

CENTERLINE DELINEATION OF POTENTIALLY JURISDICTIONAL WATERS WITHIN THE PROPOSED RESOLUTION PROJECT AREA

Prepared for: Resolution Copper Mining

Prepared by: WestLand Resources, Inc.

Date: January 21, 2011

Project No: 807.35

INTRODUCTION

WestLand Resources, Inc. (WestLand) was retained by Resolution Copper Mining (RCM) to identify potentially jurisdictional waters within an approximately 45,000-acre analysis area, encompassing the Resolution operations and vicinity within Pinal and Gila Counties, Arizona. The delineation is intended to be used by RCM as a planning tool, allowing RCM staff to identify those surface water features where impacts may require permitting under Section 404 of the Clean Water Act (CWA).

The delineation provided herein is based on extensive previous experience with the U.S. Army Corps of Engineers (Corps) and currently accepted protocols for delineating jurisdictional waters. This mapping effort includes only the linear, not lateral, extent of potentially jurisdictional features. The lateral extent (not included in this analysis) is defined by the ordinary high water mark, which identifies the extent of Corps jurisdiction. As such, this analysis does not constitute a formal or preliminary jurisdictional waters determination suitable for submittal to and review by the Corps. Based on conversations with RCM staff, these features have not been field verified; it is anticipated that a significant field effort will be required for any formal delineation for submittal to the Corps.

DEFINING WATERS OF THE U.S.

The definition of waters of the U.S. has historically been rather broad, with the jurisdiction of the Corps including typically dry arroyos or washes found throughout Arizona. However, the Corps and U.S. Environmental Protection Agency (EPA) issued joint guidance in June 2007 in response to the U.S. Supreme Court's June 2006 decision in the Rapanos/Carabell case, which raised significant questions regarding the extent of federal jurisdiction over activities in wetlands and other surface waters.

Under the new guidance, ephemeral streams and non-adjacent wetlands must be demonstrated to have a "significant nexus" (through biological, chemical, and/or physical parameters) with a downstream traditional navigable water (TNW). However, to date, the Corps has defined neither the extent of TNWs in the state of Arizona (with the exception of the Colorado River and selected reaches of the Gila and Santa Cruz rivers) nor what is meant by "significant nexus", resulting in something of a paralysis in the review and approval of jurisdictional waters determinations.

Presumably in response to this paralysis, the Corps issued a Regulatory Guidance Letter (RGL 08-02) in late June 2008 that allows a project to proceed with Section 404 permitting based on a "preliminary JD" (or "PJD") rather than an approved JD. Under the provisions of the PJD program, a project applicant and

the Corps essentially agree upon the extent of potential waters of the U.S. within the project area, and proceed with permitting accordingly (application, consultations, mitigation, etc.), treating the potentially jurisdictional waters as waters of the U.S. for the purpose of the permitting effort. Surface water features are mapped under a PJD as if the Rapanos and SWANCC decisions had not occurred, i.e. isolated features and features unlikely to possess a significant nexus are still considered potential waters of the U.S. for the purpose of any permitting effort utilizing a PJD.

The surface water features delineated herein are those that would likely be considered potential waters of the U.S. in a PJD scenario.

EVALUATION

As described above, WestLand has mapped drainages and other features within the proposed analysis area that would likely be considered potential waters of the U.S. as part of a PJD evaluation. The linear (though not lateral) extent of these potentially jurisdictional features has been overlain on aerial photography and plotted at a scale of 1" = 2,500' in Figure 1. A CD containing the GIS .shp files for the delineation is provided with this memorandum.

The delineation of larger drainages (shown in red in Figure 1) utilized data acquired from the U.S. Geological Survey; as such, in several places these .shp files do not directly overlay the associated drainage feature as it appears in the aerial photograph. However, the association appears to be close enough to be effectively utilized for planning purposes.

Any potentially jurisdictional wetlands were identified by general location, and the presence or absence of water was noted. The lateral extents of these wetlands were not identified. Springs shown on USGS quad maps were also identified by general location. Stock tanks were also identified based on aerial photography, and it was noted whether or not water was observed in the tanks in the aerial photograph. Springs and perennially wet stock tanks have the potential to support wetlands that were not otherwise identified during the aerial photo mapping effort.

A couple areas of note include the Carlota Copper Mine and the Resolution West Plant. The delineation at the Carlota project reflects the pre-construction configuration. Both Pinto Creek and Powers Gulch have since been rerouted through the mine operations, and a number of smaller drainages have been lost due to pit development and waste rock deposition.

A number of surface water drainages at the Resolution West Plant that ultimately discharge through the individually permitted AZPDES outfall have been delineated as potential waters of the U.S. However, even under a PJD scenario, we believe a strong argument could be made that these features are not potentially jurisdictional because they flow into and become the process water circuit. By definition, an AZPDES outfall designates a discharge *to* a water of the U.S. Jurisdictional waters, therefore, could not occur upgradient of a designated discharge outfall. It should be noted, however, that the Corps has not always agreed with this assessment in the past.



FIGURE

