2

**WRAP Score**  
0.58

**Field Notes:**

**Wildlife Utilization (WU)**  
 Evidence of use by mammals, birds, macroinvertebrates, amphibians and reptiles. Adequate adjacent upland food sources. Frequent human intervention. Adequate protective cover.

**Wetland Canopy (O/S)**  
 <10% invasive cover. Minimal recruitment of native species. Canopy provides good cover and habitat. Few snags, healthy canopy.

**Wetland Ground Cover**  
 <10% invasive species. Cover significantly impacted by livestock.

**Habitat Support/Buffer**  
 Upland buffer provides little cover. Wetland buffer does provide adequate cover. Portions of wetland are connected to off-site corridor.

**Field Hydrology (HYD)**  
 Wetland hydroperiod adequate but has swales, ponds and reduced drainage.

**WQ Input & Treatment**  
 The water entering the system is directly effected by livestock pasture and cattle ponds. A natural wetland drain was previously altered and now feeds two cattle ponds before entering the Okatibbee floodplain.

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions    Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 13

Application Number \_\_\_\_\_ Project Name North American Coal Date 6/24/2008 Evaluator D.K. and D.N. Wetland Type Hardwood Forest

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 2.5 Wetland Canopy (O/S) 2.5 Wetland Ground Cover 2

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 2 WQ Input & Treatment \* 2

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>300' average	2.5		50	1.25
>300' w/ ~50% undesirable species.	1.5		50	0.75
<b>Total</b>				<b>2</b>

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Planted Pine	1.5		50	0.75
Nat Undevelop	2.5		50	1.25
<b>LU Total</b>				<b>2.00</b>

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Planted Pine	1.5		50	0.75
Nat Undevelop	2.5		50	1.25
<b>PT Total</b>				<b>2</b>

**WRAP Score**  
0.72

**Field Notes:**

Wildlife Utilization (WU)  
 Abundant sign of mammals, birds, macroinvertebrates, amphibians and reptiles. Adequate adjacent upland food sources. Minimal human intervention. Adequate cover and habitat within wetland and adjacent upland buffer.

Wetland Canopy (O/S)  
 <10% invasive cover. Good habitat, strong evidence of natural recruitment. Healthy canopy with no sign of disease.

Wetland Ground Cover  
 <25% invasive species. Chinese privet present in the understory, cover slightly impacted by humans.

Habitat Support/Buffer  
 Wetland buffer >300' on average, 50% of buffer consists of ~50% undesirable plant species(loblolly pine). Upland buffer provides good cover and adequate food source. Wetland buffer is connected to off-site corridors and supports large mammals.

Field Hydrology (HYD)  
 Adequate hydroperiod. Silvicultural practices have produced some rutting in places and a significant amount of ditching has taken place and affected hydrology.

WQ Input & Treatment  
 Surrounding land use can best be described as a mix between natural undeveloped land and silvicultural practices. Pre-treatment of water is mostly natural undeveloped lands.

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions  Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 14

Application Number \_\_\_\_\_ Project Name North American Coal Date 6/24/2008 Evaluator D.K. and D.N. Wetland Type Bottomland Forest

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 2.75 Wetland Canopy (O/S) 3 Wetland Ground Cover 2.5

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 2.5 WQ Input & Treatment \* 2.25

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>300' average	2.5		50	1.25
>300' w/ >75% exotic species.	1		50	0.5
<b>Total</b>				<b>1.75</b>

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Planted Pine	1.5		50	0.75
Nat Undevelop	3		50	1.5
<b>LU Total</b>				<b>2.25</b>

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Planted Pine	1.5		50	0.75
Nat Undevelop	3		50	1.5
<b>PT Total</b>				<b>2.25</b>

**WRAP Score**  
0.82

**Field Notes:**

**Wildlife Utilization (WU)**  
 Abundant mammals, birds, macroinvertebrates, amphibians and reptiles. Abundant adjacent upland food sources. Negligible human intervention. Abundant cover and habitat within wetland and adjacent upland buffer.

**Wetland Canopy (O/S)**  
 <10% invasive cover. Good habitat, strong evidence of natural recruitment. Healthy canopy with no sign of disease.

**Wetland Ground Cover**  
 <10% invasive species. Chinese privet present in the understory, cover slightly impacted by humans.

**Habitat Support/Buffer**  
 Upland buffer provides good cover and adequate food source. Wetland buffer is connected to off-site corridors and supports large mammals. >300' width on average, 50% of buffer contains >75% exotic species.

**Field Hydrology (HYD)**  
 Healthy non-stressed plants, wetland exhibits a natural hydroperiod. Silviculture practices have produced some rutting in places and a small number of ditches are found throughout the Chickasawhay Creek floodplain.

**WQ Input & Treatment**  
 Surrounding land use can best be described as a mix between natural undeveloped land and silvicultural practices. Pre-treatment of water is mostly natural undeveloped lands.

# Wetland Rapid Assessment Procedure

WRAP 15

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number	Project Name North American Coal	Date 10/07/08	Evaluator Everett/Stowe	Wetland Type Hardwood-Pine Forest
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Land Use	FLUCCS Code	Description:
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Wildlife Utilization (WU) 1.5	Wetland Canopy (O/S) 2	Wetland Ground Cover (GC) 2.5
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Buffer type	Habitat Support/Buffer (Score) X	(%) of area	=Sub Totals	Field Hydrology (HYD) 2.5	WQ Input & Treatment (WQ)* 1.5
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>300' average, consisting of >75% nuisance species	1	100	1	TOTAL
				1

Land use Category (LU)			
Land use Category	(Score) X	(%) of area	=Sub Totals
Pine Plantation	1.5	100%	1.5
(LU) TOTAL			1.5

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(%) of area	=Sub Totals
Undeveloped Pine Plantation	1.5	100	1.5
PT TOTAL			1.5

WRAP Score  
0.61

Wildlife Utilization (WU) 1.5	-Evidence of large and small mammals; medium and small reptiles -Adequate upland forage. -Minimal upland shelter
Wetland Canopy (O/S) 2	- Mature but somewhat sparse canopy - Adequate roosting - Desirable species present - ≈30% deadfall or snags
Wetland Ground Cover (GC) 2.5	- No exotic species observed - ≈25% nuisance species present - Desirable wetland vegetation in area
Habitat Support/Buffer 1	- 2 yr – 3 yr old planted loblolly pine plantations which occupy 100% of the upland buffer
Field Hydrology (HYD) 2.5	- System is still able to maintain hydroperiod
WQ Input & Treatment (WQ) 1.5	- Land use = 100% loblolly pine plantation - Pretreatment = 100% undeveloped loblolly pine plantation

# Wetland Rapid Assessment Procedure

WRAP 16

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/07/08 Evaluator Everett/Stowe Wetland Type Bottomland Forest

Land Use \_\_\_\_\_ FLUCCS Code \_\_\_\_\_ Description: \_\_\_\_\_

Wildlife Utilization (WU) 2.5 Wetland Canopy (O/S) 2.5 Wetland Ground Cover (GC) 2

Buffer type \_\_\_\_\_ Habitat Support/Buffer (Score) X (% of area) =Sub Totals \_\_\_\_\_ Field Hydrology (HYD) 2 WQ Input & Treatment (WQ)\* 2.25

Buffer type	Habitat Support/Buffer (Score) X	(% of area)	=Sub Totals
>300'	3	50%	1.5
>300', >75% nuisance species composition.	1	50%	0.5
TOTAL			<u>2</u>

Land use Category (LU)			
Land use Category	(Score) X	(% of area)	=Sub Totals
Nat. Undeveloped	3	50%	1.5
Pine Plantation	1.5	50%	0.75
(LU) TOTAL			<u>2.25</u>

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Nat. Undeveloped	3	50	1.5
Pine Plantation	1.5	50	0.75
PT TOTAL			<u>2.25</u>

WRAP Score 0.74

Wildlife Utilization (WU) 2.5	-Abundant food shelter and roosting -Evidence of mammals, reptiles and aquatic life. -Desirable species -Minimal human disturbance
Wetland Canopy (O/S) 2.5	-Desirable mature canopy -Abundant roosting available -Dense understory
Wetland Ground Cover (GC) 2	- ≈ 50% ground cover - desirable species - siltation
Habitat Support/Buffer 2	- 50% >300' - 50% >300', >75% undesirable species composition
Field Hydrology (HYD) 2	Large stream is channelized
WQ Input & Treatment (WQ) 2.25	- Land use = 50% natural undeveloped & 50% pine plantation - Pretreatment = 50% natural undeveloped & 50% pine plantation

# Wetland Rapid Assessment Procedure

WRAP 17

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/07/08 Evaluator Everett/Stowe Wetland Type Bottomland Forest

Land Use \_\_\_\_\_ FLUCCS Code \_\_\_\_\_ Description: \_\_\_\_\_

Wildlife Utilization (WU) 2.5 Wetland Canopy (O/S) 2.5 Wetland Ground Cover (GC) 2.5

Buffer type \_\_\_\_\_ Habitat Support/Buffer (Score) X (% of area) =Sub Totals  
 >300' 3 75% 2.25  
 >300', <75% undesirable species composition 2 25% 0.5  
**TOTAL** 2.75

