

# UMG Upstream Mining Group

June 8, 2009

Bruce Schuld, IDEQ  
1410 North Hilton  
Boise, Idaho 83706

Anne McCauley, USEPA  
1200 Sixth Avenue, M/S ECL - 113  
Seattle, WA 98101

Subject: CWA Section 404 Analysis – Wedge Expansion of West Page Repository

Reference: Agency Review of CWA Section 404 Analysis – Wedge Expansion, dated March 31, 2009

Dear Mr. Schuld and Ms. McCauley:

The Settling Defendants/Upstream Mining Group (UMG) are submitting the attached CWA Section 404 Analysis. This submittal addresses the agency review comments and completes the 404 analysis.

Per our discussions, UMG understands that the 404 analysis and the subsequent mitigation via use of the wetlands bank for construction of the Wedge Expansion of the West Page Repository is acceptable and will be approved by the Agencies.

If you have any questions or comments please contact me 208.769.4112.

Sincerely,



Paul L. Glader  
Site Manager/Project Coordinator

cc: Rob Hanson - IDEQ

## CWA Section 404 Analysis – Wedge Expansion

### I. INTRODUCTION

The Page Repository has been used for the permanent disposal of yard remediation waste from the Operable Unit #1 (OU1) and Operable Unit #2 (OU2), within the Bunker Hill Superfund Site (BHSS), since 1989. The yard remediation program within OU1 has been completed and certified. The Consent Decree requires the Settling Defendants to make a soils repository available for all projects within OU1 requiring the disposal of contaminated OU1 ROD material. In 1995, Page Repository began accepting contaminated material under the auspices of the Institutional Controls Program (ICP). Page Repository, in its existing design from elevation 2200 to 2230 AMSL, is approaching its capacity and the Wedge Expansion will provide approximately 75,000 CY of repository space for OU#1 and OU #2 material. Reference UMG Page Repository Technical Memorandum – Page Repository Wedge Design December 15, 2008.

The footprint of the West Page Repository has not changed since the 1995 expansion that extended the western toe of the repository approximately 400 feet into the West Page Swamp. That expansion did not maintain the same general separation distance (of approximately 50 feet) that exists between the original south Page tailings impoundment dike and the Silver Valley Road (old US Highway 10) right-of-way (ROW). This separation constitutes the South Channel which carries drainage from Humboldt Gulch to the West Page Swamp. The south toe of the repository expansion bears away from the highway ROW as it heads west such that the separation distance at the western limit of the repository is approximately 260 feet. See Figure 1 for a depiction of the area.

The wedge design presented in the Technical Memorandum fills in the existing gap between the south toe of the repository and the highway ROW to achieve a separation of approximately 30 feet. This configuration constructed to the height of the existing repository will provide approximately 75,000 cubic yards of capacity.

From 1995 through 2008, an estimated 298,000 cubic yards of ICP waste materials have been deposited at the repository. For this 14 year period, annual waste disposal from OU#1 and OU#2 combined has averaged about 21,000 cubic yards. However, over the past two years, ICP waste disposal has substantially decreased, adding 9,575 cubic yards in 2007 and 11,800 cubic yards in 2008.

The wedge expansion will provide the following range of durations:

- 3.5 years @ historical average of 21,000 cubic yards
- 7 years @ 2007 and 2008 average of 10,688 cubic yards

## II. PROPOSED PROJECT

The Upstream Mining Group (UMG) submitted design, engineering, and construction details for the wedge expansion to the Idaho DEQ and EPA in the December 15, 2008 Technical Memorandum prepared by LFR Consultants of Liberty Lake, Washington. The design followed the general engineering and construction criteria outlined by the Idaho DEQ and EPA in an October 3, 2008 letter to the UMG.

The planned wedge expansion will “square off” the west side of the Page Repository. The work will begin with a starter berm or dike constructed at the limits of the planned expansion. The slopes of the expansion will be constructed and maintained at a 3 horizontal to 1 vertical (3H:1V) slope. The ultimate top elevation of the expansion will match the current elevation of the Page Repository, which is approximately 2230 feet above mean sea level (amsl).

The wedge expansion will cover about 1.6 acres of riverine, emergent palustrine wetlands, dominated by common cattails (*Typha latifolia*). The project is located and designed to minimize the area of impact to adjacent wetlands while meeting the immediate need to meet Consent Decree requirements. Alternatives were explored to avoid wetland impact completely but were found unviable due to time requirements, unavailable alternative land locations, and/or cost. Thus, it is anticipated that the project will have unavoidable impacts to wetlands requiring compensatory mitigation. A conceptual wetland mitigation plan and a wetland functional assessment using the Montana Wetland Assessment Method (MWAM) was presented to EPA, April 2009. The compensatory mitigation presented here is the result of collaboration between IDEQ and EPA.

Proposed for compensatory mitigation is to purchase 11.76 wetland credits (based upon 7.84 functional units per 1999 MWAM) from Valencia Wetlands Trust (VWT), a wetland mitigation bank located near Priest River, Idaho. The mitigation ratio is 1:1.5 for wetlands located in Shoshone County. This option, although not the least expensive, presents the most efficient means to demonstrate assurance of meeting mitigation requirements and to meet the project schedule.

Other compensatory mitigation options explored during the conceptual planning phase and dropped from consideration are:

- (1) Enhancement of existing riverine palustrine, emergent wetlands and creation and enhancement of riparian wetlands nearby on West Smeltonville Flats on land owned by IDEQ. This option requires an approved mitigation design with implementation beginning in Fall 2009. This option is estimated to be the least expensive but is not the most efficient either in project schedule or in providing required assurance for

mitigation success. This option commits the project proponents to years of monitoring and implementation success assurance.

- (2) Protection by purchasing private lands with riverine palustrine emergent and scrub-shrub wetlands nearby along the South Fork of Coeur d'Alene River at the confluence of Pine Creek (old Rodeo Grounds). EPA found this option without merit over other options because there was no restoration component.
- (3) Participate in an "in-lieu fee" mitigation restoration of over 100 acres of floodplain along the St. Joe River. The planning and approval process for this option extend the project schedule potentially beyond 2010.
- (4) Protection by purchase of private lands and restoration of riverine scrub-shrub and riverine emergent wetlands at the confluence of the South Fork and North Fork of Coeur d'Alene River. The area is continually flooded with contaminated soils making the prospects of finding a third party holder for the conservation easement difficult to impossible.

