

APPENDIX A

OHIO RAPID ASSESSMENT METHOD DATA SHEETS

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetlands: WA-1	Rater: H. Fogell, A. Davis

1	1
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

15	14
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

33	18
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☒ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☒ Part of wetland/upland (e.g. forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☐ Semi- to permanently inundated/saturated (4)
- ☒ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> dike | <input type="checkbox"/> filling/grading |
| <input type="checkbox"/> tile | <input checked="" type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other- list |

46	13
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☒ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

46	subtotal this page
----	--------------------

Site: Calvert Cliffs Nuclear Power Plant

Date: February 21, 2008

Wetland: WA-1

Rater: H. Fogell, A. Davis

46 subtotal first page

46 10

Subtotal Points

Metric 5. Special Wetlands. (max 10 pts.)Check all that apply and score as indicated

- ☐ Bog (10 pts)
☐ Fen (10 pts)
☐ Old Growth Forest (10 pts)
☐ Mature forested wetland (5 pts)
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
☐ Relict Wet Prairies (10 pts)
☐ Known occurrence state/federal threatened or endangered species (10)
☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

58 12

Subtotal Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ 0 Aquatic bed
☐ 0 Emergent
☐ 2 Shrub
☐ 1 Forest
☐ 0 Mudflats
☐ 0 Open water
☐ 0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
☐ Moderately high (4)
☐ Moderate (3)
☒ Moderately low (2)
☐ Low (1)
☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
☐ Moderate 25-75% cover (-3)
☐ Sparse 5-25% cover (-1)
☐ Nearly Absent <5% cover (0)
☒ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ 1 Vegetated hummocks/tussocks
☐ 3 Coarse woody debris >15 cm (6")
☐ 0 Standing dead > 25 cm (10") dbh
☐ 2 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

58 GRAND TOTAL (max 100 pts)

Provisional Wetland Category: Category 2

Background Information Form

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Affiliation:	MACTEC Engineering & Consulting		
User Address:	3301 Atlantic Ave, Raleigh, NC.		
Phone:	919-876-0416		
e-mail address	akdavis@mactec.com		
Wetlands Name	WA-1		
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application		
	Sources of information used (check all that apply)		
Lat/Lon or UTM	38.42463/-76.43333	Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cove Point, MD	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	20600040403	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.25	OWI Map	<input type="checkbox"/>
How was size estimated?	Aerial Photo	<input checked="" type="checkbox"/>	
	Soil Survey	<input checked="" type="checkbox"/>	
	ODNR - DNAP	<input type="checkbox"/>	
Wetlands Delineation/GIS	Delineation Report/Map	<input checked="" type="checkbox"/>	
Photograph			
			
final score:	58	Provisional Wetland Category:	Category 2

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Wetlands Name	WA-1		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
9e: Non-native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

58 Category 2

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetlands: WA-10	Rater: H. Fogell, A. Davis

2	2
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☒ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

16	14
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

36	20
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☐ Seasonal/intermittent surface water (3)
- ☒ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☐ Part of wetland/upland (e.g. forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|--|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> dike | <input type="checkbox"/> filling/grading |
| <input type="checkbox"/> tile | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input checked="" type="checkbox"/> stormwater input | <input checked="" type="checkbox"/> other- list |

49	13
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☒ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetland: WA-10	Rater: H. Fogell, A. Davis

49 subtotal first page

49	0
Subtotal	Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

- ☐ Bog (10 pts)
- ☐ Fen (10 pts)
- ☐ Old Growth Forest (10 pts)
- ☐ Mature forested wetland (5 pts)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
- ☐ Relict Wet Prairies (10 pts)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
- ☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

56	7
Subtotal	Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ 0 Aquatic bed
- ☐ 1 Emergent
- ☐ 0 Shrub
- ☐ 1 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
- ☐ Moderately high (4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☒ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
- ☒ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly Absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ 2 Vegetated hummocks/tussocks
- ☐ 2 Coarse woody debris >15 cm (6")
- ☐ 1 Standing dead > 25 cm (10") dbh
- ☐ 2 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

56 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: Category 2

Background Information Form

Name: H. Fogell, A. Davis		Date: February 21, 2008
Affiliation: MACTEC Engineering & Consulting		
User Address: 3301 Atlantic Ave, Raleigh, NC.		
Phone: 919-876-0416		
e-mail address akdavis@mactec.com		
Wetlands Name WA-10		
Location of Wetlands including address if available		See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application
		Sources of information used (check all that apply)
Lat/Lon or UTM 38.42564/-76.44304	Site Visit <input checked="" type="checkbox"/>	
USGS Quad Cove Point, MD	USGS Topo <input checked="" type="checkbox"/>	
Hydrologic Unit Code 20600060706	NWI Map <input checked="" type="checkbox"/>	
Wetland Size (acres) 1	OWI Map <input type="checkbox"/>	
How was size estimated? Wetlands Delineation/GIS	Aerial Photo <input checked="" type="checkbox"/>	
	Soil Survey <input checked="" type="checkbox"/>	
	ODNR - DNAP <input type="checkbox"/>	
	Delineation Report/Map <input checked="" type="checkbox"/>	
Photograph		
		
final score:	56	Provisional Wetland Category: Category 2

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Wetlands Name	WA-10		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9e: Non-native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

56 Category 2

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant	Date: February 22, 2008
Wetlands: WA-11	Rater: H. Fogell, A. Davis

1	4
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

15	14
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

35	20
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☒ Seasonal/intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☐ Part of wetland/upland (e.g. forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> dike	<input type="checkbox"/> filling/grading
<input type="checkbox"/> tile	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other- list

48	13
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☒ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetland: WA-11	Rater: H. Fogell, A. Davis

48 subtotal first page

48	0
Subtotal	Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

- ☐ Bog (10 pts)
- ☐ Fen (10 pts)
- ☐ Old Growth Forest (10 pts)
- ☐ Mature forested wetland (5 pts)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
- ☐ Relict Wet Prairies (10 pts)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
- ☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

59	11
Subtotal	Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- | | |
|---|--------------|
| 0 | Aquatic bed |
| 0 | Emergent |
| 1 | Shrub |
| 2 | Forest |
| 0 | Mudflats |
| 0 | Open water |
| 0 | Other (list) |

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
- ☐ Moderately high (4)
- ☒ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly Absent <5% cover (0)
- ☒ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- | | |
|---|---------------------------------|
| 1 | Vegetated hummocks/tussocks |
| 2 | Coarse woody debris >15 cm (6") |
| 0 | Standing dead > 25 cm (10") dbh |
| 1 | Amphibian breeding pools |

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

59 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: Category 2

Background Information Form

Name:	H. Fogell, A. Davis	Date:	February 22, 2008
Affiliation:	MACTEC Engineering & Consulting		
User Address:	3301 Atlantic Ave, Raleigh, NC.		
Phone:	919-876-0416		
e-mail address	akdavis@mactec.com		
Wetlands Name	WA-11		
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application		
	Sources of information used (check all that apply)		
Lat/Lon or UTM	38.43123/-76.45678	Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cove Point, MD	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	20600060706	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.16	OWI Map	<input type="checkbox"/>
How was size estimated?		Aerial Photo	<input checked="" type="checkbox"/>
		Soil Survey	<input checked="" type="checkbox"/>
		ODNR - DNAP	<input type="checkbox"/>
		Delineation Report/Map	<input checked="" type="checkbox"/>
	Wetlands Delineation/GIS		
Photograph			
			
final score:	59	Provisional Wetland Category:	Category 2

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 22, 2008
Wetlands Name	WA-11		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
9e: Non-native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

59 Category 2

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant		Date: February 22, 2008	
Wetlands: WA-12		Rater: H. Fogell, A. Davis	

1	11
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

12	11
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☒ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☒ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

31	19
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☒ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☒ Between stream/lake and other human use (1)
- ☒ Part of wetland/upland (e.g. forest), complex (1)
- ☐ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|--|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> dike | <input checked="" type="checkbox"/> filling/grading |
| <input type="checkbox"/> tile | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input checked="" type="checkbox"/> stormwater input | <input type="checkbox"/> other- list |

43	12
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (3)
- ☒ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☐ Moderately good (4)
- ☒ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

Site: Calvert Cliffs Nuclear Power Plant**Date:** February 21, 2008**Wetland:** WA-12**Rater:** H. Fogell, A. Davis

43 subtotal first page

43 0

Subtotal Points

Metric 5. Special Wetlands. (max 10 pts.)Check all that apply and score as indicated

- ☐ Bog (10 pts)
☐ Fen (10 pts)
☐ Old Growth Forest (10 pts)
☐ Mature forested wetland (5 pts)
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
☐ Relict Wet Prairies (10 pts)
☐ Known occurrence state/federal threatened or endangered species (10)
☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

51 8

Subtotal Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ 0 Aquatic bed
☐ 1 Emergent
☐ 1 Shrub
☐ 2 Forest
☐ 0 Mudflats
☐ 0 Open water
☐ 0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
☐ Moderately high (4)
☐ Moderate (3)
☒ Moderately low (2)
☐ Low (1)
☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
☒ Moderate 25-75% cover (-3)
☐ Sparse 5-25% cover (-1)
☐ Nearly Absent <5% cover (0)
☐ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ 1 Vegetated hummocks/tussocks
☐ 2 Coarse woody debris >15 cm (6")
☐ 1 Standing dead > 25 cm (10") dbh
☐ 1 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

51 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: Category 2

Background Information Form

Name:	H. Fogell, A. Davis	Date:	February 22, 2008
Affiliation:	MACTEC Engineering & Consulting		
User Address:	3301 Atlantic Ave, Raleigh, NC.		
Phone:	919-876-0416		
e-mail address	akdavis@mactec.com		
Wetlands Name	WA-12		
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application		
	Sources of information used (check all that apply)		
Lat/Lon or UTM	38.43020/-76.45462	Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cove Point, MD	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	20600060706	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.28	OWI Map	<input type="checkbox"/>
How was size estimated?		Aerial Photo	<input checked="" type="checkbox"/>
		Soil Survey	<input checked="" type="checkbox"/>
		ODNR - DNAP	<input type="checkbox"/>
		Delineation Report/Map	<input checked="" type="checkbox"/>
Photograph			
			
final score:	51	Provisional Wetland Category:	Category 2

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 22, 2008
Wetlands Name	WA-12		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9e: Non-native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

51 Category 2

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant		Date: February 22, 2008	
Wetlands: WA-13		Rater: H. Fogell, A. Davis	

2	2
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☒ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

16	14
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

36	20
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☒ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☐ Part of wetland/upland (e.g. forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> dike | <input type="checkbox"/> filling/grading |
| <input type="checkbox"/> tile | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other- list |

49	13
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☒ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

49	subtotal this page
----	--------------------

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetland: WA-13	Rater: H. Fogell, A. Davis

49 subtotal first page

49 Subtotal Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

- ☐ Bog (10 pts)
- ☐ Fen (10 pts)
- ☐ Old Growth Forest (10 pts)
- ☐ Mature forested wetland (5 pts)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
- ☐ Relict Wet Prairies (10 pts)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
- ☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

57 Subtotal Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ 0 Aquatic bed
- ☐ 0 Emergent
- ☐ 2 Shrub
- ☐ 1 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
- ☐ Moderately high (4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☒ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1).
- ☒ X Nearly Absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ 1 Vegetated hummocks/tussocks
- ☐ 2 Coarse woody debris >15 cm (6")
- ☐ 0 Standing dead > 25 cm (10") dbh
- ☐ 1 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

57 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: Category 2

Background Information Form

Name:	H. Fogell, A. Davis		Date:	February 22, 2008	
Affiliation:	MACTEC Engineering & Consulting				
User Address:	3301 Atlantic Ave, Raleigh, NC.				
Phone:	919-876-0416				
e-mail address	akdavis@mactec.com				
Wetlands Name	WA-13				
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application				
			Sources of information used (check all that apply)		
Lat/Lon or UTM	38.42987/-76.45614		Site Visit	<input checked="" type="checkbox"/>	
USGS Quad	Cove Point, MD		USGS Topo	<input checked="" type="checkbox"/>	
Hydrologic Unit Code	20600060706		NWI Map	<input checked="" type="checkbox"/>	
Wetland Size (acres)	0.3		OWI Map	<input type="checkbox"/>	
How was size estimated?			Aerial Photo	<input checked="" type="checkbox"/>	
			Soil Survey	<input checked="" type="checkbox"/>	
			ODNR - DNAP	<input type="checkbox"/>	
	Wetlands Delineation/GIS		Delineation Report/Map	<input checked="" type="checkbox"/>	
Photograph					
					
final score:	57		Provisional Wetland Category:	Category 2	

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 22, 2008
Wetlands Name	WA-13		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
9e: Non-native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

57 Category 2

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant		Date: February 22, 2008	
Wetlands: WA-14		Rater: H. Fogell, A. Davis	

1	3.1
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

10	9
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☒ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☒ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

25	15
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☒ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☒ Between stream/lake and other human use (1)
- ☐ Part of wetland/upland (e.g. forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☐ Recovered (7)
- ☐ Recovering (3)
- ☒ Recent or no recovery (1)