Field Hydrology (HYD) 2 WQ Input & Treatment (WQ)\* 2.25

Land use Category (LU)			
Land use Category	(Score) X	(% of area)	=Sub Totals
Rangeland	2.0	100%	2.0
<b>(LU) TOTAL</b>			<b>2.0</b>

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Wet detention	2.5	50%	1.25
Undeveloped	2.0	50%	1.25
Rangeland			
<b>PT TOTAL</b>			<b>2.5</b>

WRAP Score 0.81

<b>Wildlife Utilization (WU)</b> <u>2.5</u>	-Abundant forage, habitat, and roosting available. -Desirable species -Diversity of species -Minimal human disturbance
<b>Wetland Canopy (O/S)</b> <u>2.5</u>	Mature canopy with ≈ 25% exotic species Good habitat for roosting Desirable species for forage
<b>Wetland Ground Cover (GC)</b> <u>2.5</u>	70% wetland coverage with ≈ 25% exotic species present
<b>Habitat Support/Buffer</b> <u>2.75</u>	- 75% >300' natural undeveloped - 25% >300' rangeland
<b>Field Hydrology (HYD)</b> <u>2</u>	Man made pond adversely affects hydrology.
<b>WQ Input &amp; Treatment (WQ)</b> <u>2.25</u>	- Land use = 100% Rangeland - Pretreatment = 50% wet detention & 50% rangeland

# Wetland Rapid Assessment Procedure

WRAP 18

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number  Project Name  Date  Evaluator  Wetland Type

Land Use  FLUCCS Code  Description:

Wildlife Utilization (WU)  Wetland Canopy (O/S)  Wetland Ground Cover (GC)

Buffer type	Habitat Support/Buffer (Score) X	(% of area)	=Sub Totals
>300', >75% nuisance species composition	1.0	100%	1.0
TOTAL			1.0

Field Hydrology (HYD)

WQ Input & Treatment (WQ)\*

Land use Category (LU)			
Land use Category	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1.5	100%	1.5
(LU) TOTAL			1.5

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1.5	100%	1.5
PT TOTAL			1.5

WRAP Score

<b>Wildlife Utilization (WU)</b>	-Evidence of wildlife utilization -Adequate habitat for roosting and forage
<b>Wetland Canopy (O/S)</b>	-Mature canopy with desirable species -Sparse in areas due to timber harvest -Adequate roosting available
<b>Wetland Ground Cover (GC)</b>	<25% exotic ground cover in wetland area
<b>Habitat Support/Buffer</b>	>300', >75% nuisance species composition
<b>Field Hydrology (HYD)</b>	-Some siltation occurring in small areas due to recent clear cut -System still able to maintain hydrologic regime
<b>WQ Input &amp; Treatment (WQ)</b>	- Land use = 100% loblolly pine plantation - Pretreatment = 100% loblolly pine plantation

# Wetland Rapid Assessment Procedure

WRAP 19

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number	Project Name North American Coal	Date 10/08/08	Evaluator Everett/Stowe	Wetland Type Bottomland Forest
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Land Use	FLUCCS Code	Description:
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Wildlife Utilization (WU) 2.5	Wetland Canopy (O/S) 2	Wetland Ground Cover (GC) 2.0
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Buffer type >300' average, consisting of >75% nuisance species	Habitat Support/Buffer (Score) X 1	(% of area) 100	=Sub Totals 1	Field Hydrology (HYD) 3	WQ Input & Treatment (WQ)* 1.5
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Buffer type	Habitat Support/Buffer (Score) X	(% of area)	=Sub Totals
>300' average, consisting of >75% nuisance species	1	100	1
TOTAL			1

Land use Category (LU)			
Land use Category	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1.5	100%	1.5
(LU) TOTAL			1.5

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Undev. Pine Planta.	1.5	100	1.5
PT TOTAL			1.5

WRAP Score  
0.67

Wildlife Utilization (WU) 2.5	-Evidence of diversity of wildlife including aquatic life -Abundant wildlife forage -Abundant roosting in canopy
Wetland Canopy (O/S) 2	-50% of canopy is immature but has potential -50% of canopy is mature and healthy with ≈ 25% of understory contains exotic species
Wetland Ground Cover (GC) 2	≈ 30% Coverage with no exotics
Habitat Support/Buffer 1.0	>300' average, consisting of >75% nuisance species
Field Hydrology (HYD) 3	Hydrology is unaltered.
WQ Input & Treatment (WQ) 1.5	LU – Pine Plantation PT – Undeveloped Planted Pine



# Wetland Rapid Assessment Procedure

WRAP 20

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	North American Coal	10/08/08	Everett/Stowe	Planted Pine

Land Use	FLUCCS Code	Description:

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Ground Cover (GC)
1.0	1.5	1

Buffer type	Habitat Support/Buffer		=Sub Totals
	(Score) X	(% of area)	
>300', consisting of >75% nuisance species	1	100	1
			TOTAL
			1

Field Hydrology (HYD)
2.0

WQ Input & Treatment (WQ)*
1.5

Land use Category (LU)			
Land use Category	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1.5	100%	1.5
			(LU) TOTAL
			1.5

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1	100%	1.5
			PT TOTAL
			1.5

WRAP Score
0.45

Wildlife Utilization (WU)	- Little habitat for birds and reptiles, deer tracks were observed in the wetland. - Limited adjacent upland food source.
Wetland Canopy (O/S)	<25 % undesirable cover. Minimal sign of recruitment of native species.
Wetland Ground Cover (GC)	~50% undesirable cover.
Habitat Support/Buffer	>300', consisting of >75% nuisance species.
Field Hydrology (HYD)	-System is culverted upstream under an old logging road. -Hydroperiod is adequate enough to maintain system.
WQ Input & Treatment (WQ)	- Land use = 100% pine plantation - W.Q. Pretreatment = 100% pine plantation

# Wetland Rapid Assessment Procedure

WRAP 21

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/08/08 Evaluator Everett/Stowe Wetland Type Hardwood-Pine Forest

Land Use \_\_\_\_\_ FLUCCS Code \_\_\_\_\_ Description: \_\_\_\_\_

Wildlife Utilization (WU) 2.5 Wetland Canopy (O/S) 2.5 Wetland Ground Cover (GC) 2.5

Buffer type \_\_\_\_\_ Habitat Support/Buffer (Score) X \_\_\_\_\_ =Sub Totals \_\_\_\_\_ Field Hydrology (HYD) 3 WQ Input & Treatment (WQ)\* 1.5

Buffer type	Habitat Support/Buffer (Score) X	(% of area)	=Sub Totals
>30<300', >75% undesirable species composition	1	100%	1
			TOTAL
			1

Land use Category (LU)			
Land use Category	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1.5	100%	1.5
			(LU) TOTAL
			1.5

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Undeveloped	1.5	100%	1.5
Pine Plantation			
			PT TOTAL
			1.5

WRAP Score 0.72

Wildlife Utilization (WU) 2.5	-Adequate roosting and forage -Negligible evidence of human disturbance -Uplands consist of ≈ 2 yr old planted pine
Wetland Canopy (O/S) 2.5	-Mature canopy -Adequate roosting and shelter
Wetland Ground Cover (GC) 2.5	<25% Undesirable species present
Habitat Support/Buffer 1	>30<300' Buffer consists of >75% undesirable species composition
Field Hydrology (HYD) 3.0	Non altered hydrology
WQ Input & Treatment (WQ) 1.5	(LU) pine plantation (PT) undeveloped pine plantation

# Wetland Rapid Assessment Procedure

WRAP 22

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/08/08 Evaluator Everett/Stowe Wetland Type Bottomland Forest

Land Use \_\_\_\_\_ FLUCCS Code \_\_\_\_\_ Description: \_\_\_\_\_

Wildlife Utilization (WU) 2.5 Wetland Canopy (O/S) 2.5 Wetland Ground Cover (GC) 2.5

Habitat Support/Buffer			
Buffer type	(Score) X	(% of area)	=Sub Totals
>300' Pine Plantation	1.0	50%	0.5
>300' Hardwood	3	50%	1.5
TOTAL			<u>2.0</u>

Field Hydrology (HYD) 2.5 WQ Input & Treatment (WQ)\* 2.5

Land use Category (LU)			
Land use Category	(Score) X	(% of area)	=Sub Totals
Nat Undevelop.	2.5	100%	2.5
(LU) TOTAL			<u>2.5</u>

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Nat Undevelop.	2.5	100%	2.5
PT TOTAL			<u>2.5</u>

WRAP Score 0.81

Wildlife Utilization (WU) 2.5	-Connected to wildlife corridor -Abundant shelter, forage, and roosting
Wetland Canopy (O/S) 2.5	<10% Invasive canopy, Evidence of recruitment of native species present.
Wetland Ground Cover (GC) 2.5	<25% Undesirable species
Habitat Support/Buffer 2.0	>300' average buffer. 50% of buffer is comprised of planted loblolly, the remaining 50% is hardwood
Field Hydrology (HYD) 2.5	Natural wetland hydroperiod.
WQ Input & Treatment (WQ) 2.5	- Land use = Natural Undeveloped - W.Q. Pretreatment = Natural Undeveloped

# Wetland Rapid Assessment Procedure

WRAP 23

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/09/08 Evaluator Everett/Stowe Wetland Type Bottomland Forest