Best management practices (BMPs) will be employed during construction and operation to control erosion and storm water to limit sediment delivery to the Humboldt Gulch Creek and West Page Swamp. BMPs, such as silt fences and storm runoff management, will be installed and maintained as necessary to achieve these goals.

Upon completion of the wedge expansion, the slopes and top of the wedge area will be graded to conform to construction specifications, and permanent BMPs will be placed. The area will be revegetated using a seed mix comprised of bentgrass, fescue, wheatgrass, and bluegrasses.

### **III. ENVIRONMENTAL AND PUBLIC INTEREST FACTORS**

#### **A. Purpose and Need**

The purpose of the wedge expansion is to provide additional short-term storage capacity to the Page Repository, while maintaining the overall height of the repository at its current 2230 foot level (amsl). The expansion will allow representatives from the Idaho DEQ, EPA, and UMG the time to conduct a thorough analysis to determine long-term disposal options for BHSS area ICP waste materials.

**B. Alternatives Explored to Avoid Wetland Impacts (Mitigation Sequencing)**

Alternatives to avoid impacts to adjacent wetlands of West Page Swamp were explored. Expansion of the existing repository upward within the same footprint was studied. UMG has estimated that an additional approximately 500,000 cubic yards of waste material could be added to the Page Repository, by raising the repository thirty feet (from its current elevation of 2230 feet (amsl) to an elevation of 2260 feet (amsl)). At an annual delivery rate ranging from 21,000 to 10,700 cubic yards, this option would allow continued operation at the Page Repository for another 24 to 55 years.

Despite its many benefits this alternative appears not practicable since it is in dispute. The South Fork Coeur d'Alene Sewer District (the "District") owns the land where the Page Repository is located and has requested that the repository be held at its current elevation so not to impact the potential for other uses once the Repository is closed. While UMG has EPA approval from a technical feasibility standpoint to complete the vertical expansion to elevation 2260 feet (amsl), The Idaho DEQ and EPA have acquiesced to the position of the District ultimately deeming this alternative unavailable for further consideration in advance of the resolution of the dispute.

With the disagreement over vertical expansion of the West Page Repository, an effort to locate other areas "off-site" available for long-term placement of Box-area ICP waste material was conducted. The Idaho DEQ discussed possible alternatives to the upward expansion of the Page Repository in a January 10, 2008 report entitled "Substantive Compliance with Section 404 of the Clean Water Act Page Repository Wetland Impact Evaluation Bunker Hill Box, Operable Unit 2." UMG completed a search for alternate other target areas and, on January 13, 2009, submitted the report "Identification of Alternate Long-Term ICP Repository Locations" to the Idaho DEQ and EPA. Potential new repository sites located within the Silver Valley are limited by the natural geomorphology and/or hydrology of a narrow riverine valley and further complicated by the expectations of local governments to grow the local economy through development of all suitable lands in the Valley. To date, no suitable areas have been located and those located have not been found suitable by all the interested parties particularly given the time constraints. This option to date appears not practicable.

The Idaho DEQ, EPA and UMG recognize that the work associated with selecting and designing a new repository would substantially exceed the cost of expansion of the current Repository. More time is needed for acquisition, planning, and designing a new repository or continuing to explore other practicable long term alternatives acceptable to all parties. There is no capacity left at Page Repository without expanding above the 2230 foot elevation (amsl) level.

As a result, the only practicable alternative to resolve the immediate need is the wedge expansion of the Page Repository into West Page Swamp. Implementation of this alternative will allow the Idaho DEQ, EPA and UMG another 3.5 to possibly 7 years to plan for future repository needs.

### **C. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem**

#### ***Proposed Project Environmental Setting***

The project area is in the Humboldt Gulch/Grouse Creek sub-watersheds and within the South Fork of the Coeur d'Alene River watershed. Grouse Creek flows into West Page Swamp via the North Channel which is separated from Humboldt Creek by the Sewer District lagoons and Page Repositories. Humboldt Gulch Creek flows adjacent to the proposed project area, disperses into West Page Swamp, outfalls over a constructed weir at the mouth of the Swamp and enters Pine Creek approximately one mile downstream from the project area. Pine Creek enters South Fork of the Coeur d'Alene River approximately 1/4 mile from the confluence with Humboldt Gulch Creek.

The existing Page Repository was constructed on top of the historic Page Pond tailings impoundment that was utilized from 1926 until 1968. This tailings pond contains flotation tailings produced from the historic Page Mill which was located in Humboldt Gulch. Page Repository divides the impoundment which has converted into a complex of wetland types and is known as West and East Page Swamps. The proposed project is an extension of the existing Page Repository and will occupy about 1.6 acres of the 42.8 acres of the West Page Swamp.

#### **1. Substrate (40 CFR 230.20)**

Substrates under the proposed project area are stratified alluvium with layers of tailings materials, moderately rounded coarse- to fine-grained gravel, cobble alluvium, sand, and silt. Stratified layers have potential for both retention and sub-lateral movement of groundwater.

Some compaction of the substrate may occur as a result of covering the area with fill. No discernable change to overall hydrology should occur considering the size of the impact area relative to the remaining area in West Page Swamp.

#### **2. Suspended Particulates/Turbidity (40 CFR 230.21)**

Expansion of the Page Repository into the wedge area should have no downstream impact on suspended particulates/turbidity or dependent aquatic biota and other beneficial uses in Pine Creek or the South Fork of the Coeur d'Alene River. Transport capability of Humboldt Gulch Creek is very low and

sediment is likely to be deposited in-channel or filtered by riparian/wetland vegetation prior to reaching these waters. No discernible increase in turbidity is expected over natural background levels.

Minimal and short term increases in suspended sediments may be produced during initial berm construction at the outer Wedge perimeter. The berm after construction will contain fill material reducing potential for slough outside the design area. This berm and other best management practices such as silt fencing should minimize the risk for sediment delivery during the onset of the project. During operation, best management practices installed and maintained to control erosion and sediment delivery should reduce risk of a chronic source of accelerated sediment delivery to the stream or its floodplain or to West Page Swamp. Suspended sediment is expected to be easily controlled within natural background water quality standards at all times.

