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July 31, 2013

Mr. Jason Deters Project Manager, California South Branch U.S. Army Corps of Engineers Sacramento District, Regulatory Division 1325 J Street, Room 1350

Re: Hydrogen Energy California Wetland Delineation Data Requests

Dear Mr. Deters:

Please find enclosed two items that you requested during our site visit on June 19, 2013:

- 1) Descriptions of isolated features found within two areas of the modified Hydrogen Energy California, LLC (HECA) footprint; and
- 2) The Occidental of Elk Hills, Inc. (OEHI) Jurisdictional Delineation.

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During the site visit on June 19, 2013 you identified two areas of isolated features along the proposed natural gas pipeline alignment that required additional clarification. The first area includes the depressions between State Route 58 and the railroad tracks near Interstate 5, and the second area is located on the eastern side of Magnolia Avenue, north of Seventh Standard Road.

The enclosed OEHI Jurisdictional Delineation provides additional information that you requested for each of the delineated features along the carbon dioxide pipeline south of the California Aqueduct. The OEHI submittal also includes GIS data for the delineated features.

If you have any further questions, please contact me at 510-874-1733 or Steve Leach at 510-874-3205.

Sincerely,

URS Corporation

Jan Novak Senior Biologist



URS Corporation 1333 Broadway, Suite 800 Oakland, CA 94612 Tel: 510.893.3600 Fax: 510.874.3205



OCCIDENTAL OF ELK HILLS, INC.

CARBON DIOXIDE ENHANCED OIL RECOVERY PROJECT

CO₂ SUPPLY LINE AND PROCESSING FACILITY

PRELIMINARY JURISDICTIONAL DELINEATION OF WATERS OF THE UNITED STATES

Prepared for:

Occidental of Elk Hills, Inc. 10800 Stockdale Highway Bakersfield, California 93311

Prepared by:

Stantec Consulting Services, Inc. 290 Conejo Ridge Avenue Thousand Oaks, California 91361

July 9, 2013

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EXECUTIVE SUMMARY

Stantec Consulting Services Inc. (Stantec), on behalf of Occidental of Elk Hills, Inc. (OEHI), conducted a preliminary jurisdictional field delineation of potential Waters of the United States (Waters of the U.S.) on May 29, 30, and 31, 2013. The survey covered lands within the corridor of the proposed Carbon Dioxide (CO₂) Supply Pipeline Alignment and CO₂ Processing Facility location associated with the OEHI CO₂ Enhanced Oil recovery (EOR) Project. With the exception of the northern half of the proposed pipeline alignment, the majority of the Project area was highly disturbed by extensive oil field infrastructure such as active pipelines and access roads through the oil fields. A portion of the California Aqueduct forms the northern boundary of the Project area. The northern portion of the proposed pipeline alignment occurs on gently rolling terrain, while the topography in the southern portion of the Project area occurs in steeply undulating Elk Hills terrain.

Information on vegetation, soils and hydrology was collected in the Project area for evidence of wetlands or other jurisdictional waters and three areas that appeared to meet the three technical criteria of wetlands were found. These areas were artificial wetlands created in uplands by leaking water delivery pipelines, collectively occupying an area of 0.008 acres within the Project area. Other water features mapped across the Project area consisted of nonwetland drainages categorized as ephemeral drainages and gullies. These features were generally very narrow, appearing to only occasionally support surface flows associated with heavy precipitation events. None of these areas contained wetland vegetation or hydric soils. These features were identified by a sometimes small, but perceptible bed and bank. The outer edge of the bed defined the boundaries of these features and was mapped using a Trimble GPS unit with sub-meter accuracy. The majority of these mapped drainages did not exhibit continuous hydrologic connectivity. Mapped gully features were small in extent and associated with recent cut and fill activities around well pads. Ephemeral drainage features occupied 0.49 acres of the Project area and gullies occupied 0.23 acres.

A review of existing site conditions, and recent case law lead Stantec to conclude that the artificial wetlands and non-wetland drainage features mapped during the May 2013 field delineation would not likely be considered jurisdictional, as these features are essentially isolated and do not exhibit hydrologic connectivity to greater "waters of the U.S." within the region. It is unlikely that any locations within the project area are subject to federal regulation. However, only the USACE can make the final determination as to whether or not wetlands or "other waters" features are subject to federal regulation.

1.0 INTRODUCTION

The Stantec field survey covered lands within a 50 foot corridor of the proposed CO₂ Supply Pipeline, as well as lands surrounding the proposed processing and facility location for the purposes of delineating any potential "Waters of the U.S." Stantec also investigated a number of potential "blue lines" and dark signature features on aerial imagery considered to be potentially jurisdictional and could potentially be impacted by the Project.

The Project area extends approximately 2.5 miles: the California Aqueduct forms the northern boundary and continues south to the proposed CO₂ processing facility. The Project area is located along the southwestern end of the San Joaquin Valley (Figure 1). It can be found on the East Elk Hills U.S.G.S. 7.5 minute guadrangle, Sections 15S, 22S and 27S of Township 30 South, Range 24 East, Mount Diablo Base Meridian (Figure 1). The project area is approximately three miles northwest of the city of Tupman.

The Elk Hills Oil Field is an active oil field containing a network of pipelines, electrical lines, roads, oil well pads, oil derricks and petroleum processing facilities. The Elk Hills is a steep to moderately steep isolated hill formation ending at the Temblor Range to the west and San Joaquin Valley to the north, south, and east. The Elk Hills are in the rain-shadow of the mountains to the west and, therefore, receive little annual rainfall amounting to an average of about 5.75 inches per year. Cut and fill grading of the steep topography associated with oil field infrastructure has disrupted the natural topography and hydrology of the local Elk Hills watersheds; the construction of the California Aqueduct has essentially truncated any hydrologic connectivity of the Elk Hills drainages with the San Joaquin Valley floor.

Waters of the U.S. occurring within the Project area typically include natural and in some cases man-made drainages as well as areas meeting the United States Army Corps of Engineers (USACE's) definition of a wetland. More broadly, Waters of the U.S. as interpreted by the United States Supreme Court in Solid Waste Agency of Northern Cook County v. Corps of Engineers (also referred to as the SWANCC decision, see Memorandum Supreme Court Ruling Concerning CWA Jurisdiction over Isolated Waters from Gary S. Guzy, General Counsel, U.S.

Environmental Protection Agency) and the U.S Supreme Court decisions Rapanos v. United States and Carabell v. Army Corps of Engineers in June 19, 2006, include the following:

- All Waters which are currently used, or were used in the past, or may be susceptible to use in intrastate or foreign commerce, including all waters that are subject to the ebb and flow of the tide.
- All interstate waters including interstate wetlands.
- All impoundments of waters otherwise defined as Waters of the United States under the definition.

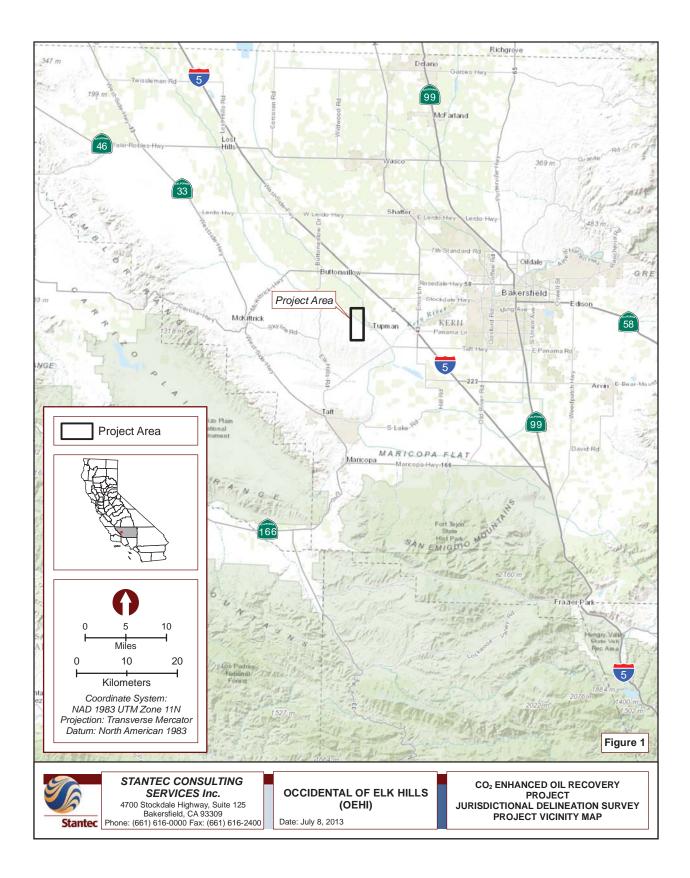
- Tributaries to waters identified above (i.e. first three bullets).
- The territorial seas.
- Wetlands adjacent to waters (other than waters which are themselves wetlands) identified above (i.e. first three bullets), in which a significant hydrologic or biologic nexus occurs.