Check all disturbances observed

- | | |
|--|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> dike | <input checked="" type="checkbox"/> filling/grading |
| <input type="checkbox"/> tile | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input checked="" type="checkbox"/> stormwater input | <input type="checkbox"/> other- list |

29	4
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☐ Recovered (3)
- ☐ Recovering (2)
- ☒ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☐ Moderately good (4)
- ☐ Fair (3)
- ☒ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☐ Recovering (3)
- ☒ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetland: WA-14.	Rater: H. Fogell, A. Davis

29 subtotal first page

29	0
Subtotal	Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

- ☐ Bog (10 pts)
- ☐ Fen (10 pts)
- ☐ Old Growth Forest (10 pts)
- ☐ Mature forested wetland (5 pts)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
- ☐ Relict Wet Prairies (10 pts)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
- ☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

34	5
Subtotal	Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ 0 Aquatic bed
- ☐ 1 Emergent
- ☐ 0 Shrub
- ☐ 1 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
- ☐ Moderately high (4)
- ☐ Moderate (3)
- ☒ Moderately low (2)
- ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
- ☒ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly Absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ 1 Vegetated hummocks/tussocks
- ☐ 2 Coarse woody debris >15 cm (6")
- ☐ 0 Standing dead > 25 cm (10") dbh
- ☐ 1 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

34 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: 1 or 2 gray zone

Background Information Form

Name:	H. Fogell, A. Davis	Date:	February 22, 2008
Affiliation:	MACTEC Engineering & Consulting		
User Address:	3301 Atlantic Ave, Raleigh, NC.		
Phone:	919-876-0416		
e-mail address	akdavis@mactec.com		
Wetlands Name	WA-14		
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application		
	Sources of information used (check all that apply)		
Lat/Lon or UTM	38.42822/-76.45391	Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cove Point, MD	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	20600060706	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.37	OWI Map	<input type="checkbox"/>
How was size estimated?		Aerial Photo	<input checked="" type="checkbox"/>
		Soil Survey	<input checked="" type="checkbox"/>
		ODNR - DNAP	<input type="checkbox"/>
		Delineation Report/Map	<input checked="" type="checkbox"/>
Photograph 			
final score:	34	Provisional Wetland Category:	1 or 2 gray zone

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 22, 2008
Wetlands Name	WA-14		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9e: Non-native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

34 1 or 2 gray zone

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant	Date: February 22, 2008
Wetlands: WA-15	Rater: H. Fogell, A. Davis

2	2
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☒ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

16	14
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

32	16
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☐ Seasonal/Intermittent surface water (3)
- ☒ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☐ Part of wetland/upland (e.g. forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☐ Recovered (7)
- ☐ Recovering (3)
- ☒ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> dike | <input type="checkbox"/> filling/grading |
| <input type="checkbox"/> tile | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input checked="" type="checkbox"/> other- list |

42	10
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☒ None or none apparent (4)
- ☐ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☐ Moderately good (4)
- ☒ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☒ Recovering (3) Active beaver dam
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetland: WA-15	Rater: H. Fogell, A. Davis

42 subtotal first page

42	0
Subtotal	Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

- ☐ Bog (10 pts)
- ☐ Fen (10 pts)
- ☐ Old Growth Forest (10 pts)
- ☐ Mature forested wetland (5 pts)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
- ☐ Relict Wet Prairies (10 pts)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
- ☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

54	12
Subtotal	Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ 0 Aquatic bed
- ☐ 2 Emergent
- ☐ 1 Shrub
- ☐ 2 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
- ☐ Moderately high (4)
- ☒ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
- ☒ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly Absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ 2 Vegetated hummocks/tussocks
- ☐ 2 Coarse woody debris >15 cm (6")
- ☐ 0 Standing dead > 25 cm (10") dbh
- ☐ 3 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

54 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: Category 2

Background Information Form

Name:	H. Fogell, A. Davis	Date:	February 22, 2008
Affiliation:	MACTEC Engineering & Consulting		
User Address:	3301 Atlantic Ave, Raleigh, NC.		
Phone:	919-876-0416		
e-mail address	akdavis@mactec.com		
Wetlands Name	WA-15		
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application		
	Sources of information used (check all that apply)		
Lat/Lon or UTM	38.42583/-76.45718	Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cove Point, MD	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	20600060706	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.84	OWI Map	<input type="checkbox"/>
How was size estimated?	Aerial Photo	<input checked="" type="checkbox"/>	
	Soil Survey	<input checked="" type="checkbox"/>	
	ODNR - DNAP	<input type="checkbox"/>	
Wetlands Delineation/GIS	Delineation Report/Map	<input checked="" type="checkbox"/>	
Photograph			
			
final score:	54	Provisional Wetland Category:	Category 2

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 22, 2008
Wetlands Name	WA-15		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9e: Non-native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

54

Category 2

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant	Date: February 22, 2008
Wetlands: WA-16A	Rater: H. Fogell, A. Davis

1	1
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

9	8
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☒ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

28	19
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☒ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☒ Part of wetland/upland (e.g. forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> dike | <input type="checkbox"/> filling/grading |
| <input type="checkbox"/> tile | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other- list |

37.5	9.5
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☐ Recovered (3)
- ☒ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☐ Moderately good (4)
- ☒ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

37.5	subtotal this page
-------------	--------------------

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetland: WA-16A	Rater: H. Fogell, A. Davis

37.5 subtotal first page

37.5 **0**
Subtotal Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

- ☐ Bog (10 pts)
- ☐ Fen (10 pts)
- ☐ Old Growth Forest (10 pts)
- ☐ Mature forested wetland (5 pts)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
- ☐ Relict Wet Prairies (10 pts)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
- ☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

45.5 **8**
Subtotal Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ 0 Aquatic bed
- ☐ 1 Emergent
- ☐ 1 Shrub
- ☐ 2 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
- ☐ Moderately high (4)
- ☒ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
- ☒ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly Absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ 1 Vegetated hummocks/tussocks
- ☐ 2 Coarse woody debris >15 cm (6")
- ☐ 0 Standing dead > 25 cm (10") dbh
- ☐ 1 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

45.5 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: Category 2

Background Information Form

Name:	H. Fogell, A. Davis	Date:	February 22, 2008
Affiliation:	MACTEC Engineering & Consulting		
User Address:	3301 Atlantic Ave, Raleigh, NC.		
Phone:	919-876-0416		
e-mail address	akdavis@mactec.com		
Wetlands Name	WA-16A		
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application		
	Sources of information used (check all that apply)		
Lat/Lon or UTM	38.43001/-76.44411	Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cove Point, MD	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	20600060706	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.29	OWI Map	<input type="checkbox"/>
How was size estimated?	Aerial Photo	<input checked="" type="checkbox"/>	
	Soil Survey	<input checked="" type="checkbox"/>	
	ODNR - DNAP	<input type="checkbox"/>	
Wetlands Delineation/GIS	Delineation Report/Map	<input checked="" type="checkbox"/>	
Photograph			
			
final score:	45.5	Provisional Wetland Category:	Category 2

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 22, 2008
Wetlands Name	WA-16A		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9e: Non-native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

45.5 Category 2

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant	Date: February 22, 2008
Wetlands: WA-16B	Rater: H. Fogell, A. Davis

2	2
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☒ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

10	8
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☒ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

26	16
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☒ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☒ Part of wetland/upland (e.g. forest), complex (1)
- ☐ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☐ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☒ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> dike | <input type="checkbox"/> filling/grading |
| <input type="checkbox"/> tile | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other- list |

39	13
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☒ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

39	subtotal this page
----	--------------------

Site: Calvert Cliffs Nuclear Power Plant		Date: February 21, 2008	
Wetland:	WA-16B	Rater:	H. Fogell, A. Davis

39 subtotal first page

39 0

Subtotal Points

Metric 5. Special Wetlands. (max 10 pts.)Check all that apply and score as indicated

- ☐ Bog (10 pts)
- ☐ Fen (10 pts)
- ☐ Old Growth Forest (10 pts)
- ☐ Mature forested wetland (5 pts)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
- ☐ Relict Wet Prairies (10 pts)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
- ☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

49 10

Subtotal Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ 0 Aquatic bed
- ☐ 0 Emergent
- ☐ 1 Shrub
- ☐ 2 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
- ☐ Moderately high (4)
- ☒ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly Absent <5% cover (0)
- ☒ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ 1 Vegetated hummocks/tussocks
- ☐ 2 Coarse woody debris >15 cm (6")
- ☐ 0 Standing dead > 25 cm (10") dbh
- ☐ 0 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

49 GRAND TOTAL (max 100 pts)

Provisional Wetland Category: Category 2

Background Information Form

Name:	H. Fogell, A. Davis	Date:	February 22, 2008
Affiliation:	MACTEC Engineering & Consulting		
User Address:	3301 Atlantic Ave, Raleigh, NC.		
Phone:	919-876-0416		
e-mail address	akdavis@mactec.com		
Wetlands Name	WA-16B		
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application		
	Sources of information used (check all that apply)		
Lat/Lon or UTM	38.42938/-76.44330	Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cove Point, MD	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	20600060706	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.36	OWI Map	<input type="checkbox"/>
How was size estimated?	Aerial Photo	<input checked="" type="checkbox"/>	
	Soil Survey	<input checked="" type="checkbox"/>	
	ODNR - DNAP	<input type="checkbox"/>	
Wetlands Delineation/GIS	Delineation Report/Map	<input checked="" type="checkbox"/>	
Photograph			
			
final score:	49	Provisional Wetland Category:	Category 2

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 22, 2008
Wetlands Name	WA-16B		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
9e: Non-native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

49 Category 2

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant	Date: February 22, 2008
Wetlands: WA-16C	Rater: H. Fogell, A. Davis

2	2
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☒ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

4	2
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☒ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture; park, conservation tillage, new fallow field. (3)
- ☒ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

20	16
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☒ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☒ Part of wetland/upland (e.g. forest), complex (1)
- ☐ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☒ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☐ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☐ Recovered (7)
- ☐ Recovering (3)
- ☒ Recent or no recovery (1)

Check all disturbances observed	
<input checked="" type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> dike	<input type="checkbox"/> filling/grading
<input type="checkbox"/> tile	<input checked="" type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input checked="" type="checkbox"/> stormwater input	<input checked="" type="checkbox"/> other- list

23	3
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☐ Recovered (3)
- ☐ Recovering (2)
- ☒ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☐ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☒ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☐ Recovering (3)
- ☒ Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input checked="" type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetland: WA-16C	Rater: H. Fogell, A. Davis

23 subtotal first page

23 **0**

Subtotal Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

- ☐ Bog (10 pts)
- ☐ Fen (10 pts)
- ☐ Old Growth Forest (10 pts)
- ☐ Mature forested wetland (5 pts)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
- ☐ Relict Wet Prairies (10 pts)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
- ☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

30 **7**

Subtotal Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ 0 Aquatic bed
- ☐ 1 Emergent
- ☐ 1 Shrub
- ☐ 0 Forest
- ☐ 0 Mudflats
- ☐ 1 Open water
- ☐ 0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
- ☐ Moderately high (4)
- ☐ Moderate (3)
- ☒ Moderately low (2)
- ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
- ☒ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly Absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ 2 Vegetated hummocks/tussocks
- ☐ 2 Coarse woody debris >15 cm (6")
- ☐ 0 Standing dead > 25 cm (10") dbh
- ☐ 1 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

30 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: 1 or 2 gray zone

Background Information Form

Name:	H. Fogell, A. Davis	Date:	February 22, 2008
Affiliation:	MACTEC Engineering & Consulting		
User Address:	3301 Atlantic Ave, Raleigh, NC.		
Phone:	919-876-0416		
e-mail address	akdavis@mactec.com		
Wetlands Name	WA-16C		
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application		
	Sources of information used (check all that apply)		
Lat/Lon or UTM	38.42982/-76.44318	Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cove Point, MD	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	20600060706	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.51	OWI Map	<input type="checkbox"/>
How was size estimated?	Aerial Photo		<input checked="" type="checkbox"/>
	Soil Survey		<input checked="" type="checkbox"/>
	ODNR - DNAP		<input type="checkbox"/>
Wetlands Delineation/GIS	Delineation Report/Map		<input checked="" type="checkbox"/>
Photograph			
			
final score:	30	Provisional Wetland Category:	1 or 2 gray zone

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 22, 2008
Wetlands Name	WA-16C		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9e: Non-native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9
2	35-44.9
2 or 3	45-59.9
3	60-64.9
	65-100

30

1 or 2 gray zone

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant	Date: February 22, 2008
Wetlands: WA-17	Rater: H. Fogell, A. Davis

2	2
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☒ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

16	14
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

38	22
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☐ Seasonal/Intermittent surface water (3)
- ☒ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☐ Part of wetland/upland (e.g. forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|--|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> dike | <input type="checkbox"/> filling/grading |
| <input type="checkbox"/> tile | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input checked="" type="checkbox"/> stormwater input | <input type="checkbox"/> other- list |

51	13
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☒ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetland: WA-17	Rater: H. Fogell, A. Davis

51 subtotal first page

51 0

Subtotal Points

Metric 5. Special Wetlands. (max 10 pts.)Check all that apply and score as indicated