Stream erosion along the toe slope offers the highest risk for sedimentation, in amount and duration. Project design provides adequate distance for a 100 year flow to pass without cutting the toe slope of fill material. Additionally, the toe slope of the Repository will be armored for long term protection.

Sediment transport capability of the stream in West Page Swamp is very low. Humboldt Gulch Creek is low gradient with a channel that disperses into West Page Swamp immediately downstream from the proposed Wedge Expansion area and maintains a low gradient to Pine Creek. West Page Swamp acts as a natural sediment filter. This is suggestive that if sediment is released to the stream that it would be deposited into West Page Swamp or prior to reaching Pine Creek or the South Fork of the Coeur d'Alene River resulting in no adverse effects to Pine Creek or the South Fork. Sediment deposition is a natural process within West Page Swamp and the low gradient reaches of Humboldt Creek and maintaining sediment levels at natural background should produce minimal change from the existing condition.

### **3. Water (40 CFR 230.22)**

Effects to water quality would be negligible in the adjacent West Page Swamp or down-drainage in the South Fork of the Coeur d'Alene River as a result of wedge area activities. Discharge from the existing Repository has not been found to significantly alter existing water chemistry, water quantity, or physical properties. It is predicted that discharge from the expansion which is a small extension of the existing Repository would have no different result. The Idaho DEQ is expected to certify that the discharge of material into the wedge area will not violate existing water quality standards.

**4. Current Patterns and Water Circulation (40 CFR 230.23)**

No impacts are expected to current patterns and water circulation at the wedge expansion site during or after construction. The southern edge of the wedge area will be located to allow for at least 50 feet between the nearest top of bank of Humboldt Creek and the toe of the new fill. At high flows Humboldt Creek disperses through wetland vegetation losing the appearance of a defined channel. The Wedge Expansion will not alter this pattern nor remove deeply rooted vegetation adjacent to the stream channel. The Wedge Expansion comprises less than five percent of the West Page Swamp area and should have little to no affect on recharge or discharge, nutrient flow, water temperature, water depth and other water patterns contributing to environmental values of general West Page Swamp area.

**5. Normal Water Fluctuations (40 CFR 230.24)**

The placement of material in the wedge area is designed and located to allow for a 100 year flow event. TerraGraphics Environmental Engineering, Inc. conducted hydrologic modeling using HEC-RAS and compared results from a previous HEC-1 analysis of the watershed to determine adequate width to provide for 100 year floodplain at the Wedge Expansion site (Memo to IDEQ April 1, 2009). Their analysis suggests that the toe of the expansion should not encroach closer than 50 feet to the edge of the wetted perimeter at bank full or "top-of-bank" as this would be adequate to pass a 100 year flow event.

**6. Salinity Gradients (40 CFR 230.25)**

This section is not applicable given lack of salinity gradients in or adjacent to the wedge expansion area.

**D. Potential Impacts on Biological Characteristics of the Aquatic Ecosystem**

**1. Threatened and Endangered Species (40 CFR 230.30)**

No loss of critical or important habitat for any federally listed threatened, endangered, proposed or candidate wildlife or vegetation species would occur with the wedge area.

Although no impacts are anticipated, the Idaho DEQ will coordinate with the US Fish & Wildlife Service (USFWS) to determine if the wedge expansion will affect any species designated as endangered and/or threatened under the Endangered Species Act.

**2. Fish, Crustaceans, Mollusks, and Other Aquatic Organisms in the Food Web (40 CFR 230.31)**

No impacts are expected to fish and other aquatic resources as a result of wedge expansion.

**3. Other Wildlife (40 CFR Section 230.31)**

West Page Swamp offers a complex of wetland types from aquatic bed, forested, scrub-shrub, and emergent which provide a diversity of habitat for waterfowl and upland birds. USFWS monitoring of wildlife species identifies numerous waterfowl species and at least 44 species of migratory/songbirds using the area.

The activity associated with the Wedge Expansion may alter use patterns away from the area of the expansion and the project ultimately will remove only 1.6 acres of emergent wetland habitat. The expansion constitutes about a 8% reduction of habitat within the West Page Complex and less than a 3% reduction considering other adjacent available habitat. There is adequate area of similar or better quality habitat for waterfowl, some with capped sediments, within 1/4 mile of the impact area for displacement. The wedge expansion removes about 5% of available secondary and incidental habitat for migratory birds within the wetland complex. There is abundant adjacent similar habitat and upland habitat upslope of the project site. USFWS monitoring has not identified waterfowl nesting in the West Page Swamp but it is unlikely the area of the Wedge Expansion has been used for nesting as it is located between the existing Repository and the heavily used Highway 10.

The South Fork of the Coeur d'Alene River supports cold water trout species such as westslope cutthroat, brook, and rainbow and other warmer water ray fin fishes such as perch, dace, northern pike, and others. Westslope cutthroat, ranked S3 by the state of Idaho is protected and managed through a catch and release requirement. The existing quality of potential fisheries habitat in Humboldt Gulch Creek and West Page Swamp is marginal and seasonal at best. Without sediment contamination and flow restriction at the weir at the mouth of West Page Swamp, and degraded habitat upstream of the Swamp, the wetland complex and Humboldt Creek would offer refugia for rearing and possibly spawning. Ray fin fish species, such as perch, are more resilient to contaminated sediments and higher water temperatures and may utilize the West Page Swamp in some years as passage flows allow.

No fisheries habitat will be removed or changed as a result of the wedge expansion. The fill expansion will be within the 100 year floodplain but the existing channel and discharge from the expansion should be a no net change from existing conditions.

**E. Potential Impacts on Special Aquatic Sites**

**1. Sanctuaries and Refuges (40 CFR Section 230.40)**

This section is not applicable to the wedge expansion.

**2. Wetlands (40 CFR Section 230.41)**

The Proposed Project will cover 1.6 acres of riverine, palustrine emergent wetland within the 42.8 acre West Page Swamp wetland complex. The complex comprises four wetland types; 11.5 acres of aquatic bed, 18.3 acres of emergent, 5.1 acres of forested, and 7.9 acres of scrub-shrub types. The project removes about 8 percent of the lowest quality of the emergent type in the complex. The wetland within the impacted area has low vegetation diversity being dominated by common cattail whereas other emergent wetland areas within the Swamp have abundant other species including small-fruited bulrush and creeping spikerush.