These waters are subject to the jurisdiction of the USACE according to provisions of Section 404 of the Clean Water Act. Tributary Waters include incised channels that may carry a permanent, intermittent, or ephemeral flow of water. Wetlands are characterized by the presence of wetland hydrology (i.e. surface inundation or saturated soils), hydric soils (soils that have developed under the anoxic conditions imposed by soil saturation), and hydrophytic vegetation (an association of plants adapted to saturated soils). The filling or grading of jurisdictional waters requires a Department of the Army Permit from the USACE per provisions of Section 404 of the federal Clean Water Act.

According to the provisions of Section 401 of the Clean Water Act, no permits can be issued until the state within which the permitted action is to occur has issued a certification that the work will meet state water quality standards. In California, this certification must be obtained from the California Regional Water Quality Control Board that permits the filling or grading of jurisdictional waters.

The California Department of Fish and Wildlife (CDFW) has jurisdiction over the bed and bank of natural drainages according to provisions of Section 1602 of the California Fish and Wildlife Code (CDFW 2010). Activities that would disturb these drainages are regulated by the CDFW via a Streambed Alteration Agreement. Such an agreement typically stipulates that the applicant will protect the habitat values of the natural drainages by implementing certain measures.

Provisions of the California State Water Code also provide drainages, seasonal pools, and wetlands protection from unregulated development or degradation from construction by identifying such features as waters of the state of California subject to the jurisdiction of the State Water Resources Control Board and its various regional boards. Development within such waters that have not already been identified as Waters of the U.S. is subject to the permit authority of the State of California.

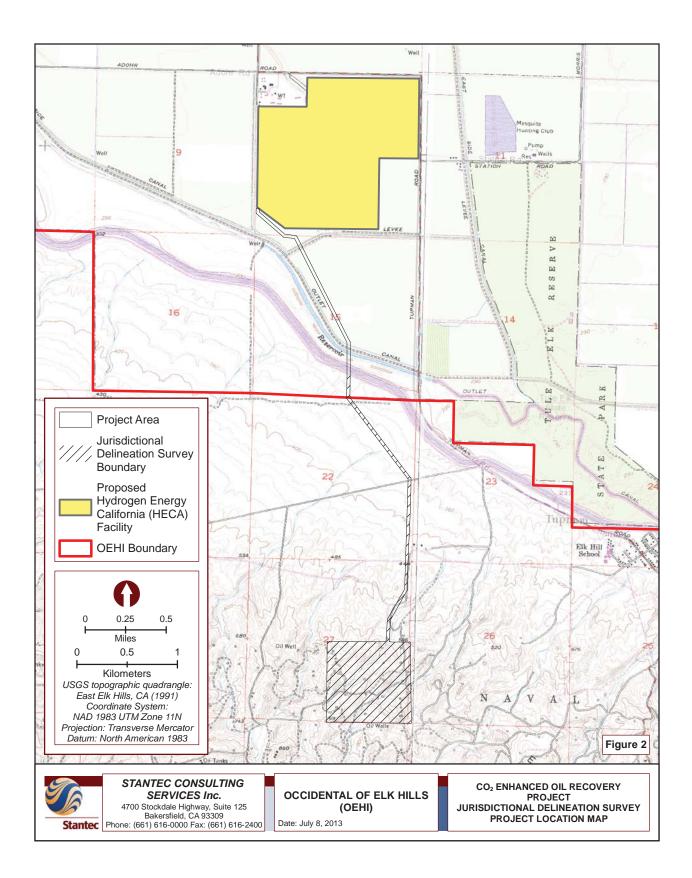


1.1 PROJECT BACKGROUND

Hydrogen Energy California (HECA) Project is pursuing coverage under a USACE Nationwide Permit and preliminary delineation results were submitted to the USACE in early March 2013 as part of the Clean Water Act Section 404 permitting process for the HECA Project. HECA provided an information request to OEHI for delineation information for the OEHI Supply Pipeline route and CO_2 Processing site because the (2) projects will share coverage under the same permit.

On June 29, 30 and 31, 2013, Stantec conducted a preliminary jurisdictional delineation to determine the extent of any potentially jurisdictional wetlands or "other waters" features that may occur along the proposed CO₂ Supply Line alignment and proposed CO₂ Processing Facility in support of the proposed Project.

This effort included the analysis of potential ordinary high water mark indicators in eight areas specified on a map provided by HECA. The features surveyed are shown in figures 4.1 through 4.6. A description of each feature along with its source of hydrology and the presence/absence of a "Significant Nexus" can be found in Appendix A.



2.0 METHODS

Stantec wetland ecologists Mr. Christopher Bronny and Mr. Tom Fardig conducted a preliminary jurisdictional delineation of the Project area on May 29, 30, and 31, 2013. The field delineation was conducted by walking the proposed CO₂ Supply Line alignment within a 50 foot buffer, as well as driving and walking the area around the proposed CO₂ Processing Facility at the southern end of the Project area. The field delineation was consistent with guidelines found in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), *Minimum Standards for Acceptance of Preliminary Wetland Delineations* (USACE 2001), *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manuel: Arid West Region* (Environmental Laboratory 2006), and *A field Guide to the Identification of the Ordinary High Water Mark in the Arid west Region of the Western United States (2008).*

Data was collected on vegetation, soils, and hydrology using wetland determination protocol as described in the 1987 and 2006 *Arid West* Manuals. Both upland and wetland data were collected to distinguish wetland boundaries from the adjacent upland; in some cases, single descriptive waypoints were taken to characterize the existing vegetation, soils, and hydrology of an area. On paired data points, a sample point was sited in an area exhibiting wetland characteristics, while a second sample point was sited up slope of the first point in an upland position that defined the transitional break between wetland and upland. No soil test pits were taken within potential aquatic features that were confined to channels, thus conforming to the definition of "other waters" of the U.S. (i.e., exhibits a distinct bed and bank, with an ordinary high water mark (OHWM). GPS coordinates of each sample location were recorded in the field using a Trimble GEO XT. A shape file of the project area downloaded onto the Trimble GEO XT GPS unit as well as aerial photos with the project area overlaid on top of them were used to aid the survey effort.

A total of four sample points were established on two paired transect lines within the Project area to delineate the boundaries of three mapped artificial wetlands; the upland positions are distinguished by "A" and the wetland positions "B." A total of six single "descriptive waypoints" were taken in areas to characterize portions of the Project area that suggested marginal wetland habitat, but do appear to meet all three parameters to be considered a potentially jurisdictional "waters of U.S." Information recorded on *Arid West* data forms are provided in Appendix E and Appendix F. Delineation digital data files are provided in Appendix G.

The terms "ephemeral drainage" or "gully" as used in this report refers to a drainage feature with a defined bed and bank. Drainage channels observed within the Project area were visually inspected for wetland characteristics and physical characteristics associated with an ordinary high water mark (OHWM) in order to determine the extent of possible jurisdiction. The boundaries of each feature within the Project area were mapped using a Trimble GPS unit with sub-meter accuracy. The Project area was examined for natural and engineered drainages. The limits of likely federal jurisdiction (OHWM) were guided by the use of the *Arid*

West Ephemeral and Intermittent Streams OHWM Datasheet and a Trimble GPS unit. Water features within the Project area were generally very narrow (often only a few feet in width) and very intermittent; therefore, delineating the boundaries of these features was based on the presence and extent of a noticeable bed and bank. A total of five OHWM data form sets were recorded for representative ephemeral drainages found throughout the Project area: information recorded on these forms can be found in Appendix E.

The approximate location and extent of jurisdictional wetlands/waters as well as other relevant data, were transferred on to a 1"= 200' scale topographical map of the Project area in the field. Representative photographs of the Property can be found in Appendix C.

