APPENDIX 3-13

WETLAND DELINEATION - CRANDALL CREEK MINE EXPANSION AREA

Revised 4/25/97

WETLAND DELINEATION

GENWAL RESOURCES, INC.
CRANDALL CANYON MINE EXPANSION AREA
CRANDALL CREEK

EMERY COUNTY, UTAH

CONDUCTED BY

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APRIL 16, 1997

Introduction

Genwal Resources, Inc. is currently in the planning stages of the expansion of their Crandall Canyon Mine operation. Located in Crandall Canyon, a side canyon of Huntington Canyon in Emery County, the existing facility would expand into the channel of Crandall Creek. This expansion area was described in a detailed report prepared in 1994 by EIS Environmental Consulting. The purpose of the report at the time was to fully evaluate the vegetation that would be impacted by the expansion for reclamation purposes, as well as to identify the potential presence of hydric soils, cultural resources, fisheries, macrobenthic community structure, threatened and endangered species and Neotropical birds. The inventory of the area concentrated on the 2.98 acre (approximately 1,300 feet long by 100 feet wide) riparian corridor and the small 0.23 acre (200 feet long and 50 feet wide) bench adjacent to the corridor on the south, undisturbed side of the canyon.

Vegetation baseline data analyzed in the report was gathered from 31 transects in the riparian corridor and 11 transects on the bench. Species diversity, abundance and community structure is described in great detail within the report. Soil test pits were excavated along the channel bank at six locations in the corridor and two locations on the adjacent bench. It was determined that three sample sites, two along the creek and one on the bench were possibly hydric; and either associated with proximity to the creek or associated with runoff from the steep side hill above the bench.

Using the Army Corp of Engineers (USACE) methodology described in Corp of Engineers Wetland Delineation Manual (1987), it is the intent of this report to review data relevant to the riparian corridor and delineate the existence or non-existence of wetland(s) within the area of the planned expansion. The bench area, due its location away from the creek, will not be reviewed within this report.

Methodology

A variety of procedures are described within the manual to fit a multitude of situations. The 2.98 acre area has been surveyed and inventoried a number of times by the mine, associated consultants, and federal agencies. Based on the existing data, an on-site Level 2 routine determination (See Section D, Subsection 2) will not be conducted. A Level 1 and 2 comprehensive field determination, (See Section D, Subsection 3) will not be conducted due to the size of the described area (less than five acres) and abundance of data. Due to the degree of inventory conducted in the 1994 inventory, a cumulative determination (Section E) will not be required. Atypical situations (Section F) and problem areas (Section G) are not applicable to the site.

Methodology described for a off-site Level 1 routine determination (Section D, Subsection 1) is applicable to the expansion area described. Procedures outlined in the flowchart shown on page 54 (Figure 1) of the manual were utilized during the course of this evaluation. A breakdown of the flowchart is described in the next section.