The function/value of the impacted wetland area was assessed using Montana Wetland Assessment Method (1999 and 2008). Functional points were calculated to be 4.9 out of a possible 12 using the 1999 version; functional points were slightly higher using the 2008 version. Highest function was for groundwater discharge/recharge and shoreline stabilization and second highest function was rated for state-managed wildlife and production export. Lowest function ratings were for T&E habitat, general wildlife habitat, aquatic habitat, uniqueness, and recreation potential. The reason for the lower rating than typical for this type is because of soil contamination, low vegetation diversity, and being bounded by high disturbance from Highway 10 and the Page Repository.

To minimize adverse effects, the project is located to avoid the higher quality components of the West Page Swamp complex. The selected location is in a portion of the wetland complex with the least functional value and within the most common type represented within the complex.

**3. 230.42 Mud Flats (40 CFR Section 230.42)**

This section is not applicable to the wedge expansion.

**4. Vegetated Shallows (40 CFR Section 230.43)**

This section is not applicable to the wedge expansion.

**5. Coral Reefs (40 CFR Section 230.44)**

This section is not applicable to the wedge expansion.

**6. Riffle and Pool Complexes (40 CFR Section 230.45)**

This section is not applicable to the wedge expansion.

**F. Potential Effects on Human Use Characteristics**

**1. Municipals and Private Water Supplies  
(40 CFR Section 230.50)**

No impacts to municipal and private water supplies are expected as a result of the wedge expansion.

**2. Recreational and Commercial Fisheries  
(40 CFR Section 230.51)**

There will be no impacts to recreation and commercial fisheries as a result of the wedge expansion.

**3. Water-Related Recreation (40 CFR 230.52)**

This section is not applicable to the wedge expansion.

**4. Aesthetics (40 CFR Section 230.53)**

Construction of the wedge will blend with the existing Page Repository, which will be appropriately reclaimed and re-vegetated upon completion.

**5. 230.54 Parks, National and Historical Monuments,  
National Seashores, Wilderness Areas, Research Sites,  
and Similar Preserves (40 CFR Section 230.54)**

This section is not applicable to the wedge expansion.

**G. Evaluation and Testing**

**1. General Evaluation of Dredged or Fill Material  
(40 CFR 230.60)**

This section is not applicable to the wedge expansion.

**2. Chemical, Biological, and Physical Evaluation and  
Testing (40 CFR Section 230.61)**

This section is not applicable to the wedge expansion.

## **H. Actions to Minimize Adverse Effects**

### **1. Actions Concerning the Location of the Discharge (40 CFR 230.70)**

The wedge area is a small extension of the existing Page repository. Extending an existing disposal area contains the impact to an area already with impact and protects from adverse effects to another area yet with impact.

The size of the project is the smallest footprint possible that meets immediate and short term needs in order to accommodate the time and effort needed to make a coordinated decision based upon thorough analysis for long term repository needs.

The location of the project was selected to avoid impacts to adjacent wetland areas with higher function and value.

The design of the project implements best management practices to reduce the risk of sediment delivery from the repository and maintains a floodplain area for natural stream processes.

The design and location of the project reduces potential for upslope groundwater infiltration and hydraulic transport of contamination from the material to the adjacent environment.

### **2. Actions Concerning the Material to be Discharged (40 CFR Section 230.71)**

Material to be disposed in the Wedge Expansion will be similar to material disposed in the adjacent Page Repository. The analysis and decision for the Page Repository to place contaminated soils in an existing tailings impoundment area would be similar to the proposed Wedge Expansion, just at a smaller scale, i.e., approximately 75,000 cubic yards of contaminated material. Long term monitoring of discharge from the Page Repository indicates that water discharge from the Expansion would present no adverse effects to water quality or aquatic habitat. Best management practices used to control erosion and sedimentation deemed effected at the Page Repository will be used for the Wedge Expansion. At the end of the project, the area will be capped and revegetated similar to Page Repository for long term stability and environmental protection.

**3. 230.72 Actions Controlling the Material to be Discharged  
(40 CFR Section 230.72)**

Construction of a starter dike area will control the placement of material in the wedge area, as referenced in the LFR Wedge Expansion Report. Also, see discussion in Item 2 above.

**4. Actions Affecting the Method of Dispersion  
(40 CFR Section 230.73)**

As explained in Section II, Proposed Project, appropriate BMPs will be installed and maintained during the construction and operation of the wedge expansion.

**5. Actions Related to Technology (40 CFR Section 230.74)**

The wedge expansion will be constructed using similar equipment and methods of disposal that are presently undertaken effectively at the West Page Repository.

**6. Actions Affecting Plant and Animal Populations  
(40 CFR Section 230.75)**

The wedge expansion will not be detrimental to plant and animal populations in general but 1.6 acres of wetland function/value will be lost which has direct effects on watershed function and the amount of available habitat. There is adjacent wetland habitat available for displacement from the project site located in West Page Swamp, East Page Swamp, the South Fork of the Coeur d'Alene River, and created wetlands in West Smelterville Flats. Plant species at the project site are common and well represented in wetlands within the local area.

In order to minimize long term direct, indirect, and cumulative effects by loss of wetland area, compensatory mitigation is required. The wetland mitigation plan is to purchase wetland mitigation credits from an accredited wetland bank. Purchase of 11.76 mitigation credits will be made from Valencia Wetlands Trust prior to project implementation. The credit calculation is based upon the requirement wetland function rating method, the 1999 Montana Wetland Assessment Method. The resultant calculations are as follows: 4.9 function points x 1.6 acres x 1:1.5 mitigation ratio = 11.76. The rating form and the amount of mitigation credits has been reviewed and approved by EPA and supported by Walla Walla District, Army Corps of Engineers. Attached are the worksheets that document the function and value calculations of the wedge area wetlands.

**7. Actions Affecting Human Use (40 CFR Section 230.76)**

The wedge expansion will not be detrimental or increase incompatible human activity. The wedge will merely be a logical extension of the West Page Repository.

**8. Other Actions (40 CFR Section 230.77)**

This section is not applicable to the wedge expansion.