Land Use \_\_\_\_\_ FLUCCS Code \_\_\_\_\_ Description: \_\_\_\_\_

Wildlife Utilization (WU) 2.5 Wetland Canopy (O/S) 2.5 Wetland Ground Cover (GC) 2.5

Habitat Support/Buffer			
Buffer type	(Score) X	(% of area)	=Sub Totals
>300'	2.5	100%	2.5
TOTAL			<u>2.5</u>

Field Hydrology (HYD) 2.5

WQ Input & Treatment (WQ)\* 2.5

Land use Category (LU)			
Land use Category	(Score) X	(% of area)	=Sub Totals
Nat. Undevel.	2.5	100%	2.5
(LU) TOTAL			<u>2.5</u>

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Nat. Undeveloped	2.5	100%	2.5
PT TOTAL			<u>2.5</u>

WRAP Score 0.83

Wildlife Utilization (WU)	- Evidence of utilization by large mammals, aquatic macro-invertebrates, reptiles, amphibians and birds was observed - Abundant shelter, forage, and roosting is available to wildlife. - Minimal human intervention to wildlife.
Wetland Canopy (O/S)	-Good habitat -Canopy comprised of >90% desirable canopy species. -Strong evidence of natural recruitment
Wetland Ground Cover (GC)	<10% Invasive species composition, no exotic species present. There is minimal disturbance to ground cover.
Habitat Support/Buffer	>300' buffer on average. The wetland is connected to a wildlife corridor.
Field Hydrology (HYD)	Exhibits natural hydroperiod.
WQ Input & Treatment (WQ)	- Land use = Natural Undeveloped Land - W.Q. Pretreatment = Natural Undeveloped Land

# Wetland Rapid Assessment Procedure

WRAP 24

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/09/08 Evaluator Everett/Stowe Wetland Type Pine-Hardwood Forest

Land Use \_\_\_\_\_ FLUCCS Code \_\_\_\_\_ Description: \_\_\_\_\_

Wildlife Utilization (WU) 2.5 Wetland Canopy (O/S) 2.5 Wetland Ground Cover (GC) 2.5

Buffer type	Habitat Support/Buffer (Score) X	(% of area)	=Sub Totals
>30' <300'	1	80%	0.8
>300', consisting of >75% nuisance species	1	20%	0.2
<b>TOTAL</b>			<b>1.0</b>

Field Hydrology (HYD) 2.5 WQ Input & Treatment (WQ)\* 1.5

Land use Category (LU)			
Land use Category	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1.5	100%	1.5
<b>(LU) TOTAL</b>			<b>1.5</b>

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1.5	100%	1.5
<b>PT TOTAL</b>			<b>1.5</b>

WRAP Score 0.69

Wildlife Utilization (WU) 2.5	- Evidence of utilization by large mammals, aquatic macro-invertebrates, reptiles, amphibians and birds was observed. -Abundant shelter, forage, and roosting
Wetland Canopy (O/S) 2.5	-Minimal human disturbance ≈25% invasive species
Wetland Ground Cover (GC) 2.5	Wetland has a desirable diversity of vegetative ground cover. No exotics observed
Habitat Support/Buffer 1.0	80% >30' <300'; 20% >300', consisting of >75% nuisance species
Field Hydrology (HYD) 2.5	Exhibits natural hydroperiod.
WQ Input & Treatment (WQ) 1.5	- Land use = Pine Plantation - W.Q. Pretreatment = Pine Plantation

# Wetland Rapid Assessment Procedure

WRAP 25

Check one  
 Existing Conditions    Proposed Conditions   (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	North American Coal	10/09/08	Everett/Stowe	Pine-Hardwood Forest

Land Use	FLUCCS Code	Description:

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Ground Cover (GC)
0.5	1.5	1.5

Habitat Support/Buffer			
Buffer type	(Score) X	(% of area)	=Sub Totals
<300'	0.5	100%	0.5
TOTAL			0.5

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.5	1.5

Land use Category (LU)			
Land use Category	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1.5	100%	1.5
(LU) TOTAL			1.5

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Undeveloped	1.5	100%	1.5
Pine Plantation			
PT TOTAL			1.5

WRAP Score	0.44
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Wildlife Utilization (WU) 0.5	Minimal utilization of wetland and adjacent uplands by wildlife species. Minimal roosting and forage in wetland. Uplands have been replanted in loblolly pine.
Wetland Canopy (O/S) 1.5	Herbicide use has affected canopy species adjacent to clear-cut uplands. Immature canopy has potential. <25% Undesirable cover.
Wetland Ground Cover (GC) 1.5	~50% Undesirable ground cover, there is a sparse canopy and thick understory. ~No exotic species recorded in ground cover but 20% nuisance species were present.
Habitat Support/Buffer 0.5	<300' average buffer width. Surrounding wetland has been cleared, sprayed, and replanted with undesirable species. The wetland is connected to offsite corridor.
Field Hydrology (HYD) 2.5	Hydroperiod is adequate, but soil subsidence was observed.
WQ Input & Treatment (WQ) 1.5	<ul style="list-style-type: none"> <li>- Land use = Pine Plantation</li> <li>- W.Q. Pretreatment = undeveloped clear cut</li> </ul>

# Wetland Rapid Assessment Procedure

WRAP 26

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/09/08 Evaluator Everett/Stowe Wetland Type Field

Land Use \_\_\_\_\_ FLUCCS Code \_\_\_\_\_ Description: \_\_\_\_\_

Wildlife Utilization (WU) 2 Wetland Canopy (O/S) 2 Wetland Ground Cover (GC) 1

Buffer type	Habitat Support/Buffer (Score) X	(% of area)	=Sub Totals
>30'<300'	2	100%	2
TOTAL			<u>2</u>

Field Hydrology (HYD) 2.0

WQ Input & Treatment (WQ)\* 1.13

Land use Category	(Score) X	(% of area)	=Sub Totals
Rangeland	2.0	50%	1
Improved Pasture	1	50%	0.5
(LU) TOTAL			<u>1.5</u>

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Grass swales	1	50%	0.5
Cattle pasture	0.5	50%	0.25
PT TOTAL			<u>0.75</u>

WRAP Score 0.56

Wildlife Utilization (WU) <u>2</u>	Evidence of utilization by large mammals, aquatic macro-invertebrates, amphibians and reptiles. Adjacent upland food source and cover are adequate.
Wetland Canopy (O/S) <u>2</u>	<25% Undesirable canopy species composition. Evidence of recruitment of native species.
Wetland Ground Cover (GC) <u>1</u>	~50% Undesirable cover (wet pasture)
Habitat Support/Buffer <u>2.0</u>	* >30'<300' buffer on average. * Connected to offsite corridor.
Field Hydrology (HYD) <u>2.0</u>	Hydroperiod adequate, but affected by ditching.
WQ Input & Treatment (WQ) <u>1.13</u>	- Land use = 50% rangeland and 50% improved pasture - W.Q. Pretreatment = 50% grass swales, 50% cattle pasture(cattle feces in wetland)

# Wetland Rapid Assessment Procedure

WRAP 27

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/09/08 Evaluator Everett/Stowe Wetland Type Planted Pine

Land Use \_\_\_\_\_ FLUCCS Code \_\_\_\_\_ Description: \_\_\_\_\_

Wildlife Utilization (WU) 0.5 Wetland Canopy (O/S) 0.0 Wetland Ground Cover (GC) 1

Buffer type	Habitat Support/Buffer (Score) X	(% of area)	=Sub Totals
>300', consisting of >75% nuisance species	1	100%	1
			TOTAL
			1

Field Hydrology (HYD) 2.5 WQ Input & Treatment (WQ)\* 1.5

Land use Category	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1.5	100%	1.5
			(LU) TOTAL
			1.5

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Undeveloped Pine Plantation	1.5	100%	1.5
			PT TOTAL
			1.5

WRAP Score 0.36

Wildlife Utilization (WU) 0.5	Sparse adjacent upland food source. Little habitat for birds, mammals and reptiles.
Wetland Canopy (O/S) 0.0	No desirable species in the canopy. Canopy is comprised entirely of loblolly pine.
Wetland Ground Cover (GC) 1.0	>50% undesirable species
Habitat Support/Buffer 1	>300' average buffer width, but is comprised of >75% nuisance species (loblolly pine). Connected to offsite corridor
Field Hydrology (HYD) 2.5	Wetland hydroperiod is adequate.
WQ Input & Treatment (WQ) 1.5	- Land use = pine plantation - W.Q. Pretreatment = undeveloped pine plantation



# Wetland Rapid Assessment Procedure

WRAP 28

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/09/08 Evaluator Everett/Stowe Wetland Type Field

Land Use \_\_\_\_\_ FLUCCS Code \_\_\_\_\_ Description: \_\_\_\_\_

Wildlife Utilization (WU) 1 Wetland Canopy (O/S) 0 Wetland Ground Cover (GC) 0.5

Habitat Support/Buffer			
Buffer type	(Score) X	(% of area)	=Sub Totals
>300' & 75%			
Nuisance species	1.0	100	1.0
TOTAL			1.0

Field Hydrology (HYD) 1.5

WQ Input & Treatment (WQ)\* 0.75

Land use Category (LU)			
Land use Category	(Score) X	(% of area)	=Sub Totals
Improved	1	100%	1
Pasture			
(LU) TOTAL			1

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Pre-treatment of water is obtained with grass swales; however, water entering wetland is contaminated by cattle feces.	0.5	100%	0.5
PT TOTAL			0.5

WRAP Score 0.26

Wildlife Utilization (WU) <u>1</u>	- Minimal evidence of wildlife. - Limited adjacent upland food source.
Wetland Canopy (O/S) <u>0</u>	No desirable canopy species were observed.
Wetland Ground Cover (GC) <u>0.5</u>	- >75% undesirable cover. - Intensively maintained pasture.
Habitat Support/Buffer <u>1</u>	- >300' average buffer that consists of >75% nuisance species. - Connect to offsite wildlife corridor.
Field Hydrology (HYD) <u>1.5</u>	- Plants are healthy and exhibit no sign of water stress. - Succession of wetland plant species into transitional/upland species.
WQ Input & Treatment (WQ) <u>0.75</u>	- Land use = Improved pasture - Pre-treatment of water is obtained with grass swales; however, water entering wetland is contaminated by cattle feces.