Precipitation amounts during the 2012-2013 rainy season were below-average. Weather conditions at the time of the May 2013 field delineation were sunny and clear, with mid-day temperatures approximately 90 degrees Fahrenheit. Winds were generally calm, with occasional light gusts.

2.1 **USACE DEFINITION OF WETLANDS/WATERS**

Pursuant to the 1987 Manual, key criteria for determining the presence of wetlands are:

- The presence of inundated or saturated soil conditions resulting from permanent or (a) periodic inundation by ground water or surface water; and
- (b) A prevalence of vegetation typically adapted for life in saturated soil conditions (hydrophytic vegetation).

Explicit in the definition is the consideration of three environmental parameters: hydrology, soil, and vegetation. Positive wetland indicators of all three parameters are normally present in wetlands. The assessment of all three parameters enhances the technical accuracy, consistency, and credibility of wetland determination and is required per the 1987 Corps Manual.

Aquatic habitats, other than wetlands, that are considered to be waters of the United States were also investigated as part of this study. Their landward extent was defined following the definitions provided in the Corps of Engineers regulations [33 CFR §328.4(a) (b) and (c)]:

- (a) Territorial Seas. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles.
- Tidal Waters of the United States. The landward limits of jurisdiction in tidal waters: (b)
 - (1) Extends to the high tide line, or
 - (2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in (c) below.

- (c) Non-Tidal Waters of the United States. The limits of jurisdiction in non-tidal waters:
 - (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark,
 - (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands, or
 - (3) When the water of the United States consists only of wetlands, the jurisdiction extends to the limit of the wetlands.

Tributary waters and their impoundments are under the regulatory jurisdiction of the Corps and extend to the OHWM on opposing channel banks. Tributary waters include rivers, streams and seasonal drainage channels. The OHWM is typically indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in character of soil, destruction of vegetation, exposed roots on the bank, deposition of leaf litter and other debris materials or lower limit of moss growth on channel banks.

Areas meeting the regulatory definition of "Waters of the United States" (jurisdictional waters) are subject to the jurisdiction of the Corps. The Corps under provisions of Section 404 of the Clean Water Act (1972) has jurisdiction over "Waters of the U.S." These waters may include all waters used or potentially used for interstate commerce. This includes all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sand flats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as "Waters of the U.S.," tributaries of waters otherwise defined as "Waters of the U.S.," the territorial seas, and wetlands adjacent to "Waters of the U.S." (33 CFR, Part 328, Section 328.3).

Areas not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water-filled depressions with no outlet for drainage (33 CFR, Part 328).

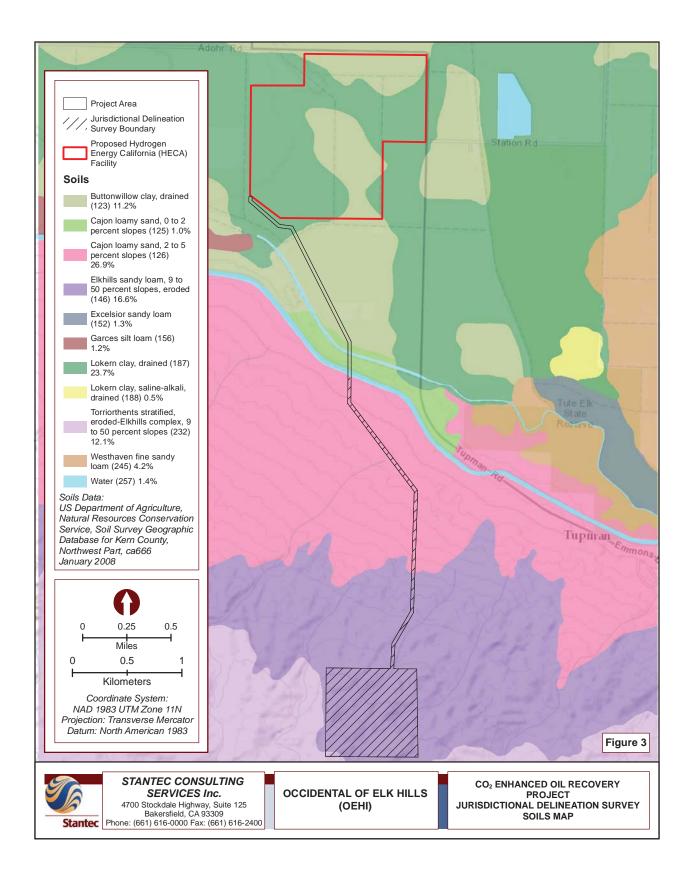
June 2013

3.0 RESULTS

The Project area is located in Kern County along the southwestern end of the San Joaquin Valley. The Project area investigated lies within a section of deeply dissected low hills along the southern half; the topography is gently rolling in the northern half. Elevations range from approximately 765 feet above mean sea level (msl) along the south-central boundary of the Project area to approximately 316 feet above msl at the northern terminus. When significant storm events occur, runoff is intercepted by the various swales and drainages which drain to the north and northeast into the larger system of drainages which exit the Elk Hills. Surface waters conveyed by these drainages either naturally terminate and dissipate in the flat terrain of the valley floor or artificially terminate on the south side of the California Aqueduct, which forms a barrier between the Elk Hills Watershed and the San Joaquin Valley floor.

The Project area occurs within the Tulare-Buena Vista Lakes Watershed (HUC#18030012). Potential "Waters of the U.S." occurring within the Project area included non-wetland ephemeral drainages and gullies, as well as three artificial wetland features resulting from a leaky utility water delivery pipeline. Nearly all of these areas are small fragments of a once larger natural drainage network which is now regularly interrupted by numerous road crossings and/or cut and fill grading associated with oil production infrastructure. The remainder of the Project area consisted of a network of non-jurisdictional swales and upland terrain that contained existing pipelines, parallel and cross roads, well pads, and cut and fill grading which lacked any evidence of a bed and bank.

Three soil mapping units have been identified within the project area (NRCS 2013). Table 1 provides a list and physical characteristics of the three soil mapping units, additional soils information is presented in Appendix D. The majority of the Project area consists of Cajon loamy sand, 2 to 5 percent slopes and Elkhills sandy loam, 9 to 50 percent slopes, eroded.



Stantec

PRELIMINARY JURISDICTIONAL DELINEATION OF WATERS OF THE UNITED STATES OFHI CO $_{\rm 2}$ EOR PROJECT

July 2013

TABLE 1. SOILS OF THE PROJECT AREA						
Soil Mapping Unit	Map Symbol	Parent Material	Drainage Class	Hardpan/ Duripan	Hydric	
Cajon loamy sand, 0 to 2 percent slopes	126	Alluvium derived from mixed and/or lacustrine deposits	Well Drained	No	No	
Elkhills sandy loam, 9 to 50 percent slopes, eroded	146	Igneous and sedimentary rock	Well Drained	No	No	
Torriorthents stratified, eroded- Elkhills complex, 9 to 50 percent slopes	232	Alluvium derived from igneous and sedimentary rock	Well Drained	No	No	

3.1 POTENTIAL WATERS OF THE U.S.

Non-wetland ephemeral drainages and gullies, as well as three man-made wetland features occur within the Project area. These features, although unlikely, have the potential to fall under the jurisdiction of the USACE. The location of these features on orthorectified aerial photos is presented on Figure 4. Representative photographs of mapped water features are presented in Appendix B.

3.1.1 Areas meeting the Technical Criteria of Jurisdictional Wetlands

While there are numerous swales occurring throughout the Project area, no features met the definition of a "wetland swale," as they lacked a prevalence of hydrophytic vegetation, absence of hydric soil indicators, and exhibited only one secondary hydrologic indicator (i.e., "drainage pattern"). Of all the potential wetland features assessed during the May 2013 field delineation, three locations within the Project area appeared to meet all three technical criteria of wetlands. Information on two of these mapped features was recorded on Arid West data forms and corresponds with USACE data point locations DP150 (see DP150a, -150b, -150c, and -150d; (Appendix F). The following conditions were observed: Surface water was present within these areas and thus soils were saturated. Additionally, hydric soil indicators were observed in the soil test pits (e.g., hydrogen sulfide; gleyed soils) and wetland indicator plants were dominant in the sample areas.