Page Pond Area

404 Analysis

Upstream Mining Group

Figure 1

## ***INLAND NORTHWEST RESOURCES, LLC***

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15304 W. Jacobs Road  
Spokane, WA 99224 ph: 509-244-9946  
E-mail: [joni\\_sasich@earthlink.com](mailto:joni_sasich@earthlink.com)

May 15, 2009

John Olson, Wetland Ecologist  
Environmental Protection Agency  
Idaho Operations Office, Region 10  
1435 N. Orchard St.  
Boise, ID 83706

RE: Upstream Mining Group (UMG) Page Repository Wedge Expansion Wetland  
Mitigation - Valencia Mitigation Bank Mitigation Credit Calculation Concurrence

Dear Mr. Olson:

This request is submitted on behalf of my client, Upstream Mining Group. Please find attached the calculations for wetland mitigation credits for the Wedge Expansion Project for review and concurrence. My client wishes a final credit determination in order to begin pursuing use of Valencia Mitigation Bank, one of the alternatives presented at our February meeting. Submitted is the 1999 version of the Montana Wetlands Assessment Form as this is the format required by Valencia Mitigation Bank.

Your immediate attention is appreciated. As agreement on mitigation is a part of the overall Section 404 requirement, my client wishes to progress to a final agreement on mitigation as soon as possible so they may move ahead on their project this summer.

If you should need to discuss or have questions on the completed forms, please feel free to contact me by email or by phone.

Sincerely,



Joni Sasich, CPSS  
Landscape Ecologist/ Wetland Specialist

Enclosures:

1999 Mt. Wetland Assessment Forms

MDT Montana Wetland Assessment Form (revised 5/25/1999)

1. Project Name: Wedge Expansion 2. Project #: UMG proponent Control #: \_\_\_\_\_

3. Evaluation Date: Mo 4 Day 7 Yr 2009 4. Evaluator(s): J. Sasich 5. Wetlands/Site #(s) West Page Swamp  
update 4/30/2009

6. Wetland Location(s): i. Legal: T 20 N or S; R 2 E or W; S 4; T N or S; R E or W; S Shoshone County  
 ii. Approx. Stationing or Mileposts: \_\_\_\_\_

iii. Watershed: \_\_\_\_\_ GPS Reference No. (if applies): \_\_\_\_\_  
 Other Location Information: Numbolt Gulch/Grouse Creek Subwatershed in SoFK Coeur d'Alene River

7. a. Evaluating Agency: \_\_\_\_\_ 8. Wetland size: (total acres) \_\_\_\_\_ (visually estimated)  
 b. Purpose of Evaluation: \_\_\_\_\_ (measured, e.g. by GPS [if applies])  
 1. \_\_\_\_\_ Wetlands potentially affected by MDT project  
 2. \_\_\_\_\_ Mitigation wetlands; pre-construction  
 3. \_\_\_\_\_ Mitigation wetlands; post-construction  
 4. \_\_\_\_\_ Other  
 9. Assessment area: (AA, tot., ac., \_\_\_\_\_ (visually estimated)  
 see instructions on determining AA) \_\_\_\_\_ (measured, e.g. by GPS [if applies])

10. Classification of Wetland and Aquatic Habitats in AA (HGM according to Brinson, first col.; USFWS according to Cowardin [1979], remaining cols.)

| HGM Class       | System            | Subsystem | Class     | Water Regime | Modifier | % of AA    |
|-----------------|-------------------|-----------|-----------|--------------|----------|------------|
| <u>Riverine</u> | <u>Palustrine</u> | <u>—</u>  | <u>EM</u> | <u>PP</u>    | <u>I</u> | <u>100</u> |
|                 |                   |           |           |              |          |            |
|                 |                   |           |           |              |          |            |
|                 |                   |           |           |              |          |            |
|                 |                   |           |           |              |          |            |

(Abbreviations: System: Palustrine (P)/ Subsystem: none/ Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US); Moss-Richen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO); System: Lacustrine (L)/ Subsystem: Littoral (2)/ Classes: RB, UB, AB/ Subsystem: Littoral (4)/ Classes: RB, UB, AB, US, EM/ System: Riverine (R)/ Subsystem: Lower Perennial (2)/ Classes: RB, UB, AB, US, EM/ Subsystem: Upper Perennial (3)/ Classes: RB, UB, AB, US/ Water Regimes: Permanently Flooded (H), Intermittently Exposed (G), Semipermanently Flooded (F), Seasonally Flooded (C), Saturated (B), Temporarily Flooded (A), Intermittently Flooded (J) Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Famed (F), Artificial (A) HGM Classes: Riverine, Depressional, Slope, Mineral Soil Flats, Organic Soil Flats, Lacustrine Fringe

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)  
 (Circle one) Unknown Rare Common Abundant  
 Comments: \_\_\_\_\_

12. General condition of AA:

i. Regarding disturbance: (use matrix below to determine [circle] appropriate response)

| Conditions within AA   | Predominant conditions adjacent to (within 500 feet of) AA   |   |  |
|--|--|---|--|
|  | Land managed in predominantly natural state, is not grazed, hayed, logged, or otherwise converted, does not contain roads or buildings | Land not cultivated, but moderately grazed or hayed or selectively logged, or has been subject to minor clearing, contains few roads or buildings | Land cultivated or heavily grazed or logged, subject to substantial fill placement, grading, cleaning, or hydrological alteration, high road or building density |
| AA occurs and is managed in predominantly natural state, is not grazed, hayed, logged, or otherwise converted, does not contain roads or occupied buildings  | low disturbance  | low disturbance   | moderate disturbance   |
| AA not cultivated, but moderately grazed or hayed or selectively logged, or has been subject to relatively minor cleaning, fill placement, or hydrological alteration, contains few roads or buildings | moderate disturbance   | moderate disturbance  | <u>high disturbance</u>  |
| AA cultivated or heavily grazed or logged, subject to relatively substantial fill placement, grading, cleaning, or hydrological alteration, high road, or building density                             | high disturbance   | high disturbance  | high disturbance   |

Comments: (types of disturbance, intensity, season, etc.): AA perimeter is confined by Hwy 10 and Page  
 ii. Prominent weedy, alien, & introduced species (including those not domesticated, feral): (list) Repository fill.

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: West Page Swamp is a remnant tailings pond for Page Mines. Sediments are contaminated. Subwatershed is highly disturbed - residential development upslope. Forested uplands.