- | | |
|--------------------------|--|
| <input type="checkbox"/> | Bog (10 pts) |
| <input type="checkbox"/> | Fen (10 pts) |
| <input type="checkbox"/> | Old Growth Forest (10 pts) |
| <input type="checkbox"/> | Mature forested wetland (5 pts) |
| <input type="checkbox"/> | Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts) |
| <input type="checkbox"/> | Lake Erie coastal/tributary wetland-restricted hydrology (5 pts) |
| <input type="checkbox"/> | Lake Plain Sand Prairies (Oak Openings) (10 pts) |
| <input type="checkbox"/> | Relict Wet Prairies (10 pts) |
| <input type="checkbox"/> | Known occurrence state/federal threatened or endangered species (10) |
| <input type="checkbox"/> | Significant migratory songbird/waterfowl habitat or usage (10 pts) |
| <input type="checkbox"/> | Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts) |

62 11

Subtotal Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- | | |
|---|--------------|
| 0 | Aquatic bed |
| 0 | Emergent |
| 2 | Shrub |
| 2 | Forest |
| 0 | Mudflats |
| 0 | Open water |
| 0 | Other (list) |

6b. Horizontal (plan view) interspersions

Select only one

- | | |
|-------------------------------------|---------------------|
| <input type="checkbox"/> | High (5) |
| <input type="checkbox"/> | Moderately high (4) |
| <input checked="" type="checkbox"/> | Moderate (3) |
| <input type="checkbox"/> | Moderately low (2) |
| <input type="checkbox"/> | Low (1) |
| <input type="checkbox"/> | None (0) |

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- | | |
|-------------------------------------|-----------------------------|
| <input type="checkbox"/> | Extensive >75 % cover (-5) |
| <input type="checkbox"/> | Moderate 25-75% cover (-3) |
| <input checked="" type="checkbox"/> | Sparse 5-25% cover (-1) |
| <input type="checkbox"/> | Nearly Absent <5% cover (0) |
| <input type="checkbox"/> | Absent (1) |

6d. Microtopography

Score all present using 0 to 3 scale

- | | |
|---|---------------------------------|
| 0 | Vegetated hummocks/tussocks |
| 1 | Coarse woody debris >15 cm (6") |
| 1 | Standing dead > 25 cm (10") dbh |
| 3 | Amphibian breeding pools |

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

62 GRAND TOTAL (max 100 pts)

Provisional Wetland Category: Category 2 or 3

Background Information Form

Name:	H. Fogell, A. Davis	Date:	February 22, 2008
Affiliation:	MACTEC Engineering & Consulting		
User Address:	3301 Atlantic Ave, Raleigh, NC.		
Phone:	919-876-0416		
e-mail address	akdavis@mactec.com		
Wetlands Name	WA-17		
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application		
	Sources of information used (check all that apply)		
Lat/Lon or UTM	38.42677/-76.45499	Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cove Point, MD	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	20600060706	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.3	OWI Map	<input type="checkbox"/>
How was size estimated?	Aerial Photo		<input checked="" type="checkbox"/>
	Soil Survey		<input checked="" type="checkbox"/>
	ODNR - DNAP		<input type="checkbox"/>
Wetlands Delineation/GIS	Delineation Report/Map		<input checked="" type="checkbox"/>
Photograph			
			
final score:	62	Provisional Wetland Category:	Category 2 or 3

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 22, 2008
Wetlands Name	WA-17		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
9e: Non-native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

62 Category 2 or 3

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetlands: WA-2	Rater: H. Fogell, A. Davis

1	1
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

15	14
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

36	21
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☒ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☒ Part of wetland/upland (e.g. forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

49	13
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☒ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetland: WA-2	Rater: H. Fogell, A. Davis

49 subtotal first page

59	10
Subtotal	Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

- ☐ Bog (10 pts)
- ☐ Fen (10 pts)
- ☐ Old Growth Forest (10 pts)
- ☐ Mature forested wetland (5 pts)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
- ☐ Relict Wet Prairies (10 pts)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☒ Significant migratory songbird/waterfowl habitat or usage (10 pts)
- ☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

72	13
Subtotal	Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ 0 Aquatic bed
- ☐ 0 Emergent
- ☐ 2 Shrub
- ☐ 2 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
- ☐ Moderately high (4)
- ☒ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly Absent <5% cover (0)
- ☒ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ 0 Vegetated hummocks/tussocks
- ☐ 3 Coarse woody debris >15 cm (6")
- ☐ 0 Standing dead > 25 cm (10") dbh
- ☐ 2 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

72 GRAND TOTAL (max 100 pts)

Provisional Wetland Category: Category 3

Background Information Form

Name:	H. Fogell, A. Davis		Date:	February 21, 2008	
Affiliation:	MACTEC Engineering & Consulting				
User Address:	3301 Atlantic Ave, Raleigh, NC.				
Phone:	919-876-0416				
e-mail address	akdavis@mactec.com				
Wetlands Name	WA-2				
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application				
			Sources of information used (check all that apply)		
Lat/Lon or UTM	38.42448/-76.43513		Site Visit	<input checked="" type="checkbox"/>	
USGS Quad	Cove Point, MD		USGS Topo	<input checked="" type="checkbox"/>	
Hydrologic Unit Code	20600040403		NWI Map	<input checked="" type="checkbox"/>	
Wetland Size (acres)	0.3		OWI Map	<input type="checkbox"/>	
How was size estimated?			Aerial Photo	<input checked="" type="checkbox"/>	
			Soil Survey	<input checked="" type="checkbox"/>	
			ODNR - DNAP	<input type="checkbox"/>	
			Delineation Report/Map	<input checked="" type="checkbox"/>	
Photograph 					
final score:	72		Provisional Wetland Category:	Category 3	

Narrative Rating Questions

Name: H. Fogell, A. Davis	Date: February 21, 2008
Wetlands Name WA-2	

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
9e: Non-native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

72 Category 3

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetlands: WA-3	Rater: H. Fogell, A. Davis

1	1
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

11	10
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☒ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☒ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

32	21
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☒ Seasonal/intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☒ Between stream/lake and other human use (1)
- ☒ Part of wetland/upland (e.g. forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☒ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☐ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

44.5	12.5
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☒ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☒ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input checked="" type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

44.5	subtotal this page
------	--------------------

Site: Calvert Cliffs Nuclear Power Plant		Date: February 21, 2008	
Wetland:	WA-3	Rater:	H. Fogell, A. Davis

44.5 subtotal first page

44.5	0
Subtotal	Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

- ☐ Bog (10 pts)
- ☐ Fen (10 pts)
- ☐ Old Growth Forest (10 pts)
- ☐ Mature forested wetland (5 pts)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
- ☐ Relict Wet Prairies (10 pts)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
- ☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

50.5	6
Subtotal	Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ 0 Aquatic bed
- ☐ 0 Emergent
- ☐ 0 Shrub
- ☐ 0 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
- ☐ Moderately high (4)
- ☒ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
- ☒ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly Absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ 1 Vegetated hummocks/tussocks
- ☐ 2 Coarse woody debris >15 cm (6")
- ☐ 0 Standing dead > 25 cm (10") dbh
- ☐ 3 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

50.5 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: Category 2

Background Information Form

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Affiliation:	MACTEC Engineering & Consulting		
User Address:	3301 Atlantic Ave, Raleigh, NC.		
Phone:	919-876-0416		
e-mail address	akdavis@mactec.com		
Wetlands Name	WA-3		
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application		
	Sources of information used (check all that apply)		
Lat/Lon or UTM	38.42573/-76.43598	Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cove Point, MD	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	20600040403	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.42	OWI Map	<input type="checkbox"/>
How was size estimated?	Aerial Photo	<input checked="" type="checkbox"/>	
	Soil Survey	<input checked="" type="checkbox"/>	
	ODNR - DNAP	<input type="checkbox"/>	
Wetlands Delineation/GIS	Delineation Report/Map	<input checked="" type="checkbox"/>	
Photograph			
			
final score:	50.5	Provisional Wetland Category:	Category 2

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Wetlands Name	WA-3		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9e: Non-native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

50.5 Category 2

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetlands: WA-4 North	Rater: H. Fogell, A. Davis

1	13
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

14	13
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☒ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

29	15
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3)
- ☒ Precipitation (1)
- ☒ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☒ Between stream/lake and other human use (1)
- ☒ Part of wetland/upland (e.g. forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☐ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

37	8
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☐ Recovered (3)
- ☒ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☐ Moderately good (4)
- ☒ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input checked="" type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetland: WA-4 North	Rater: H. Fogell, A. Davis

37 subtotal first page

37 0

Subtotal Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

- ☐ Bog (10 pts)
- ☐ Fen (10 pts)
- ☐ Old Growth Forest (10 pts)
- ☐ Mature forested wetland (5 pts)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
- ☐ Relict Wet Prairies (10 pts)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
- ☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

44 7

Subtotal Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ 0 Aquatic bed
- ☐ 0 Emergent
- ☐ 0 Shrub
- ☐ 0 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
- ☐ Moderately high (4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☒ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly Absent <5% cover (0)
- ☒ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ 0 Vegetated hummocks/tussocks
- ☐ 2 Coarse woody debris >15 cm (6")
- ☐ 0 Standing dead > 25 cm (10") dbh
- ☐ 3 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

44 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: modified 2

Background Information Form

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Affiliation:	MACTEC Engineering & Consulting		
User Address:	3301 Atlantic Ave, Raleigh, NC.		
Phone:	919-876-0416		
e-mail address	akdavis@mactec.com		
Wetlands Name	WA-4 North		
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application		
		Sources of information used (check all that apply)	
Lat/Lon or UTM	38.42671/-76.43335	Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cove Point, MD	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	20600040403	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.16	OWI Map	<input type="checkbox"/>
How was size estimated?		Aerial Photo	<input checked="" type="checkbox"/>
		Soil Survey	<input checked="" type="checkbox"/>
		ODNR - DNAP	<input type="checkbox"/>
		Delineation Report/Map	<input checked="" type="checkbox"/>
Wetlands Delineation/GIS			
Photograph			
			
final score:	44	Provisional Wetland Category:	modified 2

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Wetlands Name	WA-4 North		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
9e: Non-native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone	30-34.9
modified 2	35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

44 modified 2

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetlands: WA-4 South	Rater: H. Fogell, A. Davis

2	2
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☒ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

11	9
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☒ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☒ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

29	18
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3)
- ☒ Precipitation (1)
- ☐ Seasonal/intermittent surface water (3)
- ☒ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☒ Between stream/lake and other human use (1)
- ☒ Part of wetland/upland (e.g. forest), complex (1)
- ☐ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|--|--|
| <input type="checkbox"/> ditch | <input checked="" type="checkbox"/> point source (nonstormwater) |
| <input checked="" type="checkbox"/> dike | <input checked="" type="checkbox"/> filling/grading |
| <input type="checkbox"/> tile | <input checked="" type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input checked="" type="checkbox"/> stormwater input | <input type="checkbox"/> other- list |

39	10
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☒ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☐ Moderately good (4)
- ☒ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input checked="" type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetland: WA-4 South	Rater: H. Fogell, A. Davis

39 subtotal first page

39	0
Subtotal	Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

- ☐ Bog (10 pts)
- ☐ Fen (10 pts)
- ☐ Old Growth Forest (10 pts)
- ☐ Mature forested wetland (5 pts)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
- ☐ Relict Wet Prairies (10 pts)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
- ☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

52	13
Subtotal	Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ 0 Aquatic bed
- ☐ 0 Emergent
- ☐ 1 Shrub
- ☐ 2 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
- ☐ Moderately high (4)
- ☐ Moderate (3)
- ☒ X Moderately low (2)
- ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly Absent <5% cover (0)
- ☒ X Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ 2 Vegetated hummocks/tussocks
- ☐ 2 Coarse woody debris >15 cm (6")
- ☐ 0 Standing dead > 25 cm (10") dbh
- ☐ 3 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

52 GRAND TOTAL (max 100 pts)

Provisional Wetland Category: Category 2

Background Information Form

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Affiliation:	MACTEC Engineering & Consulting		
User Address:	3301 Atlantic Ave, Raleigh, NC.		
Phone:	919-876-0416		
e-mail address	akdavis@mactec.com		
Wetlands Name	WA-4 South		
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application		
	Sources of information used (check all that apply)		
Lat/Lon or UTM	38.42603/-76.43367	Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cove Point, MD	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	20600040403	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.6	OWI Map	<input type="checkbox"/>
How was size estimated?	Aerial Photo	<input checked="" type="checkbox"/>	
	Soil Survey	<input checked="" type="checkbox"/>	
	ODNR - DNAP	<input type="checkbox"/>	
Wetlands Delineation/GIS	Delineation Report/Map	<input checked="" type="checkbox"/>	
Photograph			
			
final score:	52	Provisional Wetland Category:	Category 2

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Wetlands Name	WA-4 South		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
9e: Non-native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

52

Category 2

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetlands: WA-5	Rater: H. Fogell, A. Davis

2	2
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☒ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

16	14
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check).

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average).