# Wetland Rapid Assessment Procedure

WRAP 29

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/09/08 Evaluator Everett/Stowe Wetland Type Hardwood

Land Use \_\_\_\_\_ FLUCCS Code \_\_\_\_\_ Description: \_\_\_\_\_

Wildlife Utilization (WU) 2 Wetland Canopy (O/S) 1.5 Wetland Ground Cover (GC) 1.5

Buffer type	Habitat Support/Buffer (Score) X	(% of area)	=Sub Totals
>30<300'	2	100%	2
TOTAL			<u>2</u>

Field Hydrology (HYD) 1

WQ Input & Treatment (WQ)\* 2.5

Land use Category	Land use Category (Score) X	(% of area)	=Sub Totals
Undeveloped	2.5	100%	2.5
(LU) TOTAL			<u>2.5</u>

Pretreatment Category	Pretreatment Category (Score) X	(% of area)	=Sub Totals
Undeveloped	2.5	100%	2.5
PT TOTAL			<u>2.5</u>

WRAP Score 0.61

Wildlife Utilization (WU) <u>2</u>	- Evidence of utilization by small, medium and large mammals was observed. - Minimal human intervention was observed. - Adequate protective cover is available to wildlife.
Wetland Canopy (O/S) <u>1.5</u>	- Canopy provides habitat to wildlife. - Canopy is mature, but sparse. Evidence of recruitment of native species was observed.
Wetland Ground Cover (GC) <u>1.5</u>	~50% undesirable cover as a result of a thin canopy.
Habitat Support/Buffer <u>2</u>	>30<300' buffer on average.  Buffer provides cover and food source to wildlife.
Field Hydrology (HYD) <u>1.5</u>	Wetland hydroperiod is adequate; however, drainage is reduced due to fill in the wetland near a small road crossing.
WQ Input & Treatment (WQ) <u>2.5</u>	- Land use = 100% natural undeveloped - W.Q. Pretreatment = 100% natural undeveloped

# WETLAND RAPID ASSESSMENT PROCEDURE

Check One  
 Proposed Conditions    Current Conditions

## (WRAP)

WRAP Location \_\_\_\_\_

WRAP 30

Application Number	Project Name	Date	Evaluator	Wetland Type
	North American Coal	10/9/2008	D.K. and J.E.	Field

Land Use	Description	Wetland Acreage

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Ground Cover
1.5	1.5	1.5

Habitat Support Buffer				Field Hydrology (HYD)		WQ Input & Treatment *	
Buffer Type	(Score)	X	(% of area)=	Sub Totals			
>300' w/ >75% nuisance species	1		100	1			
				<b>Total</b>			1

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)			
LU Category	(Score)	X	(% of area)=
Improved	1		100
Pasture			
			<b>LU Total</b>
			1.00

Pretreatment Category (PT)			
PT Category	(Score)	X	(% of area)=
Grass swales	1		100
			<b>PT Total</b>
			1

### WRAP Score

0.47

#### Field Notes:

**Wildlife Utilization (WU)**  
 Deer, turkey, reptiles and amphibians utilize the wetland. There is frequent human disturbance to the wetland and surrounding land. Limited cover and upland food source availability.

**Wetland Canopy (O/S)**  
 <25% Undesirable canopy species are present. Immature canopy, has potential.

**Wetland Ground Cover**  
 <25% Undesirable species composition in the herbaceous layer. Cover is impacted by human activities. Maintained as pasture.

**Habitat Support/Buffer**  
 >300' buffer on average. Buffer provides limited cover and adequate food source.

**Field Hydrology (HYD)**  
 Hydroperiod adequate, but swales and a culvert placed under the road running through the wetland adversely affect hydrology.

**WQ Input & Treatment**  
 (LU) - Improved Pasture (PT) - Grass swales

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions  Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 31

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/9/2008 Evaluator D.K. and J.E. Wetland Type Bottomland Forest

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 2.5 Wetland Canopy (O/S) 2 Wetland Ground Cover 2

Habitat Support Buffer  
 Buffer Type (Score) X (% of area)= Sub Totals  

>300' w/ >75% nuisance sp.	1	100	1
			<b>Total</b>
			1

 Field Hydrology (HYD) 2 Wetland Input & Treatment \* 1.5

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X (% of area)=	Sub Totals
Pine	1.5	100	1.5
Plantation			
LU Total			1.50

Pretreatment Category (PT)

PT Category	(Score)	X (% of area)=	Sub Totals
Undeveloped	1.5	100	1.5
Pine			
Plantation			
PT Total			1.5

**WRAP Score**  
0.61

**Field Notes:**

**Wildlife Utilization (WU)**  
 Deer, turkey, reptiles and amphibians utilize the wetland. Adequate upland food source and cover present. Connected to wildlife corridor.

**Wetland Canopy (O/S)**  
 <25% Undesirable canopy species are present. Canopy provides habitat. Evidence of native recruitment. Healthy canopy with few snags.

**Wetland Ground Cover**  
 <25% Undesirable species composition in the herbaceous layer. Cover is slightly impacted by human activities, a maintained road cuts through the wetland swale.

**Habitat Support/Buffer**  
 >300' buffer on average w/ >75% nuisance species. Buffer provides adequate cover and food source. Portions connected to off-site corridors.

**Field Hydrology (HYD)**  
 Hydroperiod adequate, but rutted in areas near roads. Little evidence of subsidence.

**WQ Input & Treatment**  
 (LU) - Pine Plantation (PT) - Undeveloped Pine Plantation

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions  Current Conditions  
**(WRAP)**

**WRAP Location**  
 WRAP 32

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/10/2008 Evaluator D.K. and J.E. Wetland Type Field

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 1.5 Wetland Canopy (O/S) 1 Wetland Ground Cover 2

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 1.5 WQ Input & Treatment \* 1.5

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>300', >75%				
nuisance species	1		50	0.5
Natural				
Undeveloped	2.5		50	1.25
<b>Total</b>				<b>1.75</b>

Land use Category (LU)				
LU Category	(Score)	X	(% of area)=	Sub Totals
Livestock				
Pasture	0.5		50	0.25
Natural				
Undeveloped	2.5		50	1.25
<b>LU Total</b>				<b>1.50</b>

Pretreatment Category (PT)				
PT Category	(Score)	X	(% of area)=	Sub Totals
Livestock				
Pasture	0.5		50	0.25
Natural				
Undeveloped	2.5		50	1.25
<b>PT Total</b>				<b>1.5</b>

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

**WRAP Score**  
0.51

**Field Notes:**

**Wildlife Utilization (WU)**  
 Utilized by deer, songbirds, reptiles and amphibians. Limited adjacent upland food source. Area is used as livestock pasture, cows were present in the wetland at the time of survey.

**Wetland Canopy (O/S)**  
 Has been cleared up to the edge of the floodplain. Some desirable species in canopy; immature but has potential. Environmental impacts in place, dead trees were observed in the wetland.

**Wetland Ground Cover**  
 ~50% Undesirable ground cover; routinely managed as wet pasture for livestock grazing.

**Habitat Support/Buffer**  
 50% has buffer of >300', but has >75% nuisance species. The remaining 50% is >300' and is natural undeveloped land

**Field Hydrology (HYD)**  
 Dammed pond has adversely affected hydrology. Dead trees were observed in the wetland.

**WQ Input & Treatment**  
 (LU) - 50% Livestock Pasture, 50% Nat. Undeveloped (PT) - 50% Livestock Pasture, 50% Natural Undeveloped

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions    Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 33

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/10/2008 Evaluator D.K. and J.E. Wetland Type Planted Pine

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 1 Wetland Canopy (O/S) 1 Wetland Ground Cover 1

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 2 WQ Input & Treatment \* 1.5

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>300' with predominantly nuisance species	1		100	1
<b>Total</b>				<b>1</b>

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Planted Pine	1.5		100	1.5
<b>LU Total</b>				<b>1.50</b>

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Planted Pine	1.5		100	1.5
<b>PT Total</b>				<b>1.5</b>

**WRAP Score**  
0.42

**Field Notes:**

**Wildlife Utilization (WU)**  
 Minimal evidence of wildlife, not adequate for songbirds. Sparse upland food source. Abuts well travelled paved road.

**Wetland Canopy (O/S)**  
 >75% Undesirable species composition. 100% dominated by rowed, planted loblolly pine. Negligible habitat support.