DP150b – Artificially induced wetland created by leaky water pipes. This feature is located in upland and occurs as a small basin beneath the pipes. Hydrologic inputs appear year-round/continuous, creating a suitable moisture regime to support a prevalence of hydrophytic species including black willow (*Salix gooddingii*; FACW), narrow-leaved cattail (*Typha angustifolia*; OBL), Coulter's horseweed (*Laennecia coulteri*; FAC), and rabbit's-foot grass (*Polypogon monspeliensis*; FACW). Mapped wetland boundaries were based on the limits of soil saturation. This feature occupied 0.008 acres of the Project area.

DP150d - Artificially induced wetland created by leaky water pipes. This feature is located downslope from DP150b and occurs as a linear feature confined to a narrow saturation zone. Hydrologic inputs appear year-round/continuous, creating a suitable moisture regime to support a prevalence of hydrophytic species including black willow (FACW), narrow-leaved cattail (OBL), Coulter's horseweed (FAC), rabbit's-foot grass (FACW), and Jersey cudweed (*Pseudognaphalium luteoalbum*; FAC). Mapped wetland boundaries were based on the limits of soil saturation. This feature occupied 0.008 acres of the Project area.

3.1.2 Other Waters

Due to the lack of hydrological conductivity, all the ephemeral drainages and gullies mapped during the May 2013 field delineation are non-jurisdictional and would not be considered tributary waters.

Depending on the slope, mapped ephemeral drainages in the northern portion of the Project area are low-gradient features that exhibit intermittent scour within a defined bed and bank; the majority of ephemeral drainages located in the southern portion occur at the head of natural drainages and occupy the thalweg between moderately steep hillslopes. While all mapped features exhibited a drainage pattern, nearly all contained a prevalence of upland vegetation (or in some cases sparsely vegetated). Formal soil test pits in some of these features revealed an absence of hydric soil indicators. Typical herbaceous and woody vegetation observed in these features included red brome (*Bromus madrietensis* ssp. *rubens*; UPL), schismus grass (*Schismus barbatus*; UPL), valley lessingia (*Lessingia glandulifera* var. *glandulifera*; UPL), fiddleneck (*Amsinckia* sp.; UPL), California matchweed (*Gutierrezia california*; UPL) and allscale saltbush (*Atriplex polycarpa*; FACU). These areas occupied a total of 0.49 acres of the Project area. Gully features often occurred on the steep fill slope of an existing oil well pad. Due to heavy scour associated with significant precipitation events, vegetation was often sparse. These areas occupied 0.23 acres of the Project area.

3.2 OTHER AREAS

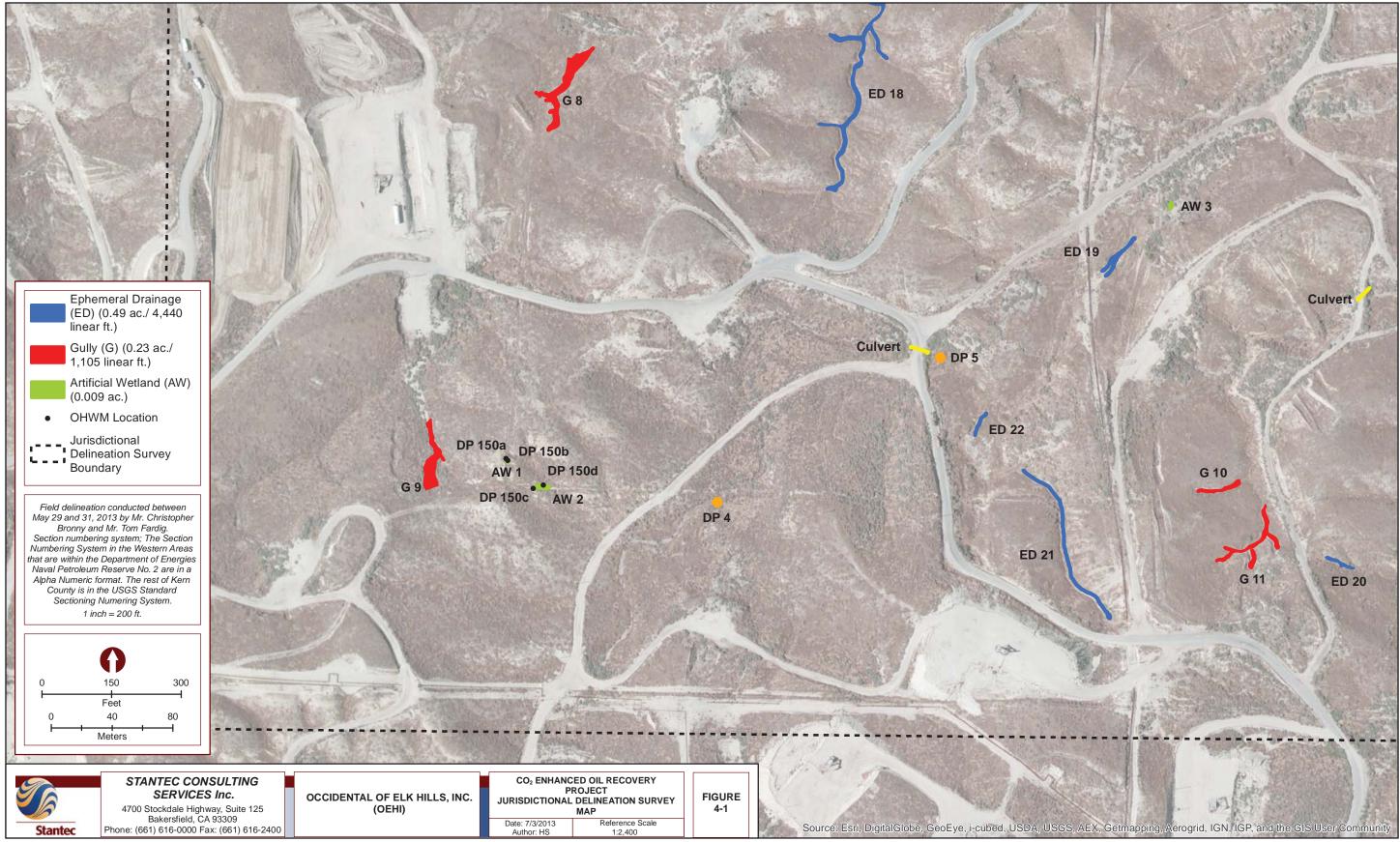
The remainder of the Project area consisted of pipeline infrastructure, roadways, and a mosaic of annual grassland and chenopod scrub.

Chenopod scrub habitat is characterized by scattered woody shrub cover consisting of various species of saltbush shrubs (Family *Chenopodiaceae*) and other subshrubs on mostly highly saline-alkaline soil substrates. Chenopod scrub habitat in the Project area is largely dominated by allscale saltbush, although California matchweed, spiny saltbush (*Atriplex spinifera*), cheesebush (*Ambrosia salsola*), alkali goldenbush (*Isocoma acradenia*), and bladder pod (*Isomeris arborea*) can occur as sub-dominants in the shrub layer. Prior to Euro-American settlement of the region, the herbaceous groundlayer consisted of native annual grasses and forbs (i.e., wildflowers); this component has now been largely replaced by invasive non-native grasses of Eurasian origin. Dominant non-native annual grasses observed within the Project area included red brome, schismus grass, ripgut brome (*Bromus diandrus*), and wild oat (*Avena*)