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

36	20
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☒ Seasonal/intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☐ Part of wetland/upland (e.g. forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> dike | <input type="checkbox"/> filling/grading |
| <input type="checkbox"/> tile | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other- list |

49	13
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☒ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetland: WA-5	Rater: H. Fogell, A. Davis

49 subtotal first page

49 0

Subtotal Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

- ☐ Bog (10 pts)
- ☐ Fen (10 pts)
- ☐ Old Growth Forest (10 pts)
- ☐ Mature forested wetland (5 pts)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
- ☐ Relict Wet Prairies (10 pts)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
- ☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

61 12

Subtotal Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ 0 Aquatic bed
- ☐ 0 Emergent
- ☐ 2 Shrub
- ☐ 1 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
- ☐ Moderately high (4)
- ☒ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly Absent <5% cover (0)
- ☒ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ 2 Vegetated hummocks/tussocks
- ☐ 1 Coarse woody debris >15 cm (6")
- ☐ 0 Standing dead > 25 cm (10") dbh
- ☐ 2 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

61 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: Category 2 or 3

Background Information Form

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Affiliation:	MACTEC Engineering & Consulting		
User Address:	3301 Atlantic Ave, Raleigh, NC.		
Phone:	919-876-0416		
e-mail address	akdavis@mactec.com		
Wetlands Name	WA-5		
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application		
	Sources of information used (check all that apply)		
Lat/Lon or UTM	38.42157/-76.43643	Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cove Point, MD	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	20600060706	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.32	OWI Map	<input type="checkbox"/>
How was size estimated?	Aerial Photo		<input checked="" type="checkbox"/>
	Soil Survey		<input checked="" type="checkbox"/>
	ODNR - DNAP		<input type="checkbox"/>
Wetlands Delineation/GIS	Delineation Report/Map		<input checked="" type="checkbox"/>
Photograph			
			
final score:	61	Provisional Wetland Category:	Category 2 or 3

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Wetlands Name	WA-5		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
9e: Non-native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

61 Category 2 or 3

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant		Date: February 21, 2008	
Wetlands: WA-6		Rater: H. Fogell, A. Davis	

0	0
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☒ <0.1 acres (0.04ha) (0 pts)

14	14
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

34	20
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☒ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☐ Part of wetland/upland (e.g. forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> dike | <input type="checkbox"/> filling/grading |
| <input type="checkbox"/> tile | <input checked="" type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other- list |

47	13
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☒ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☒ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetland: WA-6	Rater: H. Fogell, A. Davis

47 subtotal first page

47 Subtotal Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

- ☐ Bog (10 pts)
- ☐ Fen (10 pts)
- ☐ Old Growth Forest (10 pts)
- ☐ Mature forested wetland (5 pts)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
- ☐ Relict Wet Prairies (10 pts)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
- ☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

56 Subtotal Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ 0 Aquatic bed
- ☐ 0 Emergent
- ☐ 1 Shrub
- ☐ 1 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
- ☐ Moderately high (4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☒ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly Absent <5% cover (0)
- ☒ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ 1 Vegetated hummocks/tussocks
- ☐ 2 Coarse woody debris >15 cm (6")
- ☐ 0 Standing dead > 25 cm (10") dbh
- ☐ 2 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

56 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: Category 2

Background Information Form

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Affiliation:	MACTEC Engineering & Consulting		
User Address:	3301 Atlantic Ave, Raleigh, NC.		
Phone:	919-876-0416		
e-mail address	akdavis@mactec.com		
Wetlands Name	WA-6		
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application		
	Sources of information used (check all that apply)		
Lat/Lon or UTM	38.42040/-76.43811	Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cove Point, MD	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	20600060706	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.08	OWI Map	<input type="checkbox"/>
How was size estimated?	Aerial Photo	<input checked="" type="checkbox"/>	
	Soil Survey	<input checked="" type="checkbox"/>	
	ODNR - DNAP	<input type="checkbox"/>	
Wetlands Delineation/GIS	Delineation Report/Map	<input checked="" type="checkbox"/>	
Photograph			
			
final score:	56	Provisional Wetland Category:	Category 2

Narrative Rating Questions

Name: H. Fogell, A. Davis	Date: February 21, 2008
Wetlands Name WA-6	

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
9e: Non-native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

56 Category 2

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant		Date: February 21, 2008	
Wetlands:		Rater: H. Fogell, A. Davis	

2	2
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☒ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

16	14
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

39	23
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☒ Other groundwater (3)
- ☒ Precipitation (1)
- ☐ Seasonal/Intermittent surface water (3)
- ☒ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☐ Part of wetland/upland (e.g. forest), complex (1)
- ☒ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☒ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☐ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☒ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> dike | <input type="checkbox"/> filling/grading |
| <input type="checkbox"/> tile | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other- list |

58	19
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☒ None or none apparent (4)
- ☐ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☒ Very good (6)
- ☐ Good (5)
- ☐ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☒ None or none apparent (9)
- ☐ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

58	subtotal this page
----	--------------------

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetland: WA-7	Rater: H. Fogell, A. Davis

58 subtotal first page

63 **5**
Subtotal Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

- ☐ Bog (10 pts)
- ☐ Fen (10 pts)
- ☐ Old Growth Forest (10 pts)
- ☒ Mature forested wetland (5 pts)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
- ☐ Relict Wet Prairies (10 pts)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
- ☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

81 **18**
Subtotal Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ 2 Aquatic bed
- ☐ 0 Emergent
- ☐ 0 Shrub
- ☐ 2 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
- ☐ Moderately high (4)
- ☒ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly Absent <5% cover (0)
- ☒ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ 2 Vegetated hummocks/tussocks
- ☐ 3 Coarse woody debris >15 cm (6")
- ☐ 2 Standing dead > 25 cm (10") dbh
- ☐ 3 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

81 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: Category 3

Background Information Form

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Affiliation:	MACTEC Engineering & Consulting		
User Address:	3301 Atlantic Ave, Raleigh, NC.		
Phone:	919-876-0416		
e-mail address	akdavis@mactec.com		
Wetlands Name	WA-7		
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application		
	Sources of information used (check all that apply)		
Lat/Lon or UTM	38.42200/-76.43982	Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cove Point, MD	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	20600060706	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	1.66	OWI Map	<input type="checkbox"/>
How was size estimated?	Aerial Photo	<input checked="" type="checkbox"/>	
	Soil Survey	<input checked="" type="checkbox"/>	
	ODNR - DNAP	<input type="checkbox"/>	
Wetlands Delineation/GIS	Delineation Report/Map	<input checked="" type="checkbox"/>	
Photograph			
			
final score:	81	Provisional Wetland Category:	Category 3

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Wetlands Name	WA-7		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
9e: Non-native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

81 Category 3

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetlands: WA-8 [Did Not Score]	Rater: H. Fogell, A. Davis

0	0
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

0	0
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check).

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average).

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

0	0
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3)
- ☐ Precipitation (1)
- ☐ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☐ Part of wetland/upland (e.g. forest), complex (1)
- ☐ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
- ☒ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☐ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.

(select one or double check & average)

- ☐ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

- ☐ None or none apparent (12)
- ☐ Recovered (7)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> dike | <input type="checkbox"/> filling/grading |
| <input type="checkbox"/> tile | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other- list |

0	0
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☐ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☐ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☐ Recovering (3)
- ☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

0	subtotal this page
---	--------------------

Site: Calvert Cliffs Nuclear Power Plant

Date: February 21, 2008

Wetland: WA-8 [Did Not Score]

Rater: H. Fogell, A. Davis

0 subtotal first page

0 0

Subtotal Points

Metric 5. Special Wetlands. (max 10 pts.)Check all that apply and score as indicated

- ☐ Bog (10 pts)
☐ Fen (10 pts)
☐ Old Growth Forest (10 pts)
☐ Mature forested wetland (5 pts)
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
☐ Relict Wet Prairies (10 pts)
☐ Known occurrence state/federal threatened or endangered species (10)
☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

0 0

Subtotal Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ Aquatic bed
☐ Emergent
☐ Shrub
☐ Forest
☐ Mudflats
☐ Open water
☐ Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
☐ Moderately high (4)
☐ Moderate (3)
☐ Moderately low (2)
☐ Low (1)
☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
☐ Moderate 25-75% cover (-3)
☐ Sparse 5-25% cover (-1)
☐ Nearly Absent <5% cover (0)
☐ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ Vegetated hummocks/tussocks
☐ Coarse woody debris >15 cm (6")
☐ Standing dead > 25 cm (10") dbh
☐ Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

0 GRAND TOTAL (max 100 pts)

Provisional Wetland Category: Category 1

Background Information Form

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Affiliation:	MACTEC Engineering & Consulting		
User Address:	3301 Atlantic Ave, Raleigh, NC.		
Phone:	919-876-0416		
e-mail address	akdavis@mactec.com		
Wetlands Name	WA-8 [Did Not Score]		
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application. Did not score this area, because it was an incised stream.		
	Sources of information used (check all that apply)		
Lat/Lon or UTM	38.42233/-76.44245	Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cove Point, MD	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	20600060706	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	N/A	OWI Map	<input type="checkbox"/>
How was size estimated?		Aerial Photo	<input checked="" type="checkbox"/>
		Soil Survey	<input checked="" type="checkbox"/>
		ODNR - DNAP	<input type="checkbox"/>
		Delineation Report/Map	<input checked="" type="checkbox"/>
Photograph			
			
final score:	0	Provisional Wetland Category:	Category 1

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Wetlands Name	WA-8 [Did Not Score]		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9e: Non-native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

0 Category 1

Table based on FEB 2001 OEPA Standards

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetlands: WA-9	Rater: H. Fogell, A. Davis

2	2
Subtotal	Points

Metric 1. Wetland Area (size). (max 6 pts)Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
☒ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☐ <0.1 acres (0.04ha) (0 pts)

16	14
Subtotal	Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)2a. Calculate average buffer width (select one, do not double check)

- ☒ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

44	28
Subtotal	Points

Metric 3. Hydrology. (max 30 pts)3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
☒ Other groundwater (3)
☒ Precipitation (1)
☐ Seasonal/Intermittent surface water (3)
☒ Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
☐ Between stream/lake and other human use (1)
☒ Part of wetland/upland (e.g. forest), complex (1)
☒ Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- ☐ >0.7 (27.6in) (3)
☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
☒ <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.(select one or double check & average)

- ☒ Semi- to permanently inundated/saturated (4)
☐ Regularly inundated/saturated (3)
☐ Seasonally inundated (2)
☐ Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.(select one or double check & average)

- ☒ None or none apparent (12)
☐ Recovered (7)
☐ Recovering (3)
☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> dike | <input type="checkbox"/> filling/grading |
| <input type="checkbox"/> tile | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other- list |

58	14
Subtotal	Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)4a. Substrate disturbance. Score one or double check and average.

- ☒ None or none apparent (4)
☒ Recovered (3)
☐ Recovering (2)
☐ Recent or no recovery (1)

4b. Habitat development. Select one.

- ☐ Excellent (7)
☐ Very good (6)
☐ Good (5)
☐ Moderately good (4)
☒ Fair (3)
☐ Poor to fair (2)
☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☒ None or none apparent (9)
☒ Recovered (6)
☐ Recovering (3)
☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

58	subtotal this page
----	--------------------

Site: Calvert Cliffs Nuclear Power Plant	Date: February 21, 2008
Wetland: WA-9	Rater: H. Fogell, A. Davis

58 subtotal first page

58	0
Subtotal	Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

- ☐ Bog (10 pts)
- ☐ Fen (10 pts)
- ☐ Old Growth Forest (10 pts)
- ☐ Mature forested wetland (5 pts)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10 pts)
- ☐ Relict Wet Prairies (10 pts)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/waterfowl habitat or usage (10 pts)
- ☐ Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

67	9
Subtotal	Points

Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- ☐ 0 Aquatic bed
- ☐ 1 Emergent
- ☐ 0 Shrub
- ☐ 2 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other (list)

6b. Horizontal (plan view) interspersions

Select only one

- ☐ High (5)
- ☐ Moderately high (4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☒ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

- ☐ Extensive >75 % cover (-5)
- ☒ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly Absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

- ☐ 2 Vegetated hummocks/tussocks
- ☐ 2 Coarse woody debris >15 cm (6")
- ☐ 1 Standing dead > 25 cm (10") dbh
- ☐ 3 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more


Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

67 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: Category 3

Background Information Form

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Affiliation:	MACTEC Engineering & Consulting		
User Address:	3301 Atlantic Ave, Raleigh, NC.		
Phone:	919-876-0416		
e-mail address	akdavis@mactec.com		
Wetlands Name	WA-9		
Location of Wetlands including address if available	See ORAM Figure in CCNPP Wetlands Master Plan/USACE IP Application		
	Sources of information used (check all that apply)		
Lat/Lon or UTM	38.42359/-76.44224	Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cove Point, MD	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	20600060706	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.7	OWI Map	<input type="checkbox"/>
How was size estimated?	Aerial Photo		<input checked="" type="checkbox"/>
	Soil Survey		<input checked="" type="checkbox"/>
	ODNR - DNAP		<input type="checkbox"/>
Wetlands Delineation/GIS	Delineation Report/Map		<input checked="" type="checkbox"/>
Photograph			
			
final score:	67	Provisional Wetland Category:	Category 3

Narrative Rating Questions

Name:	H. Fogell, A. Davis	Date:	February 21, 2008
Wetlands Name	WA-9		

1: Critical Habitat	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
2: Threatened or Endangered Species	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
3: Documented High Quality Wetland	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
4: Significant Breeding or Concentration Area (waterfowl)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
5: Category 1 Wetlands (hydrologically isolated)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
6: Bogs	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
7: Fens	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8a: "Old Growth Forest"	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
8b: Mature Forested Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9a: Lake Erie Coastal and Tributary Wetlands	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9c: Hydrology unrestricted	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9d: Native Species Predominate	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
9e: Non-native Species Predominate	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
10: Oak Openings	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
11: Relict Wet Prairies	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone modified 2	30-34.9 35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

