**Wetland Ground Cover**  
 >75% Undesirable species composition. Cover highly impacted, mostly nuisance species.

**Habitat Support/Buffer**  
 >300', but has >75% nuisance species.

**Field Hydrology (HYD)**  
 Wetland hydrology adequate; however, heavy soil subsidence occurs in areas and hydrology is adversely affected by paved and dirt roads. Plants show no sign of water stress.

**WQ Input & Treatment**  
 (LU) - Planted loblolly pine (PT) - Undeveloped Pine Plantation.

**WETLAND RAPID ASSESSMENT PROCEDURE**

Proposed Conditions     Check One  
 Current Conditions

**(WRAP)**

WRAP Location

WRAP 34

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/7/2008 Evaluator D.K. and J.E. Wetland Type Hardwood-Pine Forest

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 2 Wetland Canopy (O/S) 2.5 Wetland Ground Cover 2

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 2 WQ Input & Treatment \* 1.13

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>300', but has	1		50	0.5
>75% nuisance species				
No Buffer	0		50	0
<b>Total</b>				<b>0.5</b>

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Imp. Pasture	1		50	0.5
LV Highway	1		25	0.25
Planted Pine	1.5		25	0.38
<b>LU Total</b>				<b>1.13</b>

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Grass swales	1		75	0.75
Undeveloped				
Planted Pine	1.5		25	0.38
<b>PT Total</b>				<b>1.13</b>

**WRAP Score**

0.56

**Field Notes:**

**Wildlife Utilization (WU)**  
Utilized by small and large mammals. There is frequent human disturbance to wildlife due to the proximity of Liberty Rd. Cover and food sources are limited by the road and adjacent pasture.

**Wetland Canopy (O/S)**  
Wetland canopy provides good habitat within the wetland. There is strong evidence of recruitment of native canopy species. Canopy is healthy and shows no sign of disease or stress.

**Wetland Ground Cover**  
Ground cover is slightly impacted by human activity and soil subsidence; however the species composition is ideal for the mature hardwood/pine wetland in which it is located.

**Habitat Support/Buffer**  
50% is comprised of a >300' buffer, with >75% nuisance species. The remaining 50% has no buffer due to Liberty road bordering the entire north side of the wetland.

**Field Hydrology (HYD)**  
Adequate hydrology, but ditched and impounded by Liberty Rd.

**WQ Input & Treatment**  
(LU) - 50%Improved Pasture, 25%Low Volume Highway, 25% Planted Pine (PT) - 75%Grass swales only, 25% Planted Pine

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions  Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 35

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/7/2008 Evaluator D.K. and J.E. Wetland Type Field

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 2 Wetland Canopy (O/S) 1 Wetland Ground Cover 1

Habitat Support Buffer Buffer Type (Score) X (% of area)= Sub Totals Field Hydrology (HYD) 2 WQ Input & Treatment \* 1

Buffer Type (Score) X (% of area)=	Sub Totals
>300', but has	1 100 1
>75% nuisance species	
<b>Total</b>	<b>1</b>

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category (Score) X (% of area)=	Sub Totals
Improved	1 100 1
Pasture	
<b>LU Total</b>	<b>1.00</b>

Pretreatment Category (PT)

PT Category (Score) X (% of area)=	Sub Totals
Grass swales only	1 100 1
<b>PT Total</b>	<b>1</b>

**WRAP Score**  
0.44

Field Notes:

**Wildlife Utilization (WU)**  
 Site provides adequate herbaceous forage, but little cover and adjacent upland food source currently exists.

**Wetland Canopy (O/S)**  
 Wetland has an immature canopy and is kept as pasture. There is minimal sign of recruitment of native canopy species.

**Wetland Ground Cover**  
 ~50% Undesirable species composition. Routinely managed as improved pasture.

**Habitat Support/Buffer**  
 >300' buffer, but is comprised of >75% non-invasive nuisance species.

**Field Hydrology (HYD)**  
 Adequate hydrology, but adjacent to roads and ditching.

**WQ Input & Treatment**  
 (LU) - Improved Pasture (PT) - Grass swales only.



**WETLAND RAPID ASSESSMENT PROCEDURE**

Check One  
 Proposed Conditions    Current Conditions

**(WRAP)**

WRAP Location

WRAP 36

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/7/2008 Evaluator D.K. and J.E. Wetland Type Pine-Hardwood Forest

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 2 Wetland Canopy (O/S) 2 Wetland Ground Cover 2

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 1.5 WQ Input & Treatment \* 1

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>300'	2.5		75	1.9
>30<300'	2		25	0.5
<b>Total</b>				<b>2.4</b>

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Forested	1		100	1
Rangeland				
<b>LU Total</b>				<b>1.00</b>

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Forested	1		100	1
Rangeland				
<b>PT Total</b>				<b>1</b>

**WRAP Score**

0.61

**Field Notes:**

**Wildlife Utilization (WU)**  
Utilized by small and large mammals, amphibians and songbirds. There is adequate food and cover in the surrounding uplands to support large mammals.

**Wetland Canopy (O/S)**  
<25% Undesirable species, wetland canopy provides habitat. Recruitment of native species was evident at the time of the survey.

**Wetland Ground Cover**  
<25% Undesirable species in herbaceous layer. Cover is slightly impacted by loss of sediment into the wetland from an adjacent dirt road.

**Habitat Support/Buffer**  
25% of the buffer is <30>300' on average, and the remaining 75% is >300' on average.

**Field Hydrology (HYD)**  
Wetland hydrology is adequate; however, is impounded by a man-made pond and is bordered by a dirt road. There is evidence of soil subsidence.

**WQ Input & Treatment**  
(LU) - Forested Rangeland (PT) - Forested Rangeland.

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions    Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 37

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/7/2008 Evaluator D.K. and J.E. Wetland Type Pine-Hardwood Forest

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 2 Wetland Canopy (O/S) 2 Wetland Ground Cover 2

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 2.5 WQ Input & Treatment \* 2.5

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>300'	2.5		100	2.5
<b>Total</b>				2.5

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Natural	2.5		100	2.5
Undeveloped				
<b>LU Total</b>				2.50

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Natural	2.5		100	2.5
Undeveloped				
<b>PT Total</b>				2.50

**WRAP Score**  
0.75

**Field Notes:**

**Wildlife Utilization (WU)**  
 Utilized by small and large mammals, little sign of amphibians and songbirds. There is adequate food and cover in the surrounding uplands to support large mammals.

**Wetland Canopy (O/S)**  
 <25% Undesirable species, wetland canopy provides habitat. Recruitment of native species was evident at the time of the survey.

**Wetland Ground Cover**  
 <25% Undesirable species in herbaceous layer. Cover is slightly impacted by human activities.

**Habitat Support/Buffer**  
 >300' buffer , with predominantly desirable species.

**Field Hydrology (HYD)**  
 Wetland hydrology is adequate. The plants are healthy and show no sign of water stress. There is little evidence of soil subsidence.

**WQ Input & Treatment**  
 (LU) - Natural Undeveloped (PT) - Natural Undeveloped.

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions    Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 38

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/7/2008 Evaluator D.K. and H.H. Wetland Type Field

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 2 Wetland Canopy (O/S) 1.5 Wetland Ground Cover 1

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 2 WQ Input & Treatment \* 2

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>300'	2.5		50	0.63
>300', >75% nuisance spec	1		50	0.75
<b>Total</b>				<b>1.38</b>

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Nat Und.	2.5		50	1.25
Planted				
Pine	1.5		50	0.75
<b>LU Total</b>				<b>2.00</b>

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Undeveloped	1.5		50	0.75
Pine Plantation				
Nat Undevel.	2.5		50	1.25
<b>PT Total</b>				<b>2.00</b>

**WRAP Score**  
0.55

**Field Notes:**

**Wildlife Utilization (WU)**  
 Utilized by small and large mammals, and songbirds. There is an adequate upland food source in the surrounding uplands to support large mammals.

**Wetland Canopy (O/S)**  
 Portions of the wetland were recently clear-cut and maintained as a hunting food plot in the floodplain of Chickasawhay Creek.

**Wetland Ground Cover**  
 Comprised mostly of non-native herbaceous species. Highly invasive tropical soda-apple was observed in the cleared area.

**Habitat Support/Buffer**  
 50% of the wetland has a >300' buffer , with predominantly desirable species. 50% of the buffer is >300' but has >75% nuisance species (Pine Plantation & Non-Native Herbaceous Species).

**Field Hydrology (HYD)**  
 Wetland hydrology is adequate. The plants are healthy and show no sign of water stress. Swales and logging ruts are in place.

**WQ Input & Treatment**  
 (LU) - 50% Natural Undeveloped, 50% Pine Plantation (PT) - 50% Natural Undeveloped, 50% Undeveloped Planted Pine.

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions  Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 39

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/8/2008 Evaluator D.K. and H.H. Wetland Type Planted Pine

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 1.5 Wetland Canopy (O/S) 1 Wetland Ground Cover 1.5

Habitat Support Buffer  
 Buffer Type (Score) X (% of area)= Sub Totals  

>300' w/ 75% nuisance species	1	100	1
			<b>Total</b>
			1

 Field Hydrology (HYD) 2 Wetland Input & Treatment \* 1.5

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Planted	1.5		100	1.5
Pine				
LU Total				1.50

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Planted				
Pine	1.5		100	1.5
PT Total				1.50

**WRAP Score**  
0.47

Field Notes:

**Wildlife Utilization (WU)**  
 Utilized by small and large mammals; no evidence of utilization by songbirds, reptiles. The available upland food source is limited and somewhat sparse. Human intervention is evident through manipulation of the land for purposes of managing timber.