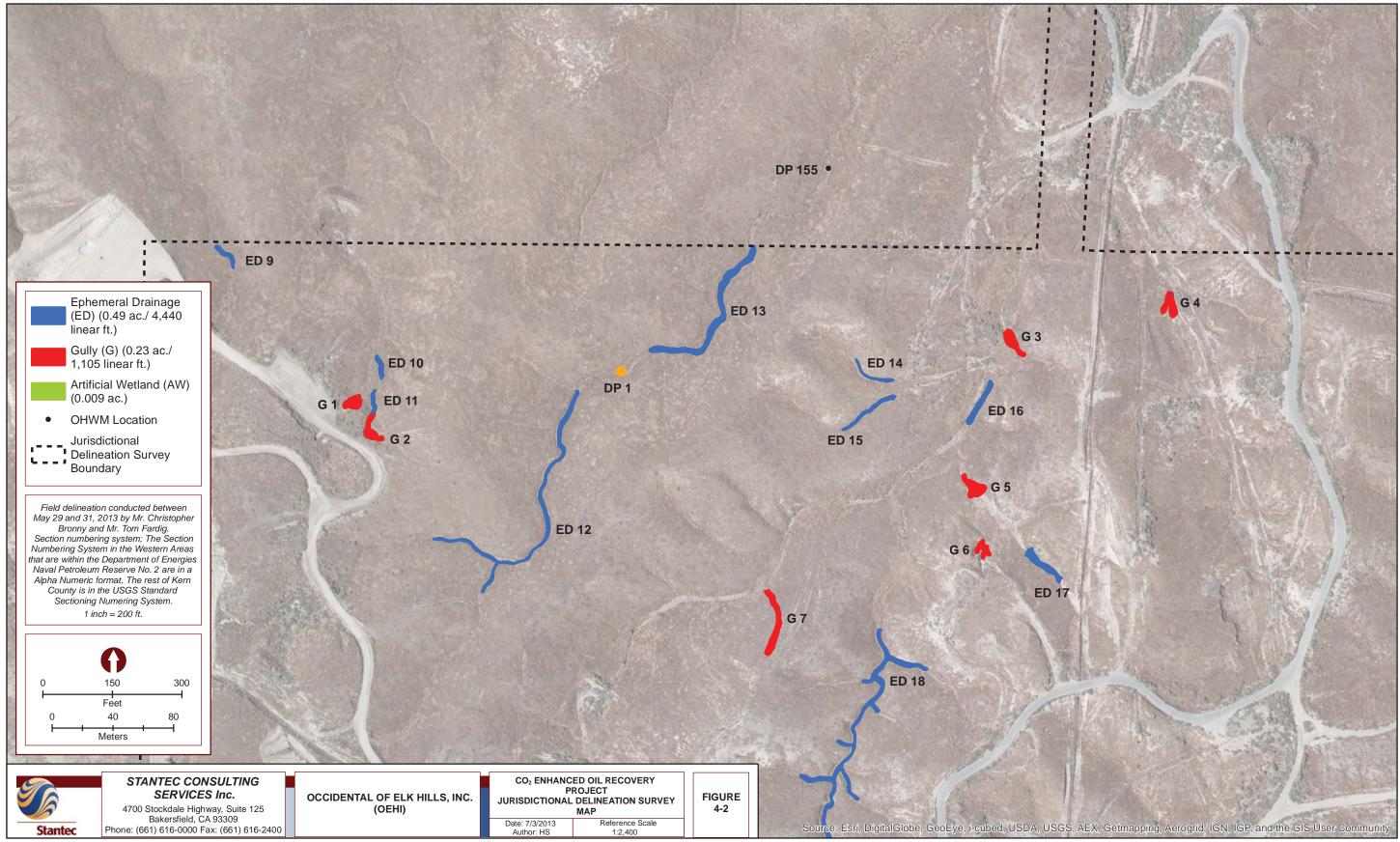
Stantec PRELIMINARY JURISDICTIONAL DELINEATION OF WATERS OF THE UNITED STATES **OEHI CO₂ EOR PROJECT**

July 2013

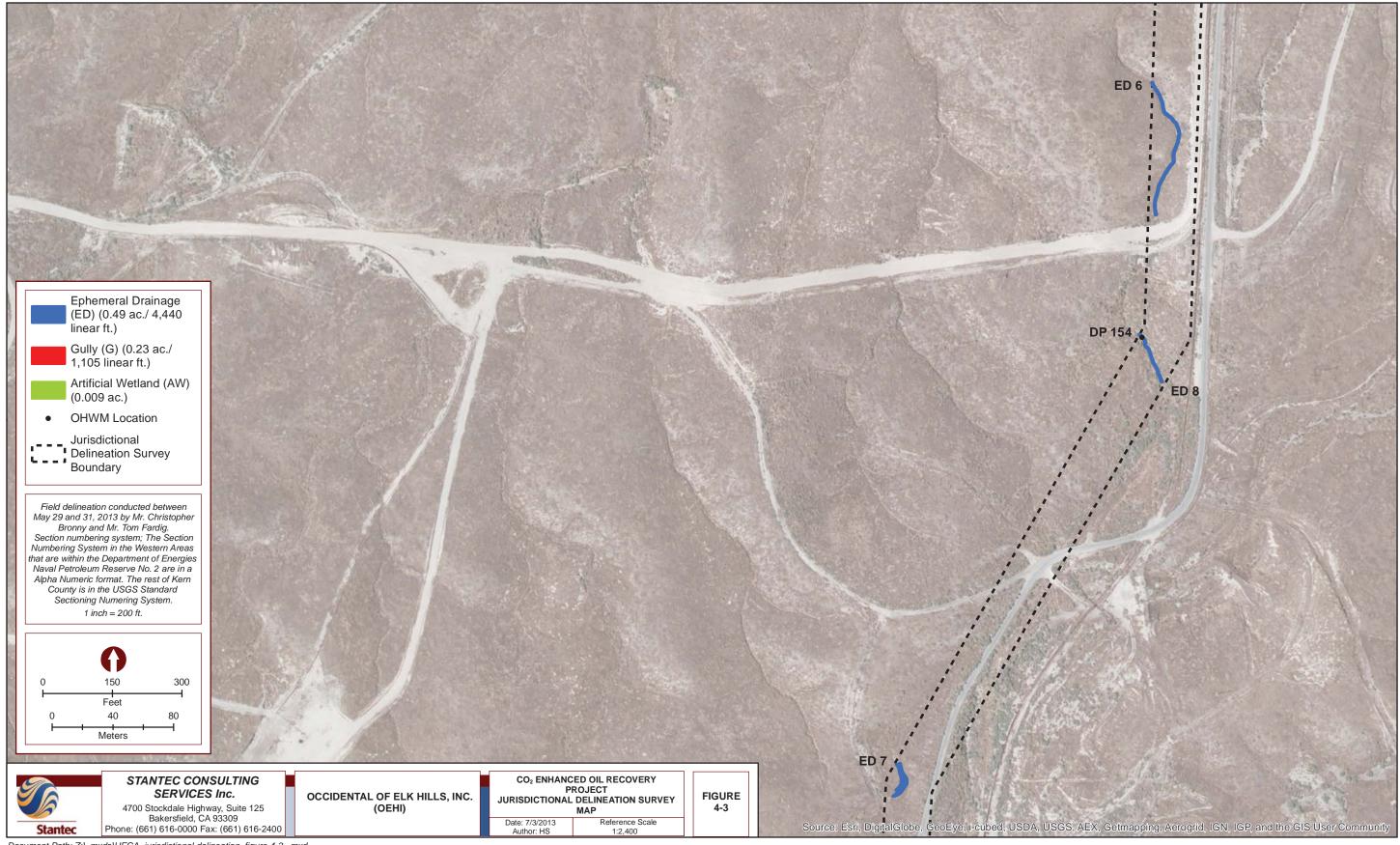
spp.); non-native broad-leaved plants were generally sparse in their overall percent cover in the herbaceous groundlayer and included red-stemmed filaree (Erodium cicutarium). With the exception of a few hillslope remnants which included scattered stands of bluegrass (*Poa* sp.), native grasses were largely absent. In terms of their overall frequency, density, and distribution, native forbs were moderately abundant within the herbaceous groundlayer and included fiddleneck, valley lessingia, freckled milkvetch (Astragalus lentiginosus var. nigricalycis), shining pepperweed (Lepidium nitidum), California sand-aster (Corethrogyne filaginifolia), rattlesnake weed (Chamaesyce albomarginata), jimson weed (Datura wrightii), wire-lettuce (Stephanomeria pauciflora), phacelia (Phacelia sp.), and popcorn flower (Plagiobothrys sp.).