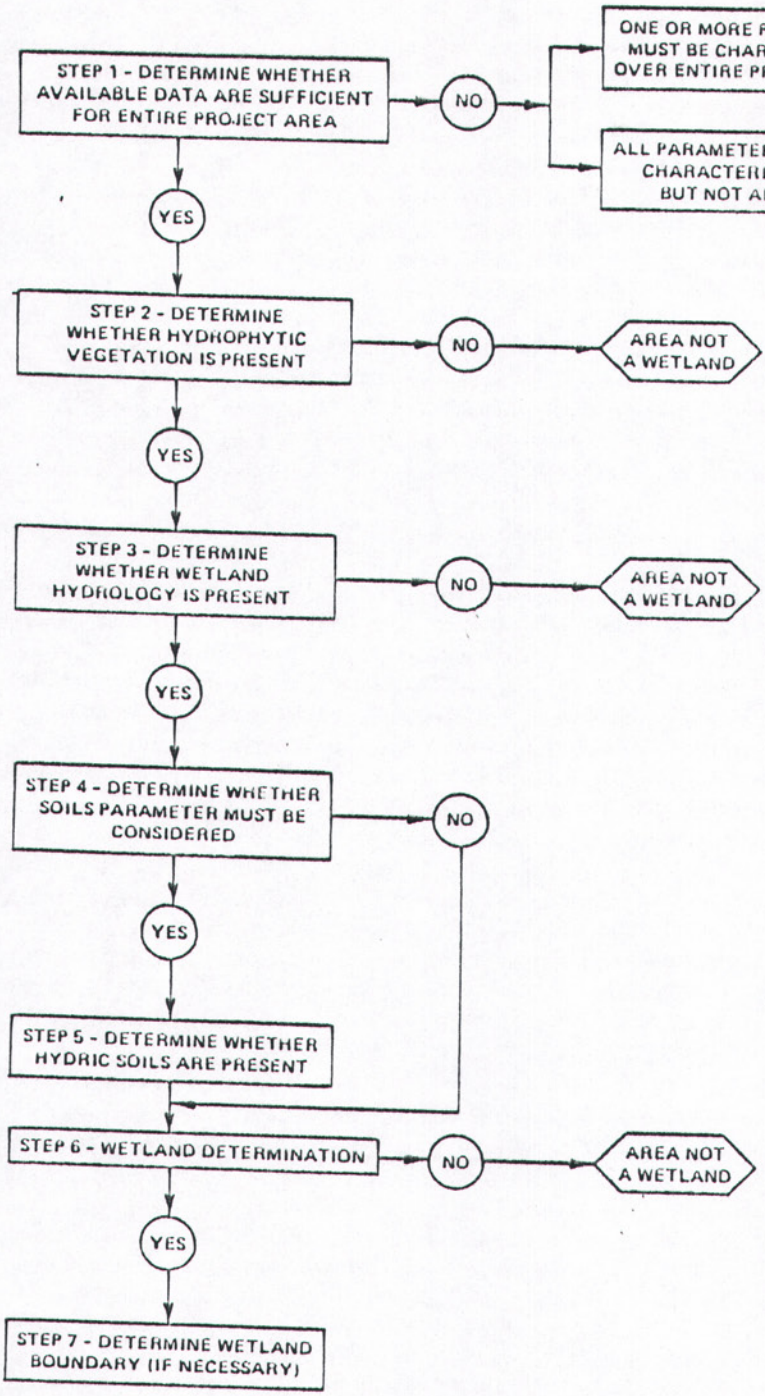

Figure 13. Flowchart of steps involved in making a wetland determination when an onsite inspection is unnecessary

FIGURE 1

Level 1 Wetland Determination

Determine Whether Available Data Are Sufficient for Entire Project Area

Based on the requirements referenced in Section B of the manual for the description of vegetation, soils, and hydrology (Step 5, 7, & 9), the following data has been previously prepared and has been utilized for this report:

* Map of study area - Proposed Culvert Disturbed Area (Exhibit 1)
* Baseline Riparian Inventory of Crandall Creek - EIS Environmental Consulting (1994)
* EarthFax Soils Inventory Data (1995, 1996)
* Genwal Resources, Inc. Appendix 2-3B Supplemental Soil Inventory (1997)
* Genwal Resources, Inc. Lease Buy Application 11 (In Review)
* 10 years of Utah Division of Oil, Gas and Mining hydrolocial data of Upper and Lower Flumes (Above and below study area)
* In-progress U.S. Forest Service soils data (Referenced and described in Appendix 2-3B)
* U.S. Fish and Wildlife Service National List of Plant Species that Occur in Wetlands: Utah
* Natural Resource Conservation Service Hydric Soils of the United States

This information is sufficient for the entire project area.

Determine Whether Hydrophytic Vegetation is Present The presence or lack of hydrophytic vegetation was determined by using the vegetation data described in the 1994 Baseline Riparian Inventory. Hydrophytic vegetation classifications (obligate, facultative wetland, facultative and facultative plus (+)) were obtained from the USFWS manual for wetland plants in Utah. Facultative minus (-) plants were dropped from review, since they lack typical adaptations as described on page 17, paragraph two of the USACE manual. Figure 2 shows the USACE data form for wetland determination that incorporates data analyzed from the 1994 report. Dominant vegetation for each class shown is made up mostly of facultative upland or facultative minus species, and, therefore, are not considered hydrophytic.

