

# Memorandum

**To:** Andrew Wang and Adam Green, Solar Reserve  
**From:** Steve Yarbrough, Tetra Tech EC, Inc.  
**Date:** December 22, 2010  
**Project:** Saguache Solar Energy Project  
**Subject:** Wetland Reconnaissance  
**Distribution:** Project File

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## Reconnaissance Summary

A Tetra Tech EC, Inc. (Tetra Tech) biologist conducted field reconnaissance on Monday, November 22, 2010, for the Saguache Solar Energy Project (Project). The purpose of the field reconnaissance was to evaluate the presence and current conditions of wetlands and “other waters of the United States” (WoUS) in the Project area. Tetra Tech was accompanied on the field reconnaissance by Mr. Ernie Myers. The field reconnaissance consisted of a windshield survey from Saguache County and agricultural access roads, as well as, pedestrian surveys where necessary.

The Project area occurs in the northern half of the San Luis Valley (Figure 1). The San Luis Valley, a high, arid area with a relatively flat surface and low overall vegetative cover, contains many naturally flowing artesian wells. Agriculture involving the use of center pivot irrigation is the dominant land use in the vicinity of the Project area (Photo 8). The majority of the area surveyed has been heavily impacted by agricultural disturbance including cultivated fields and irrigation activities.

Eleven photos are appended to this trip report to provide visual documentation of the conditions and features observed during the reconnaissance; photo points are referenced on Figure 1. Weather and field conditions were clear, but with scattered patches of snow on the ground. Water resources observed during the reconnaissance in the Project area included:

- North Lateral Canal (Photo 11): The North Lateral Canal, located along E Road, flows east through the Project area.
- North Central Canal (Photo 1): The North Central Lateral, located 1.5 miles south of the North Lateral Canal, flows east through the Project area.
- Gibson Ditch (Photos 6 and 7): Gibson Ditch, located along 57 Road, flows north through the Project area.
- Three National Wetland Inventory (NWI)-designated wetlands (Figure 2): NWI-5 and NWI-6 are located to the northeast of the intersection of E Road and 57 Road (Photos 4 and 5, respectively). NWI-5 covers approximately 6.768 acres inside the property being optioned area. NWI-6 covers approximately 0.102 acres, and it also is within the property being optioned area. NWI-2 is located near the center of Section 17, T. 41 N., R. 9 E (Photo 2). This location is within the proposed project



boundary. NWI-2 covers approximately 0.148 acres. The NWI wetlands were not delineated under this scope of work.

- Several Artesian Wells (Photos 2, 5, and 9): There are many flowing wells in the northern portion of the San Luis Valley. Several well sites were observed in the Project area.
- Road-side Ditches (Photos 3 and 10): There are several ditches constructed presumably to collect sheet flow from roads and from irrigated crop fields.

There were no other indications of wetlands or potential WoUS observed during the field reconnaissance.

## Discussion

In addition to the three NWI wetlands observed during the site reconnaissance, three other NWI wetlands have been identified from a review of the NWI wetland mapper database. These wetlands include NWI-1, NWI-3, and NWI-4. NWI-1 lies on the western edge of the project on the property being optioned boundary. This wetland is close to E Road and is one mile west of 53 Road. NWI-1 covers approximately 0.017 acres. NWI-3 is located in the NW1/4 of the NE1/4 of the SW1/4 of Section 16, T. 41 N, R. 9 E. NWI-3 covers 0.117 acres. NWI-4 is located in the NE1/4 of the NE1/4 of the SW1/4, T. 41 N, R. 9 E. NWI-4 covers approximately 0.193 acres. Wetlands NWI-3 and NWI-4 are within the proposed project boundary. All of the mapped NWI wetlands, numbered 1-6, are palustrine emergent wetlands (Figure 2).

The scope of work did not call for jurisdictional delineations to be conducted. For this reason, a conservative assumption is that all six NWI-mapped sites represent true wetlands. Total wetland acreage inside the proposed Project boundary is estimated at 0.458 acres (NWI-2, 3 and 4). NWI-1, 5 and 6 account for an additional 6.887 acres within the “property being optioned” boundary.

Man-made ditches and canals can be jurisdictional waters of the United States if they can be shown to connect to downstream navigable waters. In the case of the road-side ditches and canals in the Project area, there is no clear connection or nexus to any downstream navigable water, such as the Rio Grande. The NWI-mapped wetlands also appear to be isolated with no nexus to navigable water. This preliminary determination was made through field observations and a study of topographic maps and aerial photography for the Project area. Both the North Lateral Canal and the North Central Lateral appear to dead-end east of Colorado Highway 17 prior to reaching a navigable stream. Discussions with Mr. Travis Smith of the San Luis Valley Irrigation District confirmed that the major ditches and canals in the Project area do not connect to navigable water downstream of the Project.