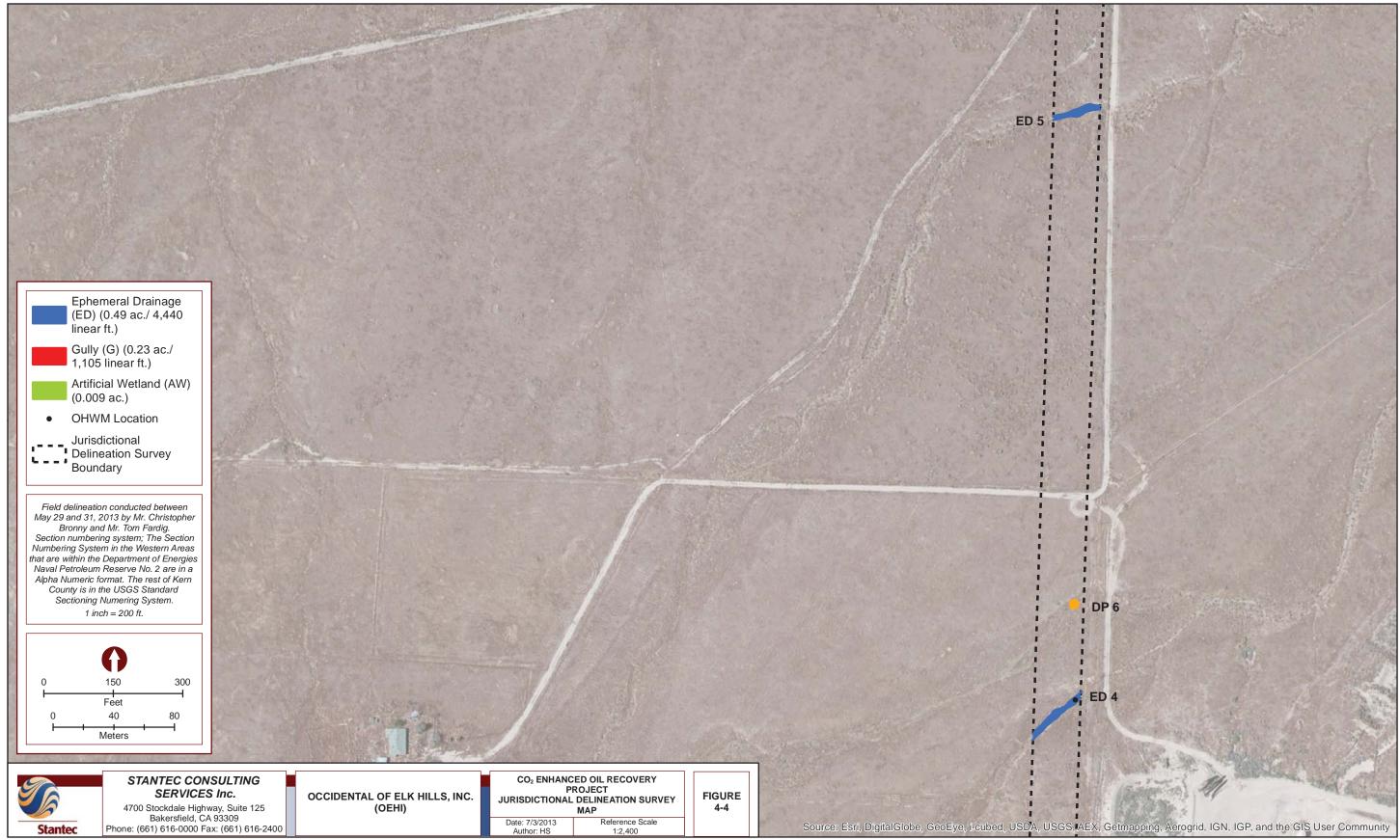
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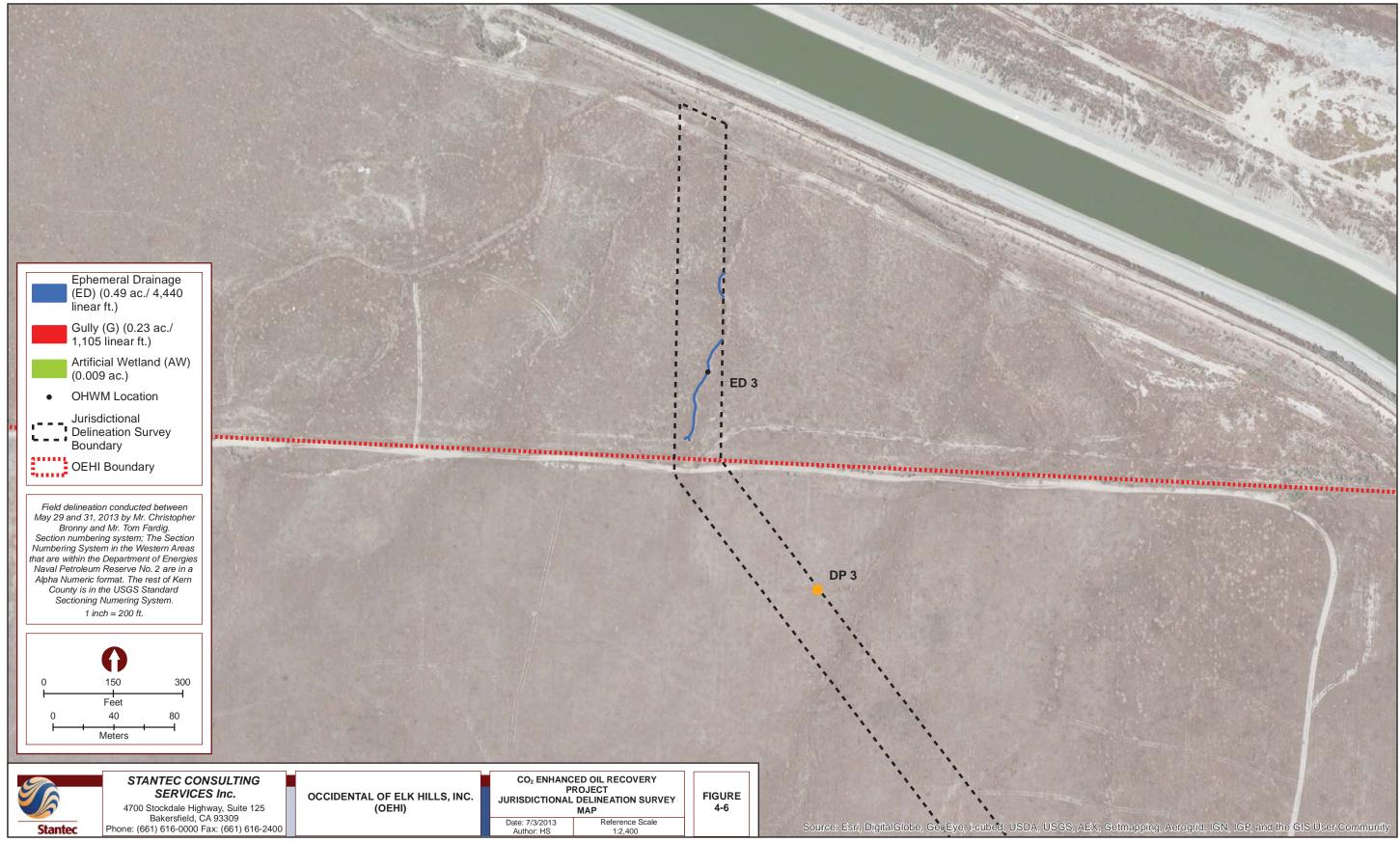
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4.0 **DISCUSSION**

This discussion outlines the basis for the assertion that features mapped in this investigation would continue to be considered non-jurisdictional by the USACE. Based on the examination of aerial imagery and topographic maps and the findings from our May 2013 field delineation, it appears that the drainages of the Elk Hills naturally terminate in the valley floor below the hills or artificially terminate at the levee of the California Aqueduct, and therefore exhibit no hydrologic connectivity to any Waters of the U.S. Aside from the investigation of the physical characteristics and history of the Elk Hills hydrology, recent case law and its influence on how the USACE may now perceive the jurisdictional status of mapped water features was reviewed. In January of 2001 the U.S. Supreme Court ruled in the SWANCC decision that "non-navigable, isolated, intrastate" waters could not be claimed as jurisdictional by the USACE on the basis of their use by migratory birds (Guzy 2001). Although the Court did not specifically address the meaning of the word "isolated," it upheld the jurisdictional status of "adjacent" wetlands (and other waters), which are by definition wetlands that are "bordering, contiguous, or neighboring" other jurisdictional waters. Therefore, the term "isolated wetland" has implicitly been defined as 'wetlands that are not bordering, contiguous, or neighboring' other jurisdictional waters.