67 Category 3

Table based on FEB 2001 OEPA Standards

















APPENDIX B

PHOTO LOG OF IMPACTED STREAM REACHES



**Calvert Cliffs Nuclear Power Plant (CCNPP)
Impact Streams Photo Log**

	PHOTOLOG SHEET
	Site: CCNPP/ UT-JC-I-1
	Calvert County, Maryland
	Adjacent Rapanos ID: RA-IVC-A
	Adjacent Wetland Assessment Area IV
	Date: April, 2008
	Photographed by: MACTEC
	Description: Upstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.
	RBP Score: 105
	Benthic IBI Score: TBD
	Temp (degrees C): 13.4
	D.O. (mg/liter): 10.3
	Salinity (%): 0.00
	pH: 6.0
	Conductivity (uS): 0.03
	Turbidity (NTU): <10.0
	Site: CCNPP/ UT-JC-I-1
	Calvert County, Maryland
	Adjacent Rapanos ID: RA-IVC-A
	Adjacent Wetland Assessment Area IV
	Date: April, 2008
	Photographed by: MACTEC
	Description: Downstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.
	RBP Score: 105
	Benthic IBI Score: TBD
	Temp (degrees C): 13.4
	D.O. (mg/liter): 10.3
	Salinity (%): 0.00
	pH: 6.0
	Conductivity (uS): 0.03
	Turbidity (NTU): <10.0

















Calvert Cliffs Nuclear Power Plant (CCNPP)
Impact Streams Photo Log

	PHOTOLOG SHEET
	Site: CCNPP/ UT-JC-I-2
	Calvert County, Maryland
	Adjacent Rapanos ID: RA-IVN-D
	Adjacent Wetland Assessment Area IV
	Date: April, 2008
	Photographed by: MACTEC
	Description: Upstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.
	RBP Score: 138
	Benthic IBI Score: TBD
	Temp (degrees C): 15.8
	D.O. (mg/liter): 10.60
	Salinity (%): 0.00
	pH: 7.2
	Conductivity (uS): 0.08
	Turbidity (NTU): 0.79
	Site: CCNPP/ UT-JC-I-2
	Calvert County, Maryland
	Adjacent Rapanos ID: RA-IVN-D
	Adjacent Wetland Assessment Area IV
	Date: April, 2008
	Photographed by: MACTEC
	Description: Downstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.
	RBP Score: 138
	Benthic IBI Score: TBD
	Temp (degrees C): 15.8
	D.O. (mg/liter): 10.60
	Salinity (%): 0.00
	pH: 7.2
	Conductivity (uS): 0.08
	Turbidity (NTU): 0.79



Calvert Cliffs Nuclear Power Plant (CCNPP)
Impact Streams Photo Log

	PHOTOLOG SHEET Site: CCNPP/ UT-JC-I-3 Calvert County, Maryland Adjacent Rapanos ID: RA-IVN-A,B,C Adjacent Wetland Assessment Area IV Date: April, 2008 Photographed by: MACTEC
	Description: Upstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone. RBP Score: 129 Benthic IBI Score: TBD Temp (degrees C): 14.6 D.O. (mg/liter): 11.40 Salinity (%): 0.02 pH: 7.2 Conductivity (uS): 0.53 Turbidity (NTU): <10.0
	Site: CCNPP/ UT-JC-I-3 Calvert County, Maryland Adjacent Rapanos ID: RA-IVN-A,B,C Adjacent Wetland Assessment Area IV Date: April, 2008 Photographed by: MACTEC
	Description: Downstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone. RBP Score: 129 Benthic IBI Score: TBD Temp (degrees C): 14.6 D.O. (mg/liter): 11.40 Salinity (%): 0.02 pH: 7.2 Conductivity (uS): 0.53 Turbidity (NTU): <10.0



Calvert Cliffs Nuclear Power Plant (CCNPP)
Impact Streams Photo Log

	PHOTOLOG SHEET
	Site: CCNPP/ UT-JC-I-4
	Calvert County, Maryland
	Adjacent Rapanos ID: RA-IVN-B
	Adjacent Wetland Assessment Area IV
	Date: April, 2008
	Photographed by: MACTEC
	Description: Upstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.
	RBP Score: 126
	Benthic IBI Score: N/A
	Temp (degrees C): 16.9
	D.O. (mg/liter): 10.98
	Salinity (%): 0.00
	pH: 6.4
	Conductivity (uS): 0.05
	Turbidity (NTU): <10.0
	Site: CCNPP/ UT-JC-I-4
	Calvert County, Maryland
	Adjacent Rapanos ID: RA-IVN-B
	Adjacent Wetland Assessment Area IV
	Date: April, 2008
	Photographed by: MACTEC
	Description: Downstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.
	RBP Score: 126
	Benthic IBI Score: N/A
	Temp (degrees C): 16.9
	D.O. (mg/liter): 10.98
	Salinity (%): 0.00
	pH: 6.4
	Conductivity (uS): 0.05
	Turbidity (NTU): <10.0


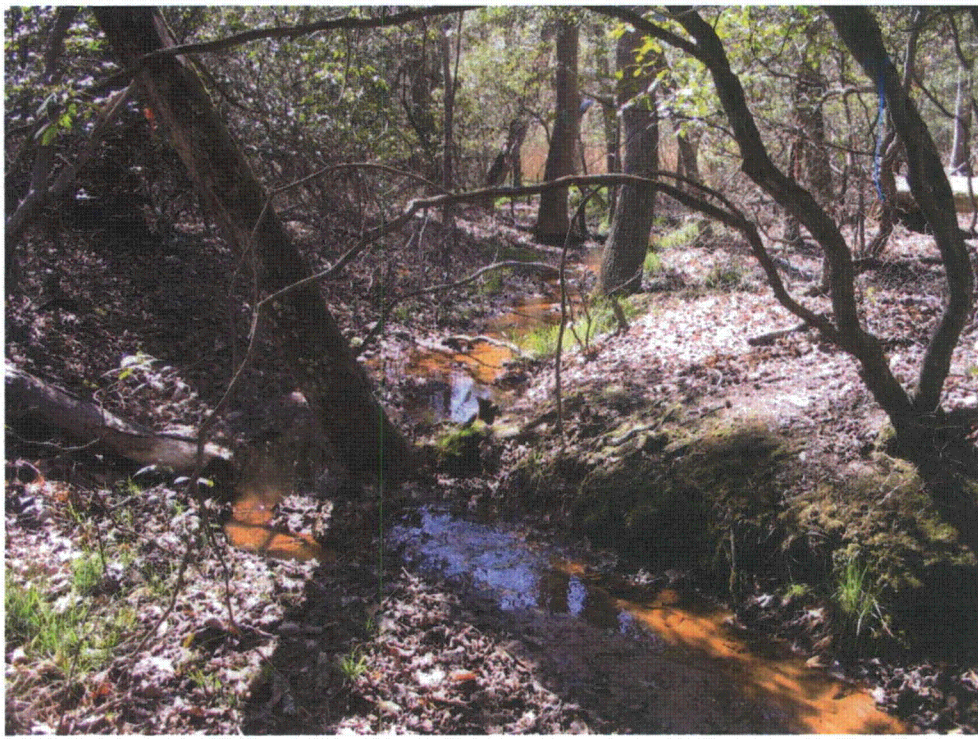
Calvert Cliffs Nuclear Power Plant (CCNPP)
Impact Streams Photo Log

	PHOTOLOG SHEET	
	Site: CCNPP/ UT-JC-I-5	
	Calvert County, Maryland	
	Adjacent Rapanos ID: RA-IVN-C	
	Adjacent Wetland Assessment Area IV	
	Date: April, 2008	
	Photographed by: MACTEC	
Description: Upstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.		
RBP Score: 111 Benthic IBI Score: N/A Temp (degrees C): 14.7 D.O. (mg/liter): 12.80 Salinity (%): 0.08 pH: 6.8 Conductivity (uS): 1.70 Turbidity (NTU): <10.0		
	Site: CCNPP / UT-JC-I-5	
	Calvert County, Maryland	
	Adjacent Rapanos ID: RA-IVN-C	
	Adjacent Wetland Assessment Area IV	
	Date: April, 2008	
	Photographed by: MACTEC	
	Description: Downstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.	
RBP Score: 111 Benthic IBI Score: N/A Temp (degrees C): 14.7 D.O. (mg/liter): 12.80 Salinity (%): 0.08 pH: 6.8 Conductivity (uS):1.70 Turbidity (NTU): <10.0		



**Calvert Cliffs Nuclear Power Plant (CCNPP)
Impact Streams Photo Log**

	PHOTOLOG SHEET
	Site: CCNPP/ UT-JC-I-6
	Calvert County, Maryland
	Adjacent Rapanos ID: RA-IVN-A
	Adjacent Wetland Assessment Area IV
	Date: April, 2008
	Photographed by: MACTEC
<p>Description: Upstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.</p> <p>RBP Score: 132 Benthic IBI Score: N/A Temp (degrees C): 16.9 D.O. (mg/liter): 11.20 Salinity (%): 0.02 pH: 7.1 Conductivity (uS): 0.43 Turbidity (NTU): <10.0</p>	
	Site: CCNPP/ UT-JC-I-6
	Calvert County, Maryland
	Adjacent Rapanos ID: RA-IVN-A
	Adjacent Wetland Assessment Area IV
	Date: April, 2008
	Photographed by: MACTEC
	<p>Description: Downstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.</p> <p>RBP Score: 132 Benthic IBI Score: N/A Temp (degrees C): 16.9 D.O. (mg/liter): 11.20 Salinity (%): 0.02 pH: 7.1 Conductivity (uS): 0.43 Turbidity (NTU): <10.0</p>


Calvert Cliffs Nuclear Power Plant (CCNPP)
Impact Streams Photo Log

	PHOTOLOG SHEET	
	Site: CCNPP/ UT-GB-I-1	
	Calvert County, Maryland	
	Adjacent Rapanos ID: RA-VIIN-A	
	Adjacent Wetland Assessment Area VII	
	Date: April, 2008	
	Photographed by: MACTEC	
	Description: Upstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.	
	RBP Score: 124	
	Benthic IBI Score: TBD	
	Temp (degrees C): 14.0	
	D.O. (mg/liter): 11.70	
	Salinity (%): 0.07	
	pH: 7.2	
	Conductivity (uS): 1.60	
	Turbidity (NTU): <10.0	
	Site: CCNPP/ UT-GB-I-1	
	Calvert County, Maryland	
	Adjacent Rapanos ID: RA-VIIN-A	
	Adjacent Wetland Assessment Area VII	
	Date: April, 2008	
	Photographed by: MACTEC	
	Description: Downstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.	
	RBP Score: 124	
	Benthic IBI Score: TBD	
	Temp (degrees C): 14.0	
	D.O. (mg/liter): 11.70	
	Salinity (%): 0.07	
	pH: 7.2	
	Conductivity (uS): 1.60	
	Turbidity (NTU): <10.0	

Calvert Cliffs Nuclear Power Plant (CCNPP)
Impact Streams Photo Log

	PHOTOLOG SHEET
	Site: CCNPP/ UT-GB-I-2
	Calvert County, Maryland
	Adjacent Rapanos ID: RA-VIIN-A
	Adjacent Wetland Assessment Area VII
	Date: April, 2008
	Photographed by: MACTEC
	<p>Description: Upstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.</p> <p>RBP Score: 134 Benthic IBI Score: N/A Temp (degrees C): 13.1 D.O. (mg/liter): 12.50 Salinity (%): 0.00 pH: 7.1 Conductivity (uS): 0.21 Turbidity (NTU): <10.0</p>
	Site: CCNPP/ UT-GB-I-2
	Calvert County, Maryland
	Adjacent Rapanos ID: RA-VIIN-A
	Adjacent Wetland Assessment Area VII
	Date: April, 2008
	Photographed by: MACTEC
	<p>Description: Downstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.</p> <p>RBP Score: 134 Benthic IBI Score: N/A Temp (degrees C): 13.1 D.O. (mg/liter): 12.50 Salinity (%): 0.00 pH: 7.1 Conductivity (uS): 0.21 Turbidity (NTU): <10.0</p>