Conclusion **Based on lack of dominant (> 50 percent) hydrophytic vegetation, no USACE jurisdictional wetlands exist within the expansion area. Based on the wetland delineation manual, no need to further evaluate hydric soils potential or hydrologic conditions is required.**

Support for Conclusion

As stated previously, 31 transect were inventoried along a 1,300 foot baseline adjacent to the creek. Each transect proceeded from the edge of the existing disturbance area (edge of riparian area), across the creek, and to the next community type (spruce-aspen community). A breakdown of the points for each layer type, with percentage of each based on the 2119 vegetation sample points gathered along the corridor is shown in Table 1. Species described in the table are either obligate, facultative wetland, or facultative, and do not reflect the dominant species as shown on the USACE data form (Figure 2).

DATA FORM 1

WETLAND DETERMINATION

Applicant Name: Genwal Resources Application Number: – Project Name: Crandall Canyon Mine Expansion

State: UT County: Emery Legal Description: Township: 16 S Range: 7 E

Date: 4/16/97 Plot No.: – Section: 5

Vegetation [list the three dominant species in each vegetation layer (5 if only 1 or 2 layers)]. Indicate species with observed morphological or known physiological adaptations with an asterisk.

	Species	Indicator Status		Species	Indicator Status
Trees			Herbs		
1.	Cornus stolonifera	FACW	7.	Agrostis alba	FACW
2.	Picea pungens	FAC (-)	8.	Equisetum arvense	+
3.	Prunus virginiana	FACU	9.	Machaeranthera bigelovii	NI
Saplings/shrubs			Woody vines		
4.	Rosa woodsii	FAC (-)	10.	Not Applicable	
5.	Willow spp	FACW	11.		
6.	Purshia spp.	NI	12.		

% of species that are OBL, FACW, and/or FAC: 37.2 Other indicators: –.

Hydrophytic vegetation: Yes ___ No X. Basis: 50% (44.4%) of dominants are hydrophyli

Soil (See App. 2-3B)

Series and phase: Inclusion B On hydric soils list? Yes ___; No X.

Mottled: Yes ___; No X. Mottle color: –; Matrix color: –.

Cleyed: Yes X No ___ Other indicators: ___.

Hydric soils: Yes ___ No ___; Basis: Questionable - some characteristics

Hydrology

Inundated: Yes ___; No X. Depth of standing water: ___.

Saturated soils: Yes X; No ___. Depth to saturated soil: + 12" .

Other indicators: ___.

Wetland hydrology: Yes X; No ___. Basis: Drift lines, Sediment deposits associated with creek

Atypical situation: Yes ___; No X.

Normal Circumstances? Yes X No ___.

Wetland Determination: Wetland ___; Nonwetland No .

Comments: Based on lack of hydrophylic vegetation and questionable hydric soils.

Determined by: [signature]

B2

FIGURE 2

TABLE 1 Percent Cover of Wetland Plants in Riparian Corridor (2119 Total Points)

Cover Type	Points		% of Cover Type	% of Vegetation
Trees			-	-
Obligate	None			
Facultative Wetland				
Cornus stolonifera	373		60.4	17.6
Facultative				
Populus tremulodies	62		10.0	2.9
Populus angustifloia	17		2.6	0.8
		Total	73.0	
Shrubs				
Obligate	None			
Facultative Wetland				
Salix species	159		18.3	7.5
Facultative				
Celtis reticulata	2		0.2	0.09
		Total	18.5	
Forbs				
Obligate				
Rush spp.	3		0.8	0.01
Mimulus guttatus	4		1.0	0.02
Facultative Wetland				
Agrostis alba	88		13.9	4.2
Facultative				
Aster occidentalis	1		0.3	0.05
Facultative (+)				
Equisetum arvense	79		19.8	3.7
		Total	21.9	
TOTAL POINTS	788		TOTAL COVER	37.2

Of the dominant species shown on the USACE data form, 44.4 percent were hydrophytic. This is less than the 50 percent required for classification of a wetland based on vegetation (Based on the USACE requirement that all three indicators be in place - vegetation, soils, & hydrological conditions). It should also be indicated that methodology described in Section D and Section E of the manual for a more detailed hydrophytic vegetation inventory would only require four to five transects. The 1994 inventory consisted of 31 transects (14.4 percent of the total area), a much more intensive survey than required by the USACE.