This definition does not, however, address the degree of proximity necessary to establish that one wetland (or other water) is "adjacent" to known jurisdictional waters. As established by the Supreme Court in the *United States v. Riverside Bayview Homes, Inc.* in 1985 "wetlands separated from other waters by man-made dikes or barriers, natural river berms, beach dunes, and the like are 'adjacent wetlands'" (Guzy 2001). Recently these definitions have been further modified by the U.S Supreme Court decisions *Rapanos v. United States* and *Carabell v. Army Corps of Engineers*, June 19, 2006, which imposes a "significant nexus" test for federal jurisdiction over wetlands. What determines a significant nexus is somewhat unclear; however, the USACE has developed guidance that establishes criteria for assessing a significant nexus that considers hydrologic and biologic factors.

Based on the outcome of these court cases, no change in the interpretation of the federal jurisdiction over non-wetland drainages can be found. However, a change in federal regulation over wetlands has occurred. Based on the SWANCC decision, the artificial wetland features mapped in the Project area would be less likely to be considered jurisdictional. If the non-wetland drainages are not jurisdictional, then according to the SWANCC decision the artificial wetlands, not being adjacent to a Water of the U.S., would be considered isolated and therefore be exempt from USACE jurisdiction. Given the distance between these isolated features and a known Water of the U.S., it is extremely doubtful a significant nexus could be established between these features and a Water of the U.S. However, if the non-wetland drainages of the site are considered jurisdictional by the USACE, then the man-made wetlands would, therefore, likely be considered jurisdictional due to their adjacency to a near-by "other waters" (i.e., exhibit a "significant nexus").

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July 2013

This discussion of the mapped wetlands leads to another consideration: whether these artificial wetlands are jurisdictional in their own right. Some man-made features such as reflecting ponds, most irrigation ditches, sewage treatment ponds, etc., are not considered jurisdictional by the USACE. Man-made features or, to be more precise, human-induced wetlands are only potentially jurisdictional after five years, in which the USACE considers new normal circumstances to be in place rendering such wetlands potentially jurisdictional. Within the Project area, the three mapped artificial wetlands appear to have been in existence for no more than five years based on the sapling size of the black willow and salt cedar; however, the hydrophytic herbaceous component may have been in place longer than five years. All three of the mapped artificial wetlands were created by leaking utility water delivery pipelines; two were located at the top of a hill and Water from the leaks ran downhill along a ravine and created AW-1 and AW-2, as shown on Figure 4-1. The artificial wetlands created at these sites are small and localized at the point of the leak. If leaks have been occurring for long periods of time they will likely encompass larger areas of land. Therefore, these features are unlikely to have been a wetland five years ago. Upon notification of the leaking water line, repairs were initiated and completed by OEHI and the condition of the sites will return to normal in a few weeks or months. The USACE has determined that artificially irrigated areas are jurisdictional wetlands; these cases have involved large pasture areas, where the USACE was uncertain as to the existence of natural wetlands occurring in the area that may be masked by irrigation practices. In these cases the USACE has taken the position that if the irrigation ceases, the USACE would revisit the site in two years to determine if any previously masked wetlands exist. However, given the otherwise very dry nature of the Project area, a direct link is easy to identify implicating the artificial water source as the cause of the mapped wetlands. Therefore, it would seem that the USACE would likely dismiss these areas as non-jurisdictional.

The lack of any indicators, including hydrophytic vegetation, wetland hydrology, or hydric soils within the proposed Project area, indicates that a USACE jurisdictional wetland is not present. However, the CDFW may choose to require notification and/or preparation of a Lake and Streambed Alteration Agreement pursuant to Section 1602 of the Fish and Wildlife Regulations. CDFW jurisdiction would include the area from bank to bank. Because the CDFW does not discriminate between ephemeral washes or streams, any drainage with a definable bed and bank (such as the ephemeral drainages in guestion), and presence of fish or wildlife resources can be considered jurisdictional by CDFW. While no aquatic wildlife is believed to occur within the drainages, multiple small mammal burrows were observed within the channel bed and banks which may provide habitat for sensitive terrestrial species. All findings by Stantec personnel are subject to final approval by CDFW personnel.

In conclusion – and recognizing that only the USACE can make a jurisdictional determination - no jurisdictional waters are believed to occur within the Project area, due to the apparent isolation of the Elk Hills drainages from known Waters of the U.S., the absence of hydrologic connectivity of individual fragments of these drainages, the questionable status of the artificial wetlands following the repair of the leaking water delivery pipelines, and the lack of any apparent significant nexus between these wetlands and a distant Waters of the U.S.

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APPENDIX A

PRELIMINARY JURISDICTIONAL DELINEATION OF WATERS OF THE UNITED STATES OEHI CO₂ EOR PROJECT

Table of Mapped Waters of the U.S.

CARBON DIOXIDE ENHANCED OIL RECOVERY PROJECT

Mapped Waters of the U.S. Features

Feature/ I.D.	Source of Hydrology	"Significant Nexus" Presence/Absence	Description of the Mapped Feature	Map Sheet Reference
Ephemeral Drainage/ ED- 1	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 5
Ephemeral Drainage/ ED- 2	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 5

Ephemeral Drainage/ ED- 3	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 6
Ephemeral Drainage/ ED- 4	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 4
Ephemeral Drainage/ ED- 5	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 4
Ephemeral Drainage/ ED- 6	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only	Map Sheet 3

			during heavy precipitation events during the rainy season.	
Ephemeral Drainage/ ED- 7	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 3
Ephemeral Drainage/ ED- 8	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 3
Ephemeral Drainage/ ED- 9	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 2

Ephemeral Drainage/ ED- 10	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent: "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 2
Ephemeral Drainage/ ED- 11	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 2
Ephemeral Drainage/ ED- 12	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 2
Ephemeral Drainage/ ED- 13	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only	Map Sheet 2

			during heavy precipitation events during the rainy season.	
Ephemeral Drainage/ ED- 14	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 2
Ephemeral Drainage/ ED- 15	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 2
Ephemeral Drainage/ ED- 16	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 2

Ephemeral Drainage/ ED- 17	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent: "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 2
Ephemeral Drainage/ ED- 18	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 2
Ephemeral Drainage/ ED- 19	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 1
Ephemeral Drainage/ ED- 20	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only	Map Sheet 1

			during heavy precipitation events during the rainy season.	
Ephemeral Drainage/ ED- 21	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent: "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 1
Ephemeral Drainage/ ED- 22	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Low-gradient feature; presence of bed and bank; intermittent scour. Coarse sandy substrates supporting upland vegetation. Supports surface flows only during heavy precipitation events during the rainy season.	Map Sheet 1
Gully/G-1	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Medium to high- gradient erosional feature associated with sheetflow runoff from nearby well pad(s) and surrounding uplands. Pronounced scour; deeply incised channel.	Map Sheet 2

Gully/G-2	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Medium to high- gradient erosional feature associated with sheetflow runoff from nearby well pad(s) and surrounding uplands. Pronounced scour; deeply incised channel.	Map Sheet 2
Gully/G-3	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Medium to high- gradient erosional feature associated with sheetflow runoff from nearby well pad(s) and surrounding uplands. Pronounced scour; deeply incised channel.	Map Sheet 2
Gully/G-4	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Medium to high- gradient erosional feature associated with sheetflow runoff from nearby well pad(s) and surrounding uplands. Pronounced scour; deeply incised channel.	Map Sheet 2
Gully/G-5	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Medium to high- gradient erosional feature associated with sheetflow runoff from nearby well pad(s) and surrounding uplands. Pronounced scour; deeply incised channel.	Map Sheet 2