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 above)

| # of "Cowardin" vegetated classes present in AA (see #10) | ≥ 3 vegetated classes (or ≥ 2 if one is forested) | 2 vegetated classes (or 1 if forested) | ≤ 1 vegetated class |
|---|---|--|---------------------|
| Rating (circle)   | High  | Moderate                               | <u>Low</u>          |

Comments: Emergent - 90% Typha latifolia, 10% Scirpus microcarpus & Eleocharis palustris

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals: *listed species - Lynx canadensis Salvelinus confluentus*

I. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):

Primary or critical habitat (list species) D S \_\_\_\_\_  
 Secondary habitat (list species) D S \_\_\_\_\_  
 Incidental habitat (list species) D S \_\_\_\_\_  
 No usable habitat D S \_\_\_\_\_

II. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function)

| Highest Habitat Level        | doc./primary | sus./primary | doc./secondary | sus./secondary | doc./incidental | sus./incidental | None         |
|------------------------------|--------------|--------------|----------------|----------------|-----------------|-----------------|--------------|
| Functional Points and Rating | 1 (H)        | .9 (H)       | .8 (M)         | .7 (M)         | .5 (L)          | .3 (L)          | <u>0 (L)</u> |

Sources for documented use (e.g. observations, records, etc.):

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

I. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):

Primary or critical habitat (list species) D S \_\_\_\_\_  
 Secondary habitat (list species) D S Hooded merganser (S2 species - Idaho)  
 Incidental habitat (list species) D S \_\_\_\_\_  
 No usable habitat D S \_\_\_\_\_

II. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function)

| Highest Habitat Level        | doc./primary | sus./primary | doc./secondary | sus./secondary | doc./incidental | sus./incidental | None  |
|------------------------------|--------------|--------------|----------------|----------------|-----------------|-----------------|-------|
| Functional Points and Rating | 1 (H)        | .8 (H)       | .7 (M)         | <u>.6 (M)</u>  | .2 (L)          | .1 (L)          | 0 (L) |

Sources for documented use (e.g. observations, records, etc.):

14C. General Wildlife Habitat Rating:

I. Evidence of overall wildlife use in the AA (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):

- observations of abundant wildlife #s or high species diversity (during any period)
- abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- presence of extremely limiting habitat features not available in the surrounding area
- interviews with local biologists with knowledge of the AA

Low (based on any of the following [check]):

- few or no wildlife observations during peak use periods
- little to no wildlife sign
- sparse adjacent upland food sources
- interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA - USFWS surveys - 2009 / 2007

ii. Wildlife habitat features (working from top to bottom, circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H), moderate (M), or low (L) rating. Structural diversity is from #13. For class cover to be considered evenly distributed, vegetated classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms].)

| Structural diversity (see #13)                   | High |     |     |   |        |     |     |   | Moderate |     |     |   |        |     |     |   | <u>Low</u>  |     |     |   |
|--|------|-----|-----|---|--------|-----|-----|---|----------|-----|-----|---|--------|-----|-----|---|-------------|-----|-----|---|
|  | Even |     |     |   | Uneven |     |     |   | Even     |     |     |   | Uneven |     |     |   | <u>Even</u> |     |     |   |
| Class cover distribution (all vegetated classes) | P/P  | S/I | T/E | A | P/P    | S/I | T/E | A | P/P      | S/I | T/E | A | P/P    | S/I | T/E | A | P/P         | S/I | T/E | A |
| Duration of surface water in ≥ 10% of AA         |      |     |     |   |        |     |     |   |          |     |     |   |        |     |     |   | <u>P/P</u>  |     |     |   |
| Low disturbance at AA (see #12i)                 | E    | E   | E   | H | E      | E   | H   | H | E        | H   | H   | M | E      | H   | M   | M | E           | H   | M   | M |
| Moderate disturbance at AA (see #12i)            | H    | H   | H   | H | H      | H   | H   | M | H        | H   | M   | M | H      | M   | M   | L | H           | M   | L   | L |
| High disturbance at AA (see #12i)                | M    | M   | M   | L | M      | M   | L   | L | M        | M   | L   | L | M      | L   | L   | L | <u>L</u>    | L   | L   | L |

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low] for this function)

| Evidence of wildlife use (i) | Wildlife habitat features rating (ii) |        |          |               |
|------------------------------|---------------------------------------|--------|----------|---------------|
|                              | Exceptional                           | High   | Moderate | <u>Low</u>    |
| Substantial                  | 1 (E)                                 | .9 (H) | .8 (H)   | .7 (M)        |
| Moderate                     | .9 (H)                                | .7 (M) | .5 (M)   | <u>.3 (L)</u> |
| Minimal                      | .6 (M)                                | .4 (M) | .2 (L)   | .1 (L)        |

Comments:

14D. General Fish/Aquatic Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, etc., circle NA here and proceed to the next function. If fish use occurs in the AA but is not desired from a resource management perspective [such as fish use within an irrigation canal], then Habitat Quality [below] should be marked as "Low", applied accordingly in ii below, and noted in the comments.)

i. Habitat Quality (circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H), moderate (M), or low (L) quality rating.)

| Duration of surface water in AA   | Permanent / Perennial |        |      | Seasonal / Intermittent |        |      | Temporary / Ephemeral |        |      |
|---|-----------------------|--------|------|-------------------------|--------|------|-----------------------|--------|------|
|   | >25%                  | 10-25% | <10% | >25%                    | 10-25% | <10% | >25%                  | 10-25% | <10% |
| Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation, etc. |                       |        |      |                         |        |      |                       |        |      |
| Shading - >75% of streambank or shoreline within AA contains riparian or wetland scrub-shrub or forested communities                                      | E                     | E      | H    | H                       | H      | M    | M                     | M      | M    |
| Shading - 50 to 75% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities                                     | H                     | H      | M    | M                       | M      | M    | M                     | L      | L    |
| Shading - < 50% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities   | H                     | M      | M    | M                       | L      | L    | L                     | L      | L    |

ii. Modified Habitat Quality (Circle the appropriate response to the following question. If answer is Y, then reduce rating in i above by one level [E = H, H = M, M = L, L = NA]. Is fish use of the AA precluded or significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support?  N Modified habitat quality rating = (circle) E H M L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low] for this function)

| Types of fish known or suspected within AA | Modified Habitat Quality (ii) |        |          |        |
|--|-------------------------------|--------|----------|--------|
|  | Exceptional                   | High   | Moderate | Low    |
| Native game fish                           | 1 (E)                         | .9 (H) | .7 (M)   | .5 (M) |
| Introduced game fish                       | .9 (H)                        | .8 (H) | .6 (M)   | .4 (M) |
| Non-game fish                              | .7 (M)                        | .6 (M) | .5 (M)   | .3 (L) |
| No fish                                    | .5 (M)                        | .3 (L) | .2 (L)   | .1 (L) |

Comments: Sediments contaminated. Flow connection is seasonal, short duration limited to peak flows. Fish have not been observed by USFWS monitoring surveys.