**Wetland Canopy (O/S)**  
 >50% Undesirable species content. Canopy is dominated by planted loblolly pine. The sub-canopy was observed to have desirable native wetland species, showing future potential if timber harvest operations ceased.

**Wetland Ground Cover**  
 Comprised mostly of herbaceous species indicative of disturbed sites.

**Habitat Support/Buffer**  
 >300' on average, consisting of >75% nuisance loblolly pine. Buffer is connected with contiguous off-site corridors and provides cover.

**Field Hydrology (HYD)**  
 Wetland hydrology is adequate. The plants are healthy and show no sign of water stress. Swales and logging ruts are in place.

**WQ Input & Treatment**  
 (LU) - Planted Pine (PT) - Planted Pine.

**WETLAND RAPID ASSESSMENT PROCEDURE**

Check One  
 Proposed Conditions    Current Conditions

**(WRAP)**

WRAP Location

WRAP 40

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/8/2008 Evaluator D.K. and H.H. Wetland Type Bottomland Forest

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 1.5 Wetland Canopy (O/S) 2 Wetland Ground Cover 1.5

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 2 WQ Input & Treatment \* 1.25

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>300'	1		50	0.5
NB	0		25	0
<30'	1		25	0.25
<b>Total</b>				<b>0.75</b>

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Planted pine	1.5		50	0.75
Improved pasture	1		50	0.5
<b>LU Total</b>				<b>1.25</b>

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Grass swales	1		50	0.5
Planted pine	1.5		50	0.75
<b>PT Total</b>				<b>1.25</b>

**WRAP Score**

0.50

**Field Notes:**

**Wildlife Utilization (WU)**  
Utilized by small and large mammals, reptiles, amphibians, aquatic macroinvertebrates and fishes. Frequent human disturbance is created by the paved road. There is a marginal upland food source.

**Wetland Canopy (O/S)**  
<25% Undesirable species present. Native recruitment is evident and the canopy provides good habitat. No sign of disease in canopy trees.

**Wetland Ground Cover**  
<25% Undesirable species. Chinese privet has been established due to human impacts to the wetland ground cover.

**Habitat Support/Buffer**  
The paved road to the north provides no buffer. To the east and south the buffer is >300' on average vegetated with predominantly loblolly pine, and the western edge of the wetland has a <30' buffer.

**Field Hydrology (HYD)**  
Wetland hydrology is adequate. The plants are healthy and show no sign of water stress; however, culverts and soil subsidence negatively impact the wetland.

**WQ Input & Treatment**  
(LU) - 50% Planted Pine, 50% Improved (PT) - 50% Planted Pine, 50% Grass Swales

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions  Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 41

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/8/2008 Evaluator D.K. and H.H. Wetland Type Hardwood-Pine Forest

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 2 Wetland Canopy (O/S) 2 Wetland Ground Cover 1.5

Habitat Support Buffer

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>300'	2		50	1
>30<300'	1.5		50	0.75
<b>Total</b>				<b>1.75</b>

Field Hydrology (HYD)  
2

WQ Input & Treatment \*  
2.4

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Natural undeveloped	2.5		0.75	1.9
Improved pasture	1		0.25	0.5
<b>LU Total</b>				<b>2.40</b>

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Grass swales	1		0.25	0.5
Natural undeveloped	2.5		0.75	1.9
<b>PT Total</b>				<b>2.40</b>

**WRAP Score**  
0.65

Field Notes:

**Wildlife Utilization (WU)**  
 Utilized by small and large mammals, reptiles, and amphibians. Minimal human disturbance and a marginal upland food source was observed.

**Wetland Canopy (O/S)**  
 <25% Undesirable species present. Native recruitment is evident and the canopy provides good habitat. No sign of disease in canopy trees.

**Wetland Ground Cover**  
 <25% Undesirable species. Cover slightly impacted by humans.

**Habitat Support/Buffer**  
 >300' on average to the east, <30>300' to the west(adjacent to road).

**Field Hydrology (HYD)**  
 Wetland hydrology is adequate. Soil subsidence was observed in the wetland.

**WQ Input & Treatment**  
 (LU) - 25% Improved Pasture, 75% Natural Undeveloped (PT) - 75% Nat. Undeveloped, 25% Grass Swales

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Proposed Conditions     Check One     Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 42

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/8/2008 Evaluator D.K. and H.H. Wetland Type Field

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 1 Wetland Canopy (O/S) 0 Wetland Ground Cover 0.5

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 1 WQ Input & Treatment \* 1.75

Buffer Type	(Score)	X	(% of area)=	Sub Totals
NB	0		50	0
>300'	2		50	1
<b>Total</b>				<b>1</b>

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Natural undeveloped	2.5		50	1.25
Improved pasture	1		50	0.5
<b>LU Total</b>				<b>1.75</b>

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Grass swales	1		0.5	0.5
Natural undeveloped	2.5		0.5	1.25
<b>PT Total</b>				<b>1.75</b>

**WRAP Score**  
0.29

**Field Notes:**

**Wildlife Utilization (WU)**  
 Deer and raccoon may utilize the wetland; however, the habitat is very poor for songbirds and there is no cover and a limited upland food source.

**Wetland Canopy (O/S)**  
 No canopy present, mechanically cleared and maintained.

**Wetland Ground Cover**  
 Juncus effusus is the only prevalent native wetland species observed in the wetland.

**Habitat Support/Buffer**  
 50% No Buffer (due to road and pasture) 50% Natural Undeveloped

**Field Hydrology (HYD)**  
 A pond has been built to the north of the wetland, severely impacting hydrology.

**WQ Input & Treatment**  
 (LU) - 50% Improved Pasture, 50% Natural Undeveloped (PT) - 50% Nat. Undeveloped, 50% Grass Swales

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions  Current Conditions  
**(WRAP)**

WRAP Location  
WRAP 43

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/9/2008 Evaluator D.K. and H.H. Wetland Type Field

Land Use \_\_\_\_\_ Description \_\_\_\_\_ Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU) 1 Wetland Canopy (O/S) 0 Wetland Ground Cover 1

Habitat Support Buffer \_\_\_\_\_ Field Hydrology (HYD) 1.5 WQ Input & Treatment \* 1

Buffer Type	(Score)	X	(% of area)=	Sub Totals
Pasture	0.5		100	0.5
>300' but has >75% nuisance species				
<b>Total</b>				<b>0.5</b>

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

LU Category	(Score)	X	(% of area)=	Sub Totals
Improved pasture	1		100	1
<b>LU Total</b>				<b>1.00</b>

Pretreatment Category (PT)

PT Category	(Score)	X	(% of area)=	Sub Totals
Grass swales	1		100	1
<b>PT Total</b>				<b>1.00</b>

**WRAP Score**  
0.28

**Field Notes:**

**Wildlife Utilization (WU)**  
Herbaceous weedy cover is the only food available to wildlife. Upland food source is very sparse. The pasture is used for livestock grazing, cattle were observed in the wetland.

**Wetland Canopy (O/S)**  
No canopy present, maintained as wet pasture.

**Wetland Ground Cover**  
Disturbed by humans, weedy herbaceous species dominate the ground cover, including some non-native species.

**Habitat Support/Buffer**  
Pasture, >300' but has >75% non-invasive nuisance species.

**Field Hydrology (HYD)**  
A wetland swale drains a cattle pond, hydrology is adversely affected.

**WQ Input & Treatment**  
(LU) - 100% Improved Pasture (PT) - 100% Grass Swales



**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions  Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 44

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/9/2008 Evaluator D.K. and H.H.

Wetland Type  
Pine-Hardwood Forest

Land Use \_\_\_\_\_ Description \_\_\_\_\_

Wetland Acreage \_\_\_\_\_

Wildlife Utilization (WU)  
2.5

Wetland Canopy (O/S)  
2

Wetland Ground Cover  
2.5

**Habitat Support Buffer**

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>300'	2.5		100	2.5
<b>Total</b>				<b>2.5</b>

Field Hydrology (HYD)  
3

WQ Input & Treatment \*  
2.28

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

**Land use Category (LU)**

LU Category	(Score)	X	(% of area)=	Sub Totals
Natural	2.5		75	1.9
Undeveloped				
Planted Pine	1.5		25	0.38
<b>LU Total</b>				<b>2.28</b>

**Pretreatment Category (PT)**

PT Category	(Score)	X	(% of area)=	Sub Totals
Natural	2.5		75	1.9
Undeveloped				
Planted Pine	1		25	0.38
<b>PT Total</b>				<b>2.28</b>

**WRAP Score**  
0.82

**Field Notes:**

**Wildlife Utilization (WU)**  
 Utilized by small and large mammals, songbirds. Adjacent upland food source and available cover are abundant for wildlife. Minimal human intervention was observed.

**Wetland Canopy (O/S)**  
 <25% Undesirable species, canopy provides habitat and shows no sign of stress or disease.

**Wetland Ground Cover**  
 <10% Undesirable species, no disturbance to the ground cover.

**Habitat Support/Buffer**  
 >300' in width. Connected to wildlife corridor, and is adjacent to the Okatibbee Wildlife Management Area.