Calvert Cliffs Nuclear Power Plant (CCNPP)
Impact Streams Photo Log

	PHOTOLOG SHEET	
	Site: CCNPP/ UT-GB-I-3	
	Calvert County, Maryland	
	Adjacent Rapanos ID: RA-VIIS-A	
	Adjacent Wetland Assessment Area VII	
	Date: April, 2008	
	Photographed by: MACTEC	
	Description: Upstream	
	Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.	
	RBP Score: 60	
	Benthic IBI Score: TBD	
	Temp (degrees C): 14.3	
	D.O. (mg/liter): 12.90	
	Salinity (%): 0.07	
	pH: 7.2	
	Conductivity (uS): 1.50	
	Turbidity (NTU): <10.0	
	Site: CCNPP/ UT-GB-I-3	
	Calvert County, Maryland	
	Adjacent Rapanos ID:	RA-VIIS-A
	Adjacent Wetland	Assessment Area VII
	Date: April, 2008	
	Photographed by: MACTEC	
	Description: Downstream	
	Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.	
	RBP Score: 60	
	Benthic IBI Score: TBD	
	Temp (degrees C): 14.3	
	D.O. (mg/liter): 12.90	
	Salinity (%): 0.07	
	pH: 7.2	
	Conductivity (uS): 1.50	
	Turbidity (NTU): <10.0	

Calvert Cliffs Nuclear Power Plant (CCNPP)
Impact Streams Photo Log

	PHOTOLOG SHEET
	Site: CCNPP/ UT-GB-I-4
	Calvert County, Maryland
	Adjacent Rapanos ID: RA-VIIS-B
	Adjacent Wetland Assessment Area VII
	Date: April, 2008
	Photographed by: MACTEC
	Description: Upstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.
	RBP Score: 86 Benthic IBI Score: N/A Temp (degrees C): 14.4 D.O. (mg/liter): 12.70 Salinity (%): 0.01 pH: 7.1 Conductivity (uS): 0.30 Turbidity (NTU): <10.0
	Site: CCNPP/ UT-GB-I-4
	Calvert County, Maryland
	Adjacent Rapanos ID: RA-VIIS-B
	Adjacent Wetland Assessment Area VII
	Date: April, 2008
	Photographed by: MACTEC
	Description: Downstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.
	RBP Score: 86 Benthic IBI Score: N/A Temp (degrees C): 14.4 D.O. (mg/liter): 12.70 Salinity (%): 0.01 pH: 7.1 Conductivity (uS): 0.30 Turbidity (NTU): <10.0

Calvert Cliffs Nuclear Power Plant (CCNPP)
Impact Streams Photo Log

	PHOTOLOG SHEET
	Site: CCNPP/LC-I-1 of 1
	Calvert County, Maryland
	Adjacent Rapanos ID: RA-I-A
	Adjacent Wetland Assessment Area I
	Date: April, 2008
	Photographed by: MACTEC
<p>Description: Upstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.</p> <p>RBP Score: 129 Benthic IBI Score: TBD Temp (degrees C): 11.7 D.O. (mg/liter): 10.50 Salinity (%): 0.05 pH: 6.3 Conductivity (uS): 0.45 Turbidity (NTU): <10.0</p>	
	Site: CCNPP/LC-I-1 of 1
	Calvert County, Maryland
	Adjacent Rapanos ID: RA-I-A
	Adjacent Wetland Assessment Area I
	Date: April, 2008
	Photographed by: MACTEC
	<p>Description: Downstream Photo Depicting a view of a jurisdictional stream that is within the proposed impact zone.</p> <p>RBP Score: 129 Benthic IBI Score: TBD Temp (degrees C): 11.7 D.O. (mg/liter): 10.50 Salinity (%): 0.05 pH: 6.3 Conductivity (uS): 0.45 Turbidity (NTU): <10.0</p>

APPENDIX C

RAPID BIOASSESSMENT METHOD DATA

Enclosure 3

RAI Letter Attachments

Responses to RAI Items TE-10 & TE-15

MBSS SPRING INDEX PERIOD DATA SHEET

Page 1 of 2

Watershed Code Segment Type Year

SITE PAX WB-M1 2008

Reviewer: ADavis / R.Solt

Year Month Day

DATE 08 04 15

CREW: R. Sain / A. Davis

STREAM: Woodland Branch

TIME 1045 (Military)

LOCALITY: CCNPP

<p>SAMPLEABILITY</p> <p><input checked="" type="checkbox"/> Benthos</p> <p><input checked="" type="checkbox"/> Habitat Assessment</p> <p><input checked="" type="checkbox"/> Water Quality</p> <p><input type="checkbox"/> Vernal Pool: <input type="checkbox"/> PRESENT/ABSENT</p> <p>OTHER (SPECIFY):</p>	<p>SITE ACCESS ROUTE</p> <p>Unpaved road off of Calvert Cliffs Pkwy to the North.</p>
--	--

SAMPLE LABELS				TEMP. LOGGER	
Verified by: _____				<div style="float: right;"> <p>$P_H = 7.2$</p> <p>$\text{Cond} = .23 \text{ m/k}$</p> </div>	
QC LABEL					
Watershed Code	Segment	Type	Year	WATER $\begin{matrix} (Y/N) \\ \downarrow \end{matrix}$	NUM. _____
<u>PAY</u>				AIR \downarrow	NUM. _____
(Letters only)				LOCATION _____	
Dup. (D) or Blank (B): <input type="checkbox"/>				<div style="float: right;"> <p>$D.O = 11.9 \text{ mg/l}$</p> <p>$\text{Temp} = 10.9^\circ \text{C}$</p> <p>$\text{Sol.} = 0\%$</p> </div>	
Verified by: _____					

PHOTODOCUMENTATION			
Time	Number	Title	Voucher (Y/N)
		N/A Representative photos taken of the site	

HERPETOFAUNA						BENTHIC HABITAT		
<input type="checkbox"/> None <input checked="" type="checkbox"/> Observed		Lifestage				SAMPLED		
		Adult	Juv.	Larva	Egg	SEEN	Y/N	RETAINED
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/>	Riffle
<input checked="" type="checkbox"/>	Rootwad/Woody Debris
<input checked="" type="checkbox"/>	Leaf Pack
<input checked="" type="checkbox"/>	Macrophytes
<input checked="" type="checkbox"/>	Undercut Banks
<input checked="" type="checkbox"/>	Other <u>Feb</u>

SAMPLING CONSID.: (NUM. ANODES)

STREAM
WIDTH (m) 0.9 75.0
0 m 75 m

MBSS SPRING HABITAT DATA SHEET

Page 2 of 2

SITE PAY WB-MI 2008

Reviewer: A. Davis / R. Seir

DATE 08/04/15

1000 Dist. from Nearest Road to Site (m)

0 Trash Rating 0 - 20

LANDUSE (Y/N)

- | | |
|--|---|
| <input type="checkbox"/> Old Field | <input type="checkbox"/> Residential |
| <input type="checkbox"/> Deciduous Forest | <input type="checkbox"/> Commercial/Industrial |
| <input type="checkbox"/> Coniferous Forest | <input type="checkbox"/> Cropland |
| <input type="checkbox"/> Wetland | <input type="checkbox"/> Pasture |
| <input type="checkbox"/> Surface Mine | <input type="checkbox"/> Orchard/Vineyard/Nursery |
| <input type="checkbox"/> Landfill | <input type="checkbox"/> Golf Course |

RIPARIAN VEGETATION (facing upstream)

	LEFT BANK	RIGHT BANK
Width (50m max)	<u>50</u>	<u>50</u>
Adjacent Land Cover	<u>250</u>	<u>250</u>
Vegetation Type	<u>see bridge</u>	
Buffer Breaks (Y/N)	<u>N</u>	<u>N</u>

ROAD CULVERT

Present in Segment? (Y/N) N

Sampleable? (Y/N) N/A

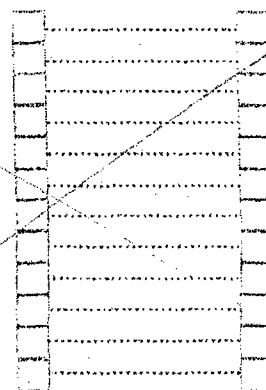
Width of Culvert (m) N/A

Length of Culvert (m) N/A

STREAM GRADIENT

	Location (m)	Height (m)
1	<u> </u>	<u> </u>
2	<u> </u>	<u> </u>
3	<u> </u>	<u> </u>

Storm Drain
Tile Drain
Impervious Drainage
Gully
Orchard
Crop
Pasture
New Construction
Dirt Road
Gravel Road
Raw Sewage
Railroad



Buffer Break Types
(M = minor; S = severe)

CHANNELIZATION

☒ Evidence of Channel Straightening or Dredging (Y/N)

TYPE	EXTENT (m)		
	LEFT BANK	BOTTOM	RIGHT BANK
Concrete	<u> </u>	<u> </u>	<u> </u>
Gabion	<u> </u>	<u> </u>	<u> </u>
Rip-Rap	<u> </u>	<u> </u>	<u> </u>
Earthen Berm	<u> </u>	<u>N/A</u>	<u> </u>
Dredge Spoil Off Channel	<u> </u>	<u>N/A</u>	<u> </u>
Pipe Culvert	<u> </u>	<u> </u>	<u> </u>

Actual Coordinates
(100m distance between
original coordinates and stream)

Lat

Lon

Stream Block Height (m)

Stream Block Type

Lat

Lon

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME <u>Woodland Branch</u>	LOCATION <u>W13-M1 (SR-1)</u>
STATION # <u> </u> RIVERMILE	STREAM CLASS <u>6c</u>
LAT <u> </u> LONG <u> </u>	RIVER BASIN <u>Potomac</u>
STORET # <u>N/A</u>	AGENCY <u>N/A</u>
INVESTIGATORS <u>R. Solin / A. Davis</u>	
FORM COMPLETED BY <u>R. Solin</u>	DATE <u>4/15/08</u> TIME <u>10:45</u> <u>AM</u> PM
REASON FOR SURVEY <u>NRC-USACE-MDE</u>	

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE <u>5</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE <u>6</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 (6)	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE <u>8</u>	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE <u>4</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 (4) 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE <u>12</u>	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 0

WBMA

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE <u>16</u>	20 19 18 17 <u>16</u>	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE <u>8</u>	20 19 18 17 <u>16</u>	15 14 13 12 11	10 9 <u>8</u> 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE <u>1</u> (LB)	Left Bank 10 9	8 7 6	5 4 3	2 <u>1</u> 0
SCORE <u>1</u> (RB)	Right Bank 10 9	8 7 6	5 4 3	2 <u>1</u> 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE <u>3</u> (LB)	Left Bank 10 9	8 7 6	5 4 <u>3</u>	2 1 0
SCORE <u>3</u> (RB)	Right Bank 10 9	8 7 6	5 4 <u>3</u>	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE <u>10</u> (LB)	Left Bank <u>10</u> 9	8 7 6	5 4 3	2 1 0
SCORE <u>10</u> (RB)	Right Bank <u>10</u> 9	8 7 6	5 4 3	2 1 0

Total Score 87

MBSS SPRING INDEX PERIOD DATA SHEET

Page 1 of 2

Watershed Code Segment Type Year First Second
 SITE PAX WB-M2 2008 Reviewer: A. Davis R. Sain

Year Month Day CREW: RSain
 DATE 08.04.14 STREAM: Woodland Branch

TIME 1320 (Military) LOCALITY: CCNAP

SAMPLEABILITY		SITE ACCESS ROUTE	
<input checked="" type="checkbox"/> Benthos		<u>C.R. Parkway - near visitors center</u>	
<input checked="" type="checkbox"/> Habitat Assessment			
<input checked="" type="checkbox"/> Water Quality			
<input type="checkbox"/> Vernal Pool	<input checked="" type="checkbox"/> PRESENT/ASSENT		
OTHER (SPECIFY)			

SAMPLE LABELS		TEMP. LOGGER	
Verified by: <u>N/A</u>		(Y/N)	
QC LABEL		WATER <input checked="" type="checkbox"/> NUM. <u>Temp = 14.1°C</u>	
Watershed Code	Segment Type Year	AIR <input checked="" type="checkbox"/> NUM. <u>Sal. = 0.01%</u>	
(Letters only)		LOCATION <u>15.2°C</u> <u>NUM. Pt = 7.2"</u>	
Dup. (D) or Blank (B): <input type="checkbox"/> Verified by: _____		Cand. = <u>0.32 m/s</u>	
		Turb = <u>< 10 NTU</u>	
		P.O. = <u>10.8 mg/l</u>	

PHOTODOCUMENTATION			
Time	Number	Title	Voucher (Y/N)
		<u>N/A Representative Photos were taken</u>	

HERPETOFAUNA		BENTHIC HABITAT SAMPLED	
<input checked="" type="checkbox"/> None Observed			
Lifestage	HEARD		
Adult Juv Larval Egg SEEN Y/N RETAINED			
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/> Riffle	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input checked="" type="checkbox"/> Rootwad/Woody Debris	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input checked="" type="checkbox"/> Leaf Pack	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input type="checkbox"/> Macrophytes	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input checked="" type="checkbox"/> Undercut Banks	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<input checked="" type="checkbox"/> Other <u>Job</u>	