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle NA here and proceed to next function.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function)

| Estimated wetland area in AA subject to periodic flooding         | > 10 acres |        |       | <10, >2 acres |        |       | <2 acres |        |       |
|---|------------|--------|-------|---------------|--------|-------|----------|--------|-------|
|   | 75%        | 25-75% | <25%  | 75%           | 25-75% | <25%  | 75%      | 25-75% | <25%  |
| % of flooded wetland classified as forested, scrub/shrub, or both |            |        |       |               |        |       |          |        |       |
| AA contains no outlet or restricted outlet                        | 1(H)       | .9(H)  | .8(M) | .8(H)         | .7(H)  | .5(M) | .4(M)    | .3(L)  | .2(L) |
| AA contains unrestricted outlet                                   | .9(H)      | .8(H)  | .5(M) | .7(H)         | .6(M)  | .4(M) | .3(L)    | .2(L)  | .1(L) |

ii. Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA (circle)?  N

Comments: Roads, Coeur d'Alene Trail, weir structure @ outfall of W. Page Swamp

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, circle NA here and proceed with the evaluation.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

| Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding | >5 acre feet |       |       | <5, >1 acre feet |       |       | <1 acre foot |       |       |
|---|--------------|-------|-------|------------------|-------|-------|--------------|-------|-------|
|   | P/P          | S/I   | T/E   | P/P              | S/I   | T/E   | P/P          | S/I   | T/E   |
| Duration of surface water at wetlands within the AA   |              |       |       |                  |       |       |              |       |       |
| Wetlands in AA flood or pond > 5 out of 10 years  | 1(H)         | .9(H) | .8(H) | .8(H)            | .6(M) | .5(M) | .4(M)        | .3(L) | .2(L) |
| Wetlands in AA flood or pond < 5 out of 10 years  | .9(H)        | .8(H) | .7(M) | .7(M)            | .5(M) | .4(M) | .3(L)        | .2(L) | .1(L) |

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle NA here and proceed with the evaluation.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.)

| Sediment, nutrient, and toxicant input levels within AA | AA receives or surrounding land use with potential to deliver low to moderate levels of sediments, nutrients, or compounds such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present |        |        |        | Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. |        |        |        |
|---|---|--------|--------|--------|---|--------|--------|--------|
|   | > 70%   |        | < 70%  |        | > 70%   |        | < 70%  |        |
| % cover of wetland vegetation in AA                     | Yes   | No     | Yes    | No     | Yes   | No     | Yes    | No     |
| Evidence of flooding or ponding in AA                   |   |        |        |        |   |        |        |        |
| AA contains no or restricted outlet                     | 1 (H)   | .8 (H) | .7 (M) | .5 (M) | .5 (M)  | .4 (M) | .3 (L) | .2 (L) |
| AA contains unrestricted outlet                         | .9 (H)  | .7 (M) | .6 (M) | .4 (M) | .4 (M)  | .3 (L) | .2 (L) | .1 (L) |

Comments: Outlet of AA is unrestricted. Outlet of West Page Swamp is somewhat (seasonally) restricted by weir control structure. At high flows the wetland is connected to So. Fork Coeur d'Alene River (as observed on 4/21/2009).

14H Sediment/Shoreline Stabilization: (applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If does not apply, circle NA here and proceed to next function)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low] for this function.

| % Cover of wetland streambank or shoreline by species with deep, binding rootmasses | Duration of surface water adjacent to rooted vegetation |                         |                       |
|---|---|-------------------------|-----------------------|
|   | permanent / perennial                                   | seasonal / intermittent | Temporary / ephemeral |
| > 65%   | 1 (H)   | .9 (H)                  | .7 (M)                |
| 35-64%  | .7 (M)  | .6 (M)                  | .5 (M)                |
| < 35%   | .3 (L)  | .2 (L)                  | .1 (L)                |

Comments: Streambank @ AA margin is vegetated with shrubs.

14I. Production Export/Food Chain Support:

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral or absent [see instructions for further definitions of these terms].

| A   | Vegetated component >5 acres |     |          |     |     |     | Vegetated component 1-5 acres |     |          |     |     |     | Vegetated component <1 acre |     |          |     |     |     |     |
|-----|------------------------------|-----|----------|-----|-----|-----|-------------------------------|-----|----------|-----|-----|-----|-----------------------------|-----|----------|-----|-----|-----|-----|
|     | High                         |     | Moderate |     | Low |     | High                          |     | Moderate |     | Low |     | High                        |     | Moderate |     | Low |     |     |
| B   | Yes                          | No  | Yes      | No  | Yes | No  | Yes                           | No  | Yes      | No  | Yes | No  | Yes                         | No  | Yes      | No  | Yes | No  |     |
| C   | 1H                           | .9H | .9H      | .8H | .8H | .7M | .9H                           | .8H | .8H      | .7M | .7M | .6M | .7M                         | .6M | .6M      | .4M | .4M | .3L | .2L |
| P/P | .9H                          | .8H | .8H      | .7M | .7M | .6M | .8H                           | .7M | .7M      | .6M | .6M | .5M | .6M                         | .5M | .5M      | .3L | .3L | .2L | .1L |
| S/I | .8H                          | .7M | .7M      | .6M | .6M | .5M | .7M                           | .6M | .6M      | .5M | .4M | .5M | .4M                         | .4M | .2L      | .2L | .1L | .1L | .1L |
| T/E |                              |     |          |     |     |     |                               |     |          |     |     |     |                             |     |          |     |     |     |     |
| A   |                              |     |          |     |     |     |                               |     |          |     |     |     |                             |     |          |     |     |     |     |

Comments:

14J. Groundwater Discharge/Recharge: (Check the indicators in i & ii below that apply to the AA)

i. Discharge Indicators

- Springs are known or observed
- Vegetation growing during dormant season/drought
- Wetland occurs at the toe of a natural slope
- Seeps are present at the wetland edge
- AA permanently flooded during drought periods
- Wetland contains an outlet, but no inlet
- Other

ii. Recharge Indicators

- Permeable substrate present without underlying impeding layer
  - Wetland contains inlet but no outlet - artificially ponded
  - Other
- ↳ has outlet but increased retention.

iii. Rating: Use the information from i and ii above and the table below to arrive at [circle] the functional points and rating [H = high, L = low] for this function.

| Criteria   | Functional Points and Rating |
|--|------------------------------|
| AA is known Discharge/Recharge area or one or more indicators of D/R present | 1 (H)                        |
| No Discharge/Recharge indicators present                                     | .1 (L)                       |
| Available Discharge/Recharge information inadequate to rate AA D/R potential | N/A (Unknown)                |

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

| Replacement potential              | AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MNHP |        |          | AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MNHP |        |          | AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate |        |          |
|------------------------------------|--|--------|----------|---|--------|----------|--|--------|----------|
|                                    | rare   | common | abundant | rare  | common | abundant | rare   | common | abundant |
| Estimated relative abundance (#11) |  |        |          |   |        |          |  |        |          |
| Low disturbance at AA (#12i)       | 1 (H)  | .9 (H) | .8 (H)   | .8 (H)  | .6 (M) | .5 (M)   | .5 (M)   | .4 (M) | .3 (L)   |
| Moderate disturbance at AA (#12i)  | .9 (H)   | .8 (H) | .7 (M)   | .7 (M)  | .5 (M) | .4 (M)   | .4 (M)   | .3 (L) | .2 (L)   |
| High disturbance at AA (#12i)      | .8 (H)   | .7 (M) | .6 (M)   | .6 (M)  | .4 (M) | .3 (L)   | .3 (L)   | .2 (L) | .1 (L)   |

Comments:

14L. Recreation/Education Potential: i. Is the AA a known rec./ed. site: (circle) Y N (if yes, rate as [circle] High [1] and go to ii; if no go to iii)

ii. Check categories that apply to the AA:  Educational/scientific study;  Consumptive rec.;  Non-consumptive rec.;  Other

iii. Based on the location, diversity, size, and other site attributes, is there strong potential for rec./ed. use? Y (N)

(If yes, go to ii, then proceed to iv; if no, then rate as [circle] Low [0 1])

iv. Rating (use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function

| Ownership         | Disturbance at AA (#12i) |          |        |
|-------------------|--------------------------|----------|--------|
|                   | low                      | moderate | high   |
| public ownership  | 1 (H)                    | .5 (M)   | .2 (L) |
| private ownership | .7 (M)                   | .3 (L)   | .1 (L) |

Comments:

**FUNCTION & VALUE SUMMARY & OVERALL RATING**

| Function & Value Variables                     | Rating | Actual Functional Points | Possible Functional Points | Functional Units; (Actual Points x Estimated AA Acreage) |
|--|--------|--------------------------|----------------------------|--|
| A. Listed/Proposed T&E Species Habitat         | L      | 0                        | 1                          |  |
| B. MT Natural Heritage Program Species Habitat | M      | .6                       | 1                          |  |
| C. General Wildlife Habitat                    | L      | .3                       | 1                          |  |
| D. General Fish/Aquatic Habitat                | L      | .1                       |                            |  |
| E. Flood Attenuation                           | L      | .1                       |                            |  |
| F. Short and Long Term Surface Water Storage   | M      | .4                       |                            |  |
| G. Sediment/Nutrient/Toxicant Removal          | M      | .4                       |                            |  |
| H. Sediment/Shoreline Stabilization            | H      | 1                        |                            |  |
| I. Production Export/Food Chain Support        | M      | .7                       | 1                          |  |
| J. Groundwater Discharge/Recharge              | H      | 1                        | 1                          |  |
| K. Uniqueness                                  | L      | .2                       | 1                          |  |
| L. Recreation/Education Potential              | L      | .1                       | 1                          |  |
| Totals:  |        | 4.9                      |                            | 4.9 x 1.6 ac = 7.84                                      |

**OVERALL ANALYSIS AREA (AA) RATING:** (Circle appropriate category based on the criteria outlined below)    I    II    III    IV

|  |
|--|
| <p><b>Category I Wetland:</b> (Must satisfy <b>one</b> of the following criteria; if does not meet criteria, go to Category II)</p> <p><input type="checkbox"/> Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or</p> <p><input type="checkbox"/> Score of 1 functional point for Uniqueness; or</p> <p><input type="checkbox"/> Score of 1 functional point for Flood Attenuation <b>and</b> answer to Question 14E.ii is "yes"; or</p> <p><input type="checkbox"/> Total actual functional points &gt; 80% (round to nearest whole #) of total possible functional points.</p>  |
| <p><b>Category II Wetland:</b> (Criteria for Category I not satisfied <b>and</b> meets any <b>one</b> of the following criteria; if not satisfied, go to Category IV)</p> <p><input type="checkbox"/> Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or</p> <p><input type="checkbox"/> Score of .9 or 1 functional point for General Wildlife Habitat; or</p> <p><input type="checkbox"/> Score of .9 or 1 functional point for General Fish/Aquatic Habitat; or</p> <p><input type="checkbox"/> "High" to "Exceptional" ratings for both General Wildlife Habitat <b>and</b> General Fish/Aquatic Habitat; or</p> <p><input type="checkbox"/> Score of .9 functional point for Uniqueness; or</p> <p><input type="checkbox"/> Total Actual Functional Points &gt; 65% (round to nearest whole #) of total possible functional points.</p> |
| <p><b>Category III Wetland:</b> (Criteria for Categories I, II or IV not satisfied)</p>  |
| <p><b>Category IV Wetland:</b> (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy criteria go to Category III)</p> <p><input checked="" type="checkbox"/> "Low" rating for Uniqueness; <b>and</b></p> <p><input type="checkbox"/> "Low" rating for Production Export/Food Chain Support; <b>and</b></p> <p><input type="checkbox"/> Total actual functional points &lt; 30% (round to nearest whole #) of total possible functional points</p>  |

Mitigation Credits @ 1.5:1 Ratio  
 $1.5 \times 7.84 = 11.76$