**Field Hydrology (HYD)**  
 Wetland has healthy, non-stressed plants and exhibits a natural hydroperiod. No soil subsidence was observed.

**WQ Input & Treatment**  
 (LU) - 75% Natural Undeveloped, 25% Planted Pine (PT) - 75% Natural Undeveloped, 25% Planted Pine

**WETLAND RAPID ASSESSMENT PROCEDURE**  
 Check One  
 Proposed Conditions  Current Conditions  
**(WRAP)**

WRAP Location  
 WRAP 45

Application Number \_\_\_\_\_ Project Name North American Coal Date 10/9/2008 Evaluator D.K. and H.H.

Wetland Type  
Bottomland Forest

Land Use \_\_\_\_\_ Description \_\_\_\_\_

Wetland Acreage  
 \_\_\_\_\_

Wildlife Utilization (WU)  
2.5

Wetland Canopy (O/S)  
2

Wetland Ground Cover  
2.5

**Habitat Support Buffer**

Buffer Type	(Score)	X	(% of area)=	Sub Totals
>300'	2.5		100	2.5
<b>Total</b>				2.5

Field Hydrology (HYD)  
2.5

WQ Input & Treatment \*  
2.5

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

**Land use Category (LU)**

LU Category	(Score)	X	(% of area)=	Sub Totals
Natural	2.5		100	2.5
Undeveloped				
<b>LU Total</b>				2.50

**Pretreatment Category (PT)**

PT Category	(Score)	X	(% of area)=	Sub Totals
Natural	2.5		100	2.5
Undeveloped				
<b>PT Total</b>				2.50

**WRAP Score**  
0.81

**Field Notes:**

**Wildlife Utilization (WU)**  
 Utilized by small and large mammals, songbirds. Adjacent upland food source and available cover are abundant for wildlife. Minimal human intervention was observed.

**Wetland Canopy (O/S)**  
 <25% Undesirable species, canopy provides habitat and shows no sign of stress or disease.

**Wetland Ground Cover**  
 <10% Undesirable species, no disturbance to the ground cover. Good species diversity was observed.

**Habitat Support/Buffer**  
 >300' in width. Connected to wildlife corridors, and provides food and cover to wildlife.

**Field Hydrology (HYD)**  
 Wetland has healthy, non-stressed plants and exhibits a natural hydroperiod. Soil subsidence was observed.

**WQ Input & Treatment**  
 (LU) - 100% Natural Undeveloped (PT) - 100% Natural Undeveloped

**WETLAND RAPID ASSESSMENT PROCEDURE**

Check One  
 Proposed Conditions    Current Conditions

**(WRAP)**

WRAP Location \_\_\_\_\_

WRAP 46

Application Number	Project Name	Date	Evaluator	Wetland Type
	North American Coal	10/9/2008	D.K. and H.H.	Bottomland Forest
Land Use	Description			Wetland Acreage
Wildlife Utilization (WU)		Wetland Canopy (O/S)		Wetland Ground Cover
2.5		2.5		2.5

Habitat Support Buffer				Field Hydrology (HYD)	WQ Input & Treatment *
Buffer Type	(Score)	X (% of area)=	Sub Totals	2.5	1.38
>30<300'	1	75	0.75		
>300'	2.5	25	0.63		
			<b>Total</b>		
					1.38

\* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)			
LU Category	(Score)	X (% of area)=	Sub Totals
Improved	1	75	0.75
pasture			
Natural			
undeveloped	2.5	25	0.63
			<b>LU Total</b>
			1.38

Pretreatment Category (PT)			
PT Category	(Score)	X (% of area)=	Sub Totals
Improved	1	75	0.75
pasture			
Natural			
undeveloped	2.5	25	0.63
			<b>PT Total</b>
			1.38

**WRAP Score**  
0.71

**Field Notes:**

**Wildlife Utilization (WU)**  
Utilized by small and large mammals, songbirds, fishes, amphibians and reptiles. Adjacent upland food source and available cover are abundant for wildlife. Minimal human intervention was observed.

**Wetland Canopy (O/S)**  
<25% Undesirable species, canopy provides habitat and shows no sign of stress or disease.

**Wetland Ground Cover**  
<25% Undesirable species, no disturbance to the ground cover. Good species diversity was observed.

**Habitat Support/Buffer**  
50% is >300' in width, 50% is >30<300' with >75% undesirable species.

**Field Hydrology (HYD)**  
Ponded area acts as a natural sediment catch, no human controlled elevation.

**WQ Input & Treatment**  
(LU) - 25% Natural Undeveloped, 75% Improved Pasture (PT) - 25% Natural Undeveloped, 75% Improved Pasture

# Wetland Rapid Assessment Procedure

WRAP 47

Check one  
 Existing Conditions    Proposed Conditions   (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	North American Coal	7/25/08	J. Everett	Bottomland Forest

Land Use	FLUCCS Code	Description:

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Ground Cover (GC)
2.5	2.5	2.5

Buffer type	Habitat Support/Buffer (Score) X	(%) of area	=Sub Totals
>300'	2	100	2.5
TOTAL			2.5

Field Hydrology (HYD)
2.5

WQ Input & Treatment (WQ)*
2.5

Land use Category (LU)			
Land use Category	(Score) X	(%) of area	=Sub Totals
Natural	2.5	100%	2.5
(LU) TOTAL			2.5

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(%) of area	=Sub Totals
Natural	2.5	100	2.5
PT TOTAL			2.5

WRAP Score
.83

Wildlife Utilization (WU)   2.5	- Evidence of utilization by large mammals, aquatic macro-invertebrates, reptiles, amphibians and birds was observed. - Negligible evidence of human disturbance observed. - There is adequate adjacent upland food source to support wildlife.
Wetland Canopy (O/S)   2.5	- <10% undesirable species composition of canopy species, no exotics were observed. - A healthy canopy was observed, and it provides good habitat to wildlife. - Strong evidence of natural recruitment of native species was observed.
Wetland Ground Cover (GC)   2.5	<10% undesirable plant species.
Habitat Support/Buffer   2.5	>300' average wetland buffer. Wetland is connected to an offsite corridor.
Field Hydrology (HYD)   2.5	- Hydrology adequate to maintain wetland system. - Plants are healthy and exhibit no water stress.
WQ Input & Treatment (WQ)   2.5	LU- Natural Undeveloped Land PT- Natural Undeveloped Land

# Wetland Rapid Assessment Procedure

WRAP 48

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number \_\_\_\_\_ Project Name North American Coal Date 7/25/08 Evaluator J. Everett Wetland Type Shrubland

Land Use Pine Plantation FLUCCS Code \_\_\_\_\_ Description: \_\_\_\_\_

Wildlife Utilization (WU) 1.0 Wetland Canopy (O/S) 0.5 Wetland Ground Cover (GC) 1.0

Habitat Support/Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
>300', comprised of >75% nuisance species.	1	100	1
TOTAL			1

Field Hydrology (HYD) 2.5

WQ Input & Treatment (WQ)\* 1.5

Land use Category (LU)

Land use Category	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1.5	100%	1.5
(LU) TOTAL			1.5

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Grass swales	1.5	100	1.5
PT TOTAL			1.5

WRAP Score 0.42

Wildlife Utilization (WU) 1	Small and medium sized mammals utilize the wetland. Frequent human disturbance occurs due to the routine maintenance of the field.
Wetland Canopy (O/S) 0.5	- subject to recent clear-cutting
Wetland Ground Cover (GC) 1	- Approximately 50% undesirable species - Recently clear-cut
Habitat Support/Buffer 1	>300' average buffer, consisting of >75% nuisance species(loblolly pine)
Field Hydrology (HYD) 2.5	Wetland exhibits natural hydroperiod. Plants are healthy, and there is little evidence of soil subsidence into the wetland.
WQ Input & Treatment (WQ) 1.5	Land use – logging operation H <sub>2</sub> O Treatment – grass swales

# Wetland Rapid Assessment Procedure

WRAP 49

Check one  
 Existing Conditions    Proposed Conditions   (WRAP)

Application Number \_\_\_\_\_ Project Name North American Coal Date 7/25/08 Evaluator J. Everett Wetland Type Hardwood-Pine Forest

Land Use \_\_\_\_\_ FLUCCS Code \_\_\_\_\_ Description: \_\_\_\_\_

Wildlife Utilization (WU) 1 Wetland Canopy (O/S) 1 Wetland Ground Cover (GC) 2

Buffer type	Habitat Support/Buffer (Score) X	(% of area)	=Sub Totals
>300', comprised of >75% nuisance species.	1	100	1
TOTAL			1

Field Hydrology (HYD) 1.5

WQ Input & Treatment (WQ)\* 1.5

Land use Category (LU)	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1.5	100%	1.5
(LU) TOTAL			1.5

Pretreatment Category (PT)	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1.5	100	1.5
PT TOTAL			1.5