SAMPLING CONSID.: (☐ NUM. ANODES) _____

STREAM WIDTH (m) 0.3 75.0

0 m 75 m

MBSS SPRING HABITAT DATA SHEET

Page 2 of 2

SITE PAX WB-M2 2008

Reviewer: A. Davis / R. Seis

DATE 080415

1200 Dist. from Nearest Road to Site (m)

0 Trash Rating 0 - 20

LANDUSE (Y/N)

- | | |
|--|---|
| <input type="checkbox"/> Old Field | <input type="checkbox"/> Residential |
| <input checked="" type="checkbox"/> Deciduous Forest | <input type="checkbox"/> Commercial/Industrial |
| <input type="checkbox"/> Coniferous Forest | <input type="checkbox"/> Cropland |
| <input type="checkbox"/> Wetland | <input type="checkbox"/> Pasture |
| <input type="checkbox"/> Surface Mine | <input type="checkbox"/> Orchard/Vineyard/Nursery |
| <input type="checkbox"/> Landfill | <input type="checkbox"/> Golf Course |

RIPARIAN VEGETATION (facing upstream)

	LEFT BANK	RIGHT BANK
Width (50m max)	<u>50</u>	<u>50</u>
Adjacent Land Cover	<u>>50</u>	<u>>50</u>
Vegetation Type	<u>See guide</u>	
Buffer Breaks (Y/N)	<u>N</u>	<u>N</u>

ROAD CULVERT

Present in Segment? (Y/N) ✓

Sampleable? (Y/N) N/A

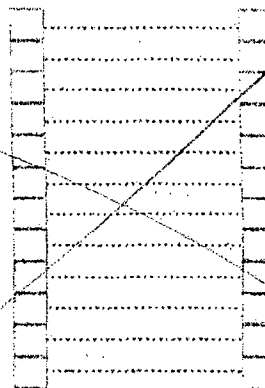
Width of Culvert (m) N/A

Length of Culvert (m) N/A

STREAM GRADIENT

	Location (m)	Height (m)
1	<u> </u>	<u> </u>
2	<u> </u>	<u> </u>
3	<u> </u>	<u> </u>

Storm Drain
Tile Drain
Impervious Drainage
Gully
Orchard
Crop
Pasture
New Construction
Dirt Road
Gravel Road
Raw Sewage
Railroad



Buffer Break Types
(M = minor; S = severe)

CHANNELIZATION

N Evidence of Channel Straightening or Dredging (Y/N)

TYPE	EXTENT (m)		
	LEFT BANK	BOTTOM	RIGHT BANK
Concrete	<u> </u>	<u> </u>	<u> </u>
Gabion	<u> </u>	<u> </u>	<u> </u>
Rip-Rap	<u> </u>	<u> </u>	<u> </u>
Earthen Berm	<u> </u>	<u>N/A</u>	<u> </u>
Dredge Spoil Off Channel	<u> </u>	<u>N/A</u>	<u> </u>
Pipe Culvert	<u> </u>	<u> </u>	<u> </u>

Actual Coordinates
(if >30m distance between
original coordinates and stream)

Lat

Lon

Stream Block Ht (m)

Stream Block Type

Lat

Lon

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME <u>Woodland Branch</u>	LOCATION <u>WB - M2 (SR-2)</u>
STATION # _____ RIVERMILE _____	STREAM CLASS <u>6C</u>
LAT _____ LONG _____	RIVER BASIN <u>Potomac</u>
STORET # <u>N/A</u>	AGENCY <u>N/A</u>
INVESTIGATORS <u>R. Sain / A. Davis</u>	
FORM COMPLETED BY <u>R. Sain</u>	DATE <u>4/15/04</u> TIME <u>1340</u> AM <input checked="" type="checkbox"/> PM
REASON FOR SURVEY <u>NRC USA OE MDE</u>	

	Habitat Parameter	Condition Category			
		Optimal	Suboptimal	Marginal	Poor
Parameters to be evaluated in sampling reach	1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	SCORE <u>3</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 <u>3</u> 2 1 0
	2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
	SCORE <u>3</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 <u>3</u> 2 1 0
	3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
	SCORE <u>2</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 <u>2</u> 1 0
	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE <u>5</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	<u>5</u> 4 3 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	SCORE <u>7</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 <u>7</u> 6	5 4 3 2 1 0

WB-M2

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE <u>18</u>	20 19 <u>18</u> 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.	
SCORE <u>7</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 <u>7</u> 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.	
SCORE <u>1</u> (LB)	Left Bank 10 9	8 7 6	5 4 3	2 <u>1</u> 0
SCORE <u>1</u> (RB)	Right Bank 10 9	8 7 6	5 4 3	2 <u>1</u> 0
9. Vegetative Protection (score each bank) More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally. Note: determine left or right side by facing downstream.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE <u>2</u> (LB)	Left Bank 10 9	8 7 6	5 4 3	<u>2</u> 1 0
SCORE <u>2</u> (RB)	Right Bank 10 9	8 7 6	5 4 3	<u>2</u> 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone) Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.	
SCORE <u>10</u> (LB)	Left Bank <u>10</u> 9	8 7 6	5 4 3	2 1 0
SCORE <u>10</u> (RB)	Right Bank <u>10</u> 9	8 7 6	5 4 3	2 1 0

Total Score 71

MBSS SPRING INDEX PERIOD DATA SHEET

Page 1 of 2

Watershed Code Segment Type Year
 SITE CHES CC-M3 2008 Reviewer: A. Davis/R. Sait

Year Month Day
 DATE 08 04 14

CREW: R. Sait/A. DavisSTREAM: Love CreekTIME 0930 (Military)LOCALITY: CCNPP

SAMPLEABILITY

- ☒ Benthos
☒ Habitat Assessment
☒ Water Quality
☐ Vernal Pool ☒ PRESENT/ABSENT

OTHER (SPECIFY):

SITE ACCESS ROUTE

Access road northwest of Camp Canopy

SAMPLE LABELS

Verified by: N/A

QC LABEL

Watershed Code Segment Type Year

CHES

(Letters only)

Dup. (D) or Blank (B): ☐

Verified by:

TEMP. LOGGER

(Y/N)

WATER ☒AIR ☐

LOCATION

Cond = 562 μ SNUM. Turb = 10NUM. D.O. = 10.51 mg/lTemp = 16.3°CSalinity = 0.02%PH = 7.0

PHOTODOCUMENTATION

Time

Number

Title

Voucher
(Y/N)N/A Representative Photos taken

HERPETOFAUNA

☒ None
☐ Observed

Lifestage

Adult Juven Larval Egg

SEEN

HEARD

Y/N

RETAINED

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

BENTHIC HABITAT
SAMPLED

- ☒ Riffle
☒ Rootwad/Woody Debris
☒ Leaf Pack
☒ Macrophytes
☒ Undercut Banks
☐ Other

SAMPLING CONSID.: (☐ NUM. ANODES)

STREAM

WIDTH (m)

0 m

1.075.0

75 m

MBSS SPRING HABITAT DATA SHEET

Page 2 of 2

SITE CHES LC-m3 2008

Reviewer: A. Davis/R. Seim

DATE 08 04 14

200 Dist. from Nearest Road to Site (m)

0 Trash Rating 0 - 20

LANDUSE (Y/N)

- | | |
|--|---|
| <input type="checkbox"/> Old Field | <input type="checkbox"/> Residential |
| <input checked="" type="checkbox"/> Deciduous Forest | <input type="checkbox"/> Commercial/Industrial |
| <input type="checkbox"/> Coniferous Forest | <input type="checkbox"/> Cropland |
| <input type="checkbox"/> Wetland | <input type="checkbox"/> Pasture |
| <input type="checkbox"/> Surface Mine | <input type="checkbox"/> Orchard/Vineyard/Nursery |
| <input type="checkbox"/> Landfill | <input type="checkbox"/> Golf Course |

RIPARIAN VEGETATION

(facing upstream)

	LEFT BANK	RIGHT BANK
Width (50m max)	<u>50</u>	<u>50</u>
Adjacent Land Cover	<u>>50</u>	<u>>50</u>
Vegetation Type	<u>FR</u>	<u>FR</u>
Buffer Breaks (Y/N)	<u>N</u>	<u>N</u>

ROAD CULVERT

Present in Segment? (Y/N) N

Sampleable? (Y/N) N/A

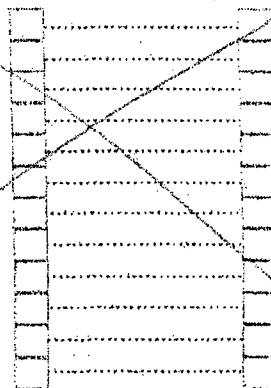
Width of Culvert (m) N/A

Length of Culvert (m) N/A

STREAM GRADIENT

	Location (m)	Height (m)
1	<u> </u>	<u> </u>
2	<u> </u>	<u> </u>
3	<u> </u>	<u> </u>

Storm Drain
Tile Drain
Impervious Drainage
Gully
Orchard
Crop
Pasture
New Construction
Dirt Road
Gravel Road
Raw Sewage
Railroad



Buffer Break Types
(M = minor; S = severe)

CHANNELIZATION

☒ Evidence of Channel Straightening or Dredging (Y/N)

TYPE	EXTENT (m)		
	LEFT BANK	BOTTOM	RIGHT BANK
Concrete	<u> </u>	<u> </u>	<u> </u>
Gabion	<u> </u>	<u> </u>	<u> </u>
Rip-Rap	<u> </u>	<u> </u>	<u> </u>
Earthen Berm	<u> </u>	N/A	<u> </u>
Dredge Spoil Off Channel	<u> </u>	N/A	<u> </u>
Pipe Culvert	<u> </u>	<u> </u>	<u> </u>

Actual Coordinates
(If > 30m distance between original coordinates and stream)

Lat

Lon

Stream Block Eff. (m)

Stream Block type

Lat

Lon

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME <u>Long Creek</u>	LOCATION <u>LL-M-03 (SR-3)</u>		
STATION # <u> </u> RIVERMILE <u> </u>	STREAM CLASS <u>664 (R3592L)</u>		
LAT <u>30° 6' S</u> LONG <u> </u>	RIVER BASIN <u>Chesapeake Bay</u>		
STORET # <u>N/A</u>	AGENCY <u>NIA</u>		
INVESTIGATORS <u>R. Selva / A. Davis</u>			
FORM COMPLETED BY <u>R. Selva</u>		DATE <u>4/14/08</u> TIME <u>11:15</u> <u>AM</u> <u>PM</u>	REASON FOR SURVEY <u>NRC - USACE MDIE</u>

Parameters to be evaluated in sampling reach	Habitat Parameter	Condition Category			
		Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	SCORE <u>15</u>	20 19 18 17 16	<u>15</u> 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
	SCORE <u>15</u>	20 19 18 17 16	<u>15</u> 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
	SCORE <u>10</u>	20 19 18 17 16	15 14 13 12 11	<u>10</u> 9 8 7 6	5 4 3 2 1 0
	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE <u>10</u>	20 19 18 17 16	15 14 13 12 11	<u>10</u> 9 8 7 6	5 4 3 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	SCORE <u>12</u>	20 19 18 17 16	15 14 13 <u>12</u> 11	10 9 8 7 6	5 4 3 2 1 0

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Habitat Parameter	Condition Category																				
	Optimal					Suboptimal					Marginal					Poor					
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.					Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.					Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.					Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.					
SCORE <u>14</u>	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)					The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.					The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.					Channel straight; waterway has been channelized for a long distance.					
SCORE <u>16</u>	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems: <5% of bank affected.					Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.					Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.					Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.					
SCORE <u>4</u> (LB)	Left Bank					8					5					2					
SCORE <u>6</u> (RB)	Right Bank					8					5					2					
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.					70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.					50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.					Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.					
SCORE <u>5</u> (LB)	Left Bank					8					5					2					
SCORE <u>5</u> (RB)	Right Bank					8					5					2					
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.					Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.					Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.					Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.					
SCORE <u>9</u> (LB)	Left Bank					8					5					2					
SCORE <u>9</u> (RB)	Right Bank					8					5					2					

Total Score 130

MBSS SPRING INDEX PERIOD DATA SHEET

Page 1 of 2

Watershed Code Segment Type Year: 2008
 SITE JL-M4 Reviewer: A. Davis / R. Sain

Year Month Day CREW: R. Sain / A. Davis
 DATE 0.8.04.16 STREAM: John's Cr.