For planning purposes, there are several thresholds that should be kept in mind for permitting impacts to wetlands and WoUS. Permitting **less than 0.10 acre** of permanent impact to a jurisdictional wetland or WoUS typically requires a Nationwide Permit (NWP) under Section 404 of the Clean Water Act (CWA), but does not require mitigation. Permanent impacts ranging from **0.10 acre to 0.50 acre** to jurisdictional wetlands or WoUS will require a NWP and a Preconstruction Notification (PCN) document. At this level of permanent impact, mitigation is required to offset impacts. The PCN would describe temporary and permanent impacts to wetlands and WoUS and would include a mitigation plan to offset the permanent

impacts and restore the temporarily impacted wetlands/waters. Currently, the USACE favors mitigation for permanent impacts in the form of a purchase of wetland banking credits.

An Individual Permit (IP) would be required from the USACE if the Project were to result in dredging or placement of fill in any jurisdictional wetland or other water WoUS that **exceeds 0.50 acre**. Under the IP process, a PCN is required, as is a NEPA process.

## Conclusions and Recommendations

The field reconnaissance identified three named irrigation canals/ditches (North Lateral, North Central Lateral, and Gibson Ditch) that flow through the Project area. Disturbance of these features by the proposed Project would require coordination with the San Luis Valley Irrigation District. As noted previously, the Irrigation District has indicated that these features do not connect to downstream navigable waters.

Three NWI wetlands (NWI-2, 3 and 4) are mapped within the proposed project boundary and an additional three NWI wetlands (NWI-1, 5 and 6) are mapped within the property being optioned. If the Project is anticipated to disturb any of these NWI-mapped wetlands, formal wetland delineation is recommended. Tetra Tech can perform delineation for wetlands and WoUS. This should be done preferably within the growing season, when wetland plants may be reliably identified to species and after initial Project layout has been completed, so that impacts to wetlands and WoUS can be accurately examined. As previously discussed, it is likely that these wetlands are not jurisdictional wetlands, and therefore, would not be subject to USACE regulation (i.e., would not require a permit to disturb).

Consultation with the Durango Regulatory Office of the U.S. Army Corps of Engineers (USACE) will be required to determine jurisdiction for canals, ditches and wetlands prior to altering or otherwise impacting any of these features. Only the USACE can perform legal Jurisdictional Determinations (JD) to verify jurisdiction of water resources.



Photo 1: Looking east at the North Central Lateral Canal. This photo was taken near the center point of Section 20, T.41 N., R 9 E.



Photo 2: Looking north at NWI-2 with standing surface water on the left half of the photo. This area is mapped as a palustrine emergent wetland by the NWI. Its approximate size is 0.148 acres. There is a capped well on the right half of this photo. The photo was taken in the SE1/4 of the SE1/4 of the NW1/4, Section 17, T. 41 N., R. 9 E.



Photo 3: Looking north at an unnamed road-side ditch. There was no flow or standing water present. No wetland vegetation was noted. Location of this photo was SE1/4 of the SE1/4 of the SE1/4, Section 4, T. 41 N., R. 9 E.



Photo 4: Looking southeast at the large, flat, unvegetated area mapped as NWI-5.. This area may be a shallow lake bed under wet conditions. The location of this photo was SW1/4 of the SW1/4, Section 11, T. 41 N., R. 9 E.



Photo 5: Looking northwest at the site of NWI-6. There was a flowing well here that is obviously capped and transmits water offsite via piping. The location of this photo was SE1/4 of the SE1/4 of the SW1/4, Section 11, T. 41 N., R. 9 E. Wetland vegetation, including rushes, bulrushes, and duckweed were observed. A large, flat, unvegetated area lies east of the well and probably represents a shallow lake bed under wet conditions.



Photo 6: Looking north along Gibson Ditch. 57 Road is to the right in the photo. This photo was taken in the SE1/4 of the SE1/4 of the SE1/4, Section 10, T. 41 N., R. 9 E. Flow appeared to be to the north at this location.



Photo 7: Looking south along Gibson Ditch. This ditch runs north/south in this area. This photo was taken in the SE1/4 of the SE1/4 of the SE1/4, Section 10, T. 41 N., R.9 E.



Photo 8: Looking north-northeast over a center-pivot irrigated field, characteristic of much of the site. Location is SW1/4 of the SE1/4 of the SW1/4, Section 4, T. 41 N., R. 9 E.



Photo 9: View of the site of a capped artesian well in SW1/4 of the SW1/4 of the NW1/4, Section 8, T. 41 N., R. 9 E. No wetland vegetation was documented.



Photo 10: Looking east at an unnamed ditch. It is obviously snow-filled, but the vegetation present here did not appear adapted for life in saturated soil conditions. The photo was taken 0.50 mile north of the North Lateral Canal, in the SW1/4 of the SW1/4 of the NW1/4 of Section 8, T. 41 N., R. 9 E.



Photo 11: Looking east the North Lateral Canal. E. Road is to the right in the photo. Photo location was SE 1/4 of the SW 1/4 of the SE 1/4 of Section 7, T. 41 N., R. 9 E. There was documentation of the hydrophytic grass species Reed canarygrass in this canal bottom. Small areas of pooled surface water were documented, but there was no observation of flow in the canal.