WRAP Score 0.45

Wildlife Utilization (WU) 1	-Sparse upland food source. - Recently thinned, leaving little cover for wildlife.				
Wetland Canopy (O/S) 1	-Immature canopy, but has potential. ->50% Undesirable species composition.				
Wetland Ground Cover (GC) 2	<25% undesirable species composition.				
Habitat Support/Buffer 1	>300' buffer on average, but consisting of >75% nuisance species(loblolly pine)				
Field Hydrology (HYD) 1.5	-Rutting by logging equipment had adversely affected hydrology. -Adequate hydroperiod				
WQ Input & Treatment (WQ) 1	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center; width: 50%;"><u>Land Use</u></td> <td style="text-align: center; width: 50%;"><u>WQ &amp; Pretreatment</u></td> </tr> <tr> <td style="text-align: center;">100% Pine Plantation</td> <td style="text-align: center;">Undeveloped Pine Plantation</td> </tr> </table>	<u>Land Use</u>	<u>WQ &amp; Pretreatment</u>	100% Pine Plantation	Undeveloped Pine Plantation
<u>Land Use</u>	<u>WQ &amp; Pretreatment</u>				
100% Pine Plantation	Undeveloped Pine Plantation				

# Wetland Rapid Assessment Procedure

WRAP 50

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number \_\_\_\_\_ Project Name North American Coal Date 06/02/08 Evaluator J. Everett Wetland Type Field

Land Use Pasture FLUCCS Code \_\_\_\_\_ Description: \_\_\_\_\_

Wildlife Utilization (WU) 0.5 Wetland Canopy (O/S) 0 Wetland Ground Cover (GC) 2.5

Habitat Support/Buffer			
Buffer type	(Score) X	(% of area)	=Sub Totals
>300' average width, but consisting of >75% nuisance species	1	100	1
			TOTAL
			1.0

Field Hydrology (HYD) 2.0 WQ Input & Treatment (WQ)\* 1.0

Land use Category (LU)			
Land use Category	(Score) X	(% of area)	=Sub Totals
Improved Pasture	1	100%	1
			(LU) TOTAL
			1.0

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Grass Swales	1	100	1
			PT TOTAL
			1.0

WRAP Score 0.39

Wildlife Utilization (WU) 0.5	Very minimal wildlife utilization. Only small rodents (squirrels) and birds (red-winged black bird) observed.
Wetland Canopy (O/S) 0	No wetland canopy or shrubbery.
Wetland Ground Cover (GC) 2.5	Less than 10% nuisance or exotic plant species. Large number of obligate wetland species. Wetland is grazed by cattle.
Habitat Support/Buffer 1.0	Greater than 300 ft average width, but buffer is improved pasture land. Very little forest areas to provide food or habitat for animals. Connected to offsite corridor.
Field Hydrology (HYD) 2.0	Wetland hydroperiod adequate, although conditions possibly interfering with or influencing the hydroperiod such as ditches.
WQ Input & Treatment (WQ) 1.0	100% Improved Pasture. Grass swales only.

# Wetland Rapid Assessment Procedure

WRAP 51

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number \_\_\_\_\_ Project Name North American Coal Date 6/5/08 Evaluator J. Everett Wetland Type Shrub Land

Land Use \_\_\_\_\_ FLUCCS Code \_\_\_\_\_ Description: \_\_\_\_\_

Wildlife Utilization (WU) 2.0 Wetland Canopy (O/S) 2.0 Wetland Ground Cover (GC) 2.0

Buffer type \_\_\_\_\_ Habitat Support/Buffer (Score) X (% of area) =Sub Totals \_\_\_\_\_ Field Hydrology (HYD) 2.5 WQ Input & Treatment (WQ)\* 1.5

Buffer type	(Score) X	(% of area)	=Sub Totals
>300' average width, but consisting of >75 nuisance species	1	100	1
			TOTAL
			1.0

Land use Category (LU)	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1.5	100%	1.5
			(LU) TOTAL
			1.5

Pretreatment Category (PT)	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1.5	100	1.5
			PT TOTAL
			1.5

WRAP Score 0.61

Wildlife Utilization (WU) 2.0	Evidence of small and large mammals and reptiles. No evidence of aquatic life. Adequate amount of roosting and forage. Human disturbance appears to be minimal.
Wetland Canopy (O/S) 2.5	Canopy is mature providing abundant source for roosting and nesting. >10% exotic species recorded. Shrub density is less than 20%. Few snags or den trees.
Wetland Ground Cover (GC) 2.0	Ground cover is sparse, but cover is comprised of <25% undesirable species. Covers is slightly impacted by humans.
Habitat Support/Buffer 1.0	Upland buffer is greater than 300' wide on average and consists of 90% <i>Pinus taeda</i> (Loblolly pine). Portions connected to wildlife corridor.
Field Hydrology (HYD) 2.0	Plants appear to be healthy and do not exhibit stress associated with an unnatural hydroperiod. No ditches or swales. Soil subsidence/siltation is evident.
WQ Input & Treatment (WQ) 1.5	LU - Row Planted Pines -- 100%      PT - Row Planted Pines -- 100%



# Wetland Rapid Assessment Procedure

WRAP 52

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	North American Coal	06/03/08	J. Everett	Field

Land Use	FLUCCS Code	Description:
Forested		

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Ground Cover (GC)
2.5	2.0	2.0

Habitat Support/Buffer			
Buffer type	(Score) X	(% of area)	=Sub Totals
<300'	1	.50	0.5
>300'	2	.50	1
TOTAL			1.5

Field Hydrology (HYD)
2.5

WQ Input & Treatment (WQ)*
2

Land use Category (LU)			
Land use Category	(Score) X	(% of area)	=Sub Totals
Undeveloped	2.5	50%	1.25
Pine Plantation	1.5	50%	.75
(LU) TOTAL			2

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1.5	50	.75
Nat Undeveloped	2.5	50	1.25
PT TOTAL			2

WRAP Score
0.69

Wildlife Utilization (WU) 2.5	Evidence of large mammals, reptiles, and fish. Adequate food source, habitat and roosting. Macro-invertebrates and small forage fish species observed in standing water.						
Wetland Canopy (O/S) 2.0	Wetland canopy healthy, minimal evidence of stressed trees. Few den trees and snags present. Exotic species present in small numbers.						
Wetland Ground Cover (GC) 2.0	Wetland ground cover is desirable with >10% <25% undesirable species. Exotic species present.						
Habitat Support/Buffer 1.5	50% <300' next to small farm that is worked daily. Exotics common. Connected to offsite wildlife corridor. 50% >300' connected to offsite corridor with abundant upland habitat and food source. Exotics scattered throughout.						
Field Hydrology (HYD) 2.5	Wetland hydrology adequately supports wetland function. Siltation/disturbance evident, but overall impact minimal.						
WQ Input & Treatment (WQ) 2	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">LU</td> <td style="width: 50%; border: none;">PT</td> </tr> <tr> <td style="border: none;">50% Natural undeveloped – 2.5</td> <td style="border: none;">50% Undeveloped Pine Plantation – 1.0</td> </tr> <tr> <td style="border: none;">50% Undeveloped Pine Plantation – 1.5</td> <td style="border: none;">50% Natural undeveloped – 2.5</td> </tr> </table>	LU	PT	50% Natural undeveloped – 2.5	50% Undeveloped Pine Plantation – 1.0	50% Undeveloped Pine Plantation – 1.5	50% Natural undeveloped – 2.5
LU	PT						
50% Natural undeveloped – 2.5	50% Undeveloped Pine Plantation – 1.0						
50% Undeveloped Pine Plantation – 1.5	50% Natural undeveloped – 2.5						

# Wetland Rapid Assessment Procedure

WRAP 53

Check one  
 Existing Conditions  Proposed Conditions (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	North American Coal	06/05/08	J. Everett	Field

Land Use	FLUCCS Code	Description:
Pine Plantation		

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Ground Cover (GC)
1.0	0.5	2.5

Habitat Support/Buffer			
Buffer type	(Score) X	(% of area)	=Sub Totals
>300' average width, but consisting of >75% nuisance species	1	100	1
			TOTAL
			1

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
0.5	1.5

Land use Category (LU)			
Land use Category	(Score) X	(% of area)	=Sub Totals
Pine Plantation	1.5	100%	1.5
			(LU) TOTAL
			1.5

Pretreatment Category (PT)			
Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Undeveloped	1.5	100	1.5
Pine Plantation			
			PT TOTAL
			1.5

WRAP Score

0.39

Wildlife Utilization (WU) 1.0	Minimal evidence of wildlife utilization, little habitat for birds, mammals, and reptiles, uplands consists of young row planted pines.
Wetland Canopy (O/S) 0.5	No overstory in head of wetland, only young 6 feet tall <i>Pinus taeda</i> (Loblolly) and different species of grasses. Subject to recent clear cutting with little evidence of native canopy regeneration.
Wetland Ground Cover (GC) 2.5	Less than 10% nuisance species, no recorded exotics, ground cover impacted from pine planting (shade, bedding).
Habitat Support/Buffer 1	>300' uplands surrounding wetland and consists of row planted pines. Wetlands further down stream are naturally forested and connected to offsite corridor. Pines do not provide desirable habitat or adequate food source for wildlife.
Field Hydrology (HYD) 0.5	Wetland hydrology altered due to establishment of monoculture pine plantation. Bedding/rows have altered natural topography and hydroperiod. Has allowed encroachment of upland species.
WQ Input & Treatment (WQ) 1.5	100% planted pine plantation in buffer zone. Pine plantation alters pH of runoff and surface flow characteristics.