TIME 12.23 (Military) LOCALITY: CCNPP

SAMPLEABILITY <input checked="" type="checkbox"/> Benthos <input checked="" type="checkbox"/> Habitat Assessment <input checked="" type="checkbox"/> Water Quality <input type="checkbox"/> Vernal Pool <input type="checkbox"/> PRESENT/Absent OTHER (SPECIFY):		SITE ACCESS ROUTE <u>CCNPP - UT - JC</u>
--	--	--

SAMPLE LABELS Verified by: <u>N/A</u> QC LABEL Watershed Code Segment Type Year _____ (Letters only) Dup. (D) or Blank (B): <input type="checkbox"/> Verified by: _____	TEMP. LOGGER Temp = <u>12.8</u> (Y/N) Sol = <u>.01%</u> WATER <input checked="" type="checkbox"/> NUM. _____ AIR <input type="checkbox"/> NUM. _____ LOCATION <u>30 meters into site</u> Cond. = <u>.3</u> Turb = <u><10 NTU</u> DO = <u>11.5</u>
---	---

PHOTODOCUMENTATION			Voucher (Y/N)
Time	Number	Title	
		<u>N/A Representative Photos were taken</u>	<u>Y</u>

HERPETOFAUNA <input type="checkbox"/> None Observed <u>Salamander spp?</u>	<table border="1"> <tr> <th colspan="4">Lifestage</th> <th rowspan="2">SEEN</th> <th colspan="2">HEARD</th> </tr> <tr> <th>Adult</th> <th>Juv.</th> <th>Larval</th> <th>Egg</th> <th>Y/N</th> <th>RETAINED</th> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	Lifestage				SEEN	HEARD		Adult	Juv.	Larval	Egg	Y/N	RETAINED	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BENTHIC HABITAT SAMPLED <input type="checkbox"/> Riffle <input checked="" type="checkbox"/> Rootwad/Woody Debris <input checked="" type="checkbox"/> Leaf Pack <input checked="" type="checkbox"/> Macrophytes <input checked="" type="checkbox"/> Undercut Banks <input checked="" type="checkbox"/> Other <u>Job</u>
Lifestage				SEEN	HEARD																																													
Adult	Juv.	Larval	Egg		Y/N	RETAINED																																												
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																												
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																												
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																												
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																												
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																												

SAMPLING CONSID.: (☐ NUM. ANODES) N/A
 STREAM WIDTH (m) 1.0 75.0
 0 m 75 m

Page 2 of 2

First Second
Reviewer: _____

Trash Rating 0 - 20

<input type="checkbox"/>	Old Field	<input type="checkbox"/>	Residential
<input type="checkbox"/>	Deciduous Forest	<input type="checkbox"/>	Commercial/Industrial
<input type="checkbox"/>	Coniferous Forest	<input type="checkbox"/>	Cropland
<input type="checkbox"/>	Wetland	<input type="checkbox"/>	Pasture
<input type="checkbox"/>	Surface Mine	<input type="checkbox"/>	Orchard/Vineyard/Nursery
<input type="checkbox"/>	Landfill	<input type="checkbox"/>	Golf Course

Buffer Breaks (Y/N)

Length of Culvert (m) N/A

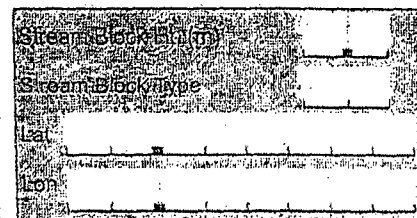
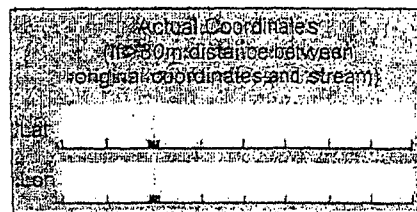
3

[illegible]

☒ Evidence of Channel Straightening or Dredging (Y/N)

TYPE	EXTENT (m)		
	LEFT BANK	BOTTOM	RIGHT BANK
Concrete	_____	_____	_____
Gabion	_____	_____	_____
Rip-Rap	_____	_____	_____
Earthen Berm	_____	N/A	_____
Dredge Spoil Off Channel	_____	N/A	_____
Pipe Culvert	_____	_____	_____

Primarily found up stream 57



HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME <u>John's Creek</u>	LOCATION <u>JC-M4</u>
STATION # _____ RIVERMILE _____	STREAM CLASS <u>6L5</u>
LAT _____ LONG _____	RIVER BASIN <u>Petaluma</u>
STORET # <u>N/A</u>	AGENCY <u>N/A</u>
INVESTIGATORS <u>R. Seil / A. Davis</u>	
FORM COMPLETED BY <u>R. Seil</u>	DATE <u>7/16/08</u> TIME <u>12:30</u> AM <input checked="" type="checkbox"/> PM
REASON FOR SURVEY <u>NRC-USACE-MDE</u>	

	Habitat Parameter	Condition Category			
		Optimal	Suboptimal	Marginal	Poor
Parameters to be evaluated in sampling reach	1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	SCORE <u>7</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 <u>(7)</u> 6	5 4 3 2 1 0
	2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
	SCORE <u>9</u>	20 19 18 17 16	15 14 13 12 11	10 <u>(9)</u> 8 7 6	5 4 3 2 1 0
	3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
	SCORE <u>7</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 <u>(7)</u> 6	5 4 3 2 1 0
	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE <u>7</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 <u>(7)</u> 6	5 4 3 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	SCORE <u>10</u>	20 19 18 17 16	15 14 13 12 11	<u>(10)</u> 9 8 7 6	5 4 3 2 1 0

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE <u>12</u>	20 19 18 17 16	15 14 13 <u>12</u> 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.	
SCORE <u>7</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 <u>7</u> 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.	
SCORE <u>1</u> (LB)	Left Bank 10 9	8 7 6	5 4 3	2 <u>1</u> 0
SCORE <u>1</u> (RB)	Right Bank 10 9	8 7 6	5 4 3	2 <u>1</u> 0
9. Vegetative Protection (score each bank) More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE <u>4</u> (LB)	Left Bank 10 9	8 7 6	5 <u>4</u> 3	2 1 0
SCORE <u>4</u> (RB)	Right Bank 10 9	8 7 6	5 <u>4</u> 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone) Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.	
SCORE <u>10</u> (LB)	Left Bank <u>10</u> 9	8 7 6	5 4 3	2 1 0
SCORE <u>10</u> (RB)	Right Bank <u>10</u> 9	8 7 6	5 4 3	2 1 0

Total Score 89

MBSS SPRING INDEX PERIOD DATA SHEET

Page 1 of 2

Watershed Code Segment Type Year
 SITE PAX UTJK-M5 2008
 Reviewer: A. Davis / R. Sch
 Year Month Day
 DATE 08 04 16
 CREW: R. Sch / A. Davis
 STREAM: UT to John's Creek
 TIME 10:40 (Military) LOCALITY: CCWPP

SAMPLEABILITY	SITE ACCESS ROUTE
<input checked="" type="checkbox"/> Benthos <input checked="" type="checkbox"/> Habitat Assessment <input checked="" type="checkbox"/> Water Quality <input type="checkbox"/> Vernal Pool <u>A</u> PRESENT/ABSENT OTHER (SPECIFY): _____	<u>From CCWPP to John's Creek, downstream to confluence. - Alt. Route access from South Property line</u>

SAMPLE LABELS	TEMP. LOGGER
Verified by: <u>N/A</u> QC LABEL Watershed Code Segment Type Year _____ (Letters only) Dup. (D) or Blank (B): <input type="checkbox"/> Verified by: _____	(Y/N) WATER <u>Y</u> NUM. _____ AIR _____ NUM. _____ LOCATION _____ Temp = <u>8.8°C</u> PH = <u>7.2</u> Cond = <u>.06</u> Sec 1 = <u>.0%</u> <u>0.0713.3</u> <u>Turb = 1.0</u>

PHOTODOCUMENTATION			Voucher (Y/N)
Time	Number	Title	
		<u>N/A Representing Photos taken</u>	<u>N</u>

HERPETOFAUNA	BENTHIC HABITAT SAMPLED																		
<input checked="" type="checkbox"/> None Observed <u>Leopard Frog</u> <table border="1"> <tr> <th>Lifestage</th> <th>HEARD</th> <th>RETAINED</th> </tr> <tr> <td>Adult</td> <td>Y/N</td> <td></td> </tr> <tr> <td>Juv</td> <td></td> <td></td> </tr> <tr> <td>Larval</td> <td></td> <td></td> </tr> <tr> <td>Egg</td> <td></td> <td></td> </tr> <tr> <td>SEEN</td> <td></td> <td></td> </tr> </table>	Lifestage	HEARD	RETAINED	Adult	Y/N		Juv			Larval			Egg			SEEN			<input type="checkbox"/> Riffle <input checked="" type="checkbox"/> Rootwad/Woody Debris <input checked="" type="checkbox"/> Leaf Pack <input checked="" type="checkbox"/> Macrophytes <input checked="" type="checkbox"/> Undercut Banks <input checked="" type="checkbox"/> Other <u>Jobs method</u>
Lifestage	HEARD	RETAINED																	
Adult	Y/N																		
Juv																			
Larval																			
Egg																			
SEEN																			

SAMPLING CONSID.: (☐ NUM. ANODES)
 STREAM WIDTH (m) 1.1 75.0
 0 m 75 m

MBSS SPRING HABITAT DATA SHEET

Page 2 of 2

SITE PAX UTZMS 2008

Reviewer: A. Davis / R. Sain

DATE 08 04 16

116m Dist. from Nearest Road to Site (m)

0 Trash Rating 0 - 20

LANDUSE (Y/N)

- | | |
|--|---|
| <input type="checkbox"/> Old Field | <input type="checkbox"/> Residential |
| <input checked="" type="checkbox"/> Deciduous Forest | <input type="checkbox"/> Commercial/Industrial |
| <input type="checkbox"/> Coniferous Forest | <input type="checkbox"/> Cropland |
| <input checked="" type="checkbox"/> Wetland | <input type="checkbox"/> Pasture |
| <input type="checkbox"/> Surface Mine | <input type="checkbox"/> Orchard/Vineyard/Nursery |
| <input type="checkbox"/> Landfill | <input type="checkbox"/> Golf Course |

RIPARIAN VEGETATION (facing upstream)

	LEFT BANK	RIGHT BANK
Width (50m max)	<u>5.0</u>	<u>5.0</u>
Adjacent Land Cover	<u>>5.0</u>	<u>>5.0</u>
Vegetation Type	<u>See guidance</u>	<u>See guidance</u>
Buffer Breaks (Y/N)	<u>N</u>	<u>N</u>

ROAD CULVERT

Present in Segment? (Y/N) N

Sampleable? (Y/N) N/A

Width of Culvert (m) N/A

Length of Culvert (m) N/A

STREAM GRADIENT

	Location (m)	Height (m)
1	<u> </u>	<u> </u>
2	<u> </u>	<u> </u>
3	<u> </u>	<u> </u>

Storm Drain

Tile Drain

Impervious Drainage

Gully

Orchard

Crop

Pasture

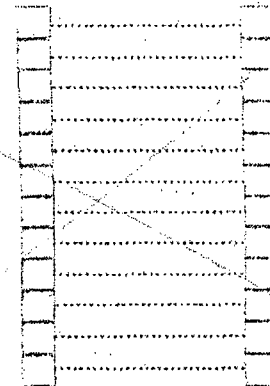
New Construction

Dirt Road

Gravel Road

Raw Sewage

Railroad

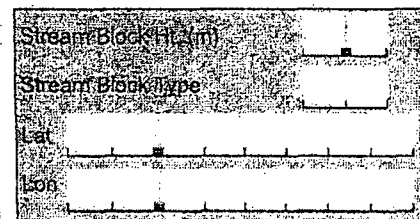
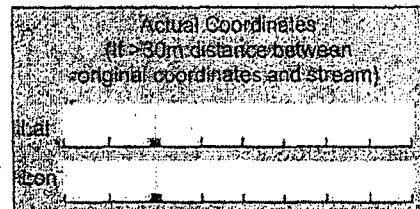


Buffer Break Types
(M = minor; S = severe)

CHANNELIZATION

☒ Evidence of Channel Straightening or Dredging (Y/N) primarily upstream

TYPE	EXTENT (m)		
	LEFT BANK	BOTTOM	RIGHT BANK
Concrete	<u> </u>	<u> </u>	<u> </u>
Gabion	<u> </u>	<u> </u>	<u> </u>
Rip-Rap	<u> </u>	<u> </u>	<u> </u>
Earthen Berm	<u> </u>	<u>N/A</u>	<u> </u>
Dredge Spoil Off Channel	<u> </u>	<u>N/A</u>	<u> </u>
Pipe Culvert	<u> </u>	<u> </u>	<u> </u>



HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME <u>UT to John's Creek</u>	LOCATION <u>UT JC - MS (SR S)</u>
STATION # <u>-</u> RIVERMILE <u>6.1 km</u>	STREAM CLASS <u>65</u>
LAT <u>-</u> LONG <u>-</u>	RIVER BASIN <u>Potomac</u>
STORET # <u>N/A</u>	AGENCY <u>N/A</u>
INVESTIGATORS <u>R. Seim / A. Davis</u>	
FORM COMPLETED BY <u>R. Seim</u>	DATE <u>4/16/08</u> TIME <u>11:13</u> <u>AM</u> PM
REASON FOR SURVEY <u>NRC - USACE - MDIE</u>	

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks; cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE <u>15</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials; with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE <u>14</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE <u>16</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand, or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development, more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE <u>12</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE <u>18</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

UT JC-M5

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE (9)	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE 15	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE 7 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 7 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE 5 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 3 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE 10 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 10 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score 49