	Direct	Absent: "Other Waters"	Medium to high	Map Sheet 2
Gully/G-6	precipitation; sheetflow runoff from surrounding uplands.	Absent: Other Waters feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Medium to high- gradient erosional feature associated with sheetflow runoff from nearby well pad(s) and surrounding uplands. Pronounced scour; deeply incised channel.	
Gully/G-7	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent: Other Waters feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Medium to high- gradient erosional feature associated with sheetflow runoff from nearby well pad(s) and surrounding uplands. Pronounced scour; deeply incised channel.	Map Sheet 2
Gully/G-8	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Medium to high- gradient erosional feature associated with sheetflow runoff from nearby well pad(s) and surrounding uplands. Pronounced scour; deeply incised channel.	Map Sheet 1
Gully/G-9	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Medium to high- gradient erosional feature associated with sheetflow runoff from nearby well pad(s) and surrounding uplands. Pronounced scour; deeply incised channel.	Map Sheet 1
Gully/G-10	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Medium to high- gradient erosional feature associated with sheetflow runoff from nearby well pad(s) and surrounding uplands. Pronounced scour;	Map Sheet 1

			deeply incised channel.	
Gully/G-11	Direct precipitation; sheetflow runoff from surrounding uplands.	Absent : "Other Waters" feature does not exhibit continuous hydrologic connectivity and is hydrologically isolated from "Waters of the U.S." within the general region.	Medium to high- gradient erosional feature associated with sheetflow runoff from nearby well pad(s) and surrounding uplands. Pronounced scour; deeply incised channel.	Map Sheet 1
Artificial Wetland/AW- 1	Direct precipitation; sheetflow runoff; leaking water delivery pipe.	Absent: Wetland feature is hydrologically isolated from "Waters of the U.S." within the general region; does not exhibit a "significant nexus" to a Traditional Navigable Water (TNW).	Prevalence of hydrophytic vegetation; presence of hydric soil indicators; presence of hydrologic indicators.	Map Sheet 1
Artificial Wetland/AW- 2	Direct precipitation; sheetflow runoff; leaking water delivery pipe.	Absent: Wetland feature is hydrologically isolated from "Waters of the U.S." within the general region; does not exhibit a "significant nexus" to a Traditional Navigable Water (TNW).	Prevalence of hydrophytic vegetation; presence of hydric soil indicators; presence of hydrologic indicators.	Map Sheet 1
Artificial Wetland/AW- 3	Direct precipitation; sheetflow runoff; leaking water delivery pipe.	Absent: Wetland feature is hydrologically isolated from "Waters of the U.S." within the general region; does not exhibit a "significant nexus" to a Traditional Navigable Water (TNW).	Prevalence of hydrophytic vegetation; presence of hydric soil indicators; presence of hydrologic indicators.	Map Sheet 1

APPENDIX B

PRELIMINARY JURISDICTIONAL DELINEATION OF WATERS OF THE UNITED STATES OEHI CO₂ EOR PROJECT

Vascular Plants of the Project Area

Project:

Date: Field Delineators: OEHI *CO*₂ EOR Project Kern County, California 5/29 - 5/31/2013 Christopher Bronny; Tommy Fardig

Wetland Indicator Status reflects updated 2012 National Wetland Plant List (NWPL) for Arid West (AW) Nomenclature follows The Jepson Manual, 2nd Ed., 2012 *denotes naturalized species

Scientific Name	Common Name	Wetland Indicator Status
Section - Eudicots		
Asteraceae		
Ambrosia salsola	Cheesebush	
Aster(chilensis)	Aster	
Centaurea melitensis*	Tocalote	
Centaurea solstitialis*	Yellow star-thistle	
Corethrogyne (filaginifolia)	California sand-aster	
Erigeron canadensis	Common horseweed	FACU
Gutierrezia california	California matchweed	
Heterotheca grandiflora	Telegraph-weed	
Isocoma acradenia	Alkali goldenbush	FACU
Lactuca serriola*	Prickly lettuce	FACU
Laennecia coulteri	Coulter's horseweed	FAC
Lessingia glandulifera var.		
glandulifera	Valley lessingia	
Pseudognaphalium luteoalbum*	Jersey cudweed	FAC
Sonchus oleraceus*	Common sow-thistle	
Stephanomeria pauciflora	Wire lettuce	
Boraginaceae		
Amsinckia sp.	Fiddleneck	
Phacelia sp.	Phacelia	
Plagiobothrys sp.	Popcornflower	
Brassicaceae		
Caulanthus lasiophyllus	California mustard	
Hirschfeldia incana*	Short-pod mustard	

Lepidium nitidum	Shining pepperweed	FAC
Chenopodiaceae		
Atriplex polycarpa	Allscale saltbush	FACU
Salsola tragus*	Russianthistle	FACU
Cleomaceae		
Isomeris arborea	Bladder pod	
Cucurbitaceae		
Cucurbita palmata	Coyote melon	
Crassulaceae		
Crassula connata	Sand pygmyweed	FAC
Euphorbiaceae		
Chamaesyce albomarginata	Rattlesnake weed	
Croton setiger	Turkey mullein	
Fabaceae		
Astragalus lentiginosus var. nigricalycis	Freckled milkvetch	
Geraniaceae		
Erodium cicutarium*	Red-stem filaree	
Lamiaceae		
Marrubium vulgare*	White horehound	FACU
Trichostema ovatum	San Joaquin bluecurls	
Loasaceae		
Mentzelia sp.	Mentzelia	
Malvaceae		
Malva parviflora*	Cheeseweed	
Onagraceae		
	Booth's evening-	
Eremothera boothii ssp. boothii	primrose	

Ranunculaceae

Delphinium (gypsophilum)	Larkspur	
Salicaceae		
Salix gooddingii	Black willow	FACW
Solanaceae		
Datura wrightii	Jimson weed	
Nicotiana glauca*	Tree-tobacco	FAC
Tamaricaceae		
Tamarix ramosissima*	Saltcedar	
Section - Monocots		
Poaceae		
Avena fatua*	Wild oat	
Bromus diandrus*	Rip-gut brome	
Bromus madrietensis ssp. rubens*	Red brome	UPL
Festuca myuros*	Rattail fescue	FACU
Hordeum (marinum		
ssp. gussoneanum)*	Mediterranean barley	FAC
Poa (secunda)	Bluegrass	FACU
Polypogon monspeliensis*	Rabbit's-foot grass	FACW
Schismus barbatus*	Schimus grass	
Stipa sp.	Needlegrass	
Typhaceae		
Typha angustifolia	Narrow-leaved cattail	OBL

Wetland Plant Indicator Status Categories

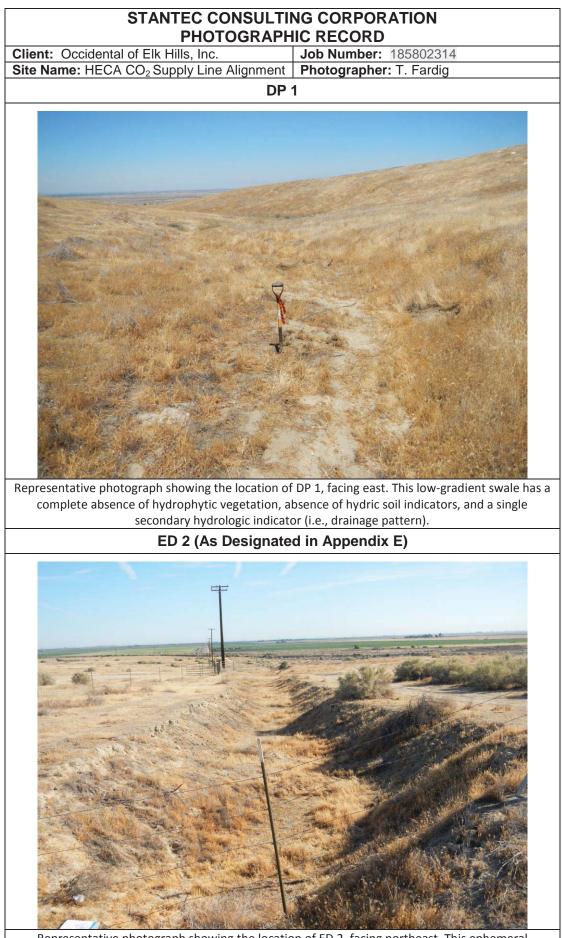
Indicator Category	Symbol	Ecological Description
Obligate Wetland Plant	OBL	Almost always occur in wetlands.
Facultative Wetland Plant	FACW	Usually occur in wetlands, but may occur in non-wetlands.
Facultative Plant	FAC	Occur in wetlands and non- wetlands.
Facultative Upland Plant	FACU	Usually occur in non-wetlands, but may occur in wetlands.
Upland Plant	UPL	Almost never occur in wetlands.

*Based upon revised information contained in Army Corps of Engineers 2012 The National Wetland Plant List Indicator Rating Definitions (ERDC/CRREL TR-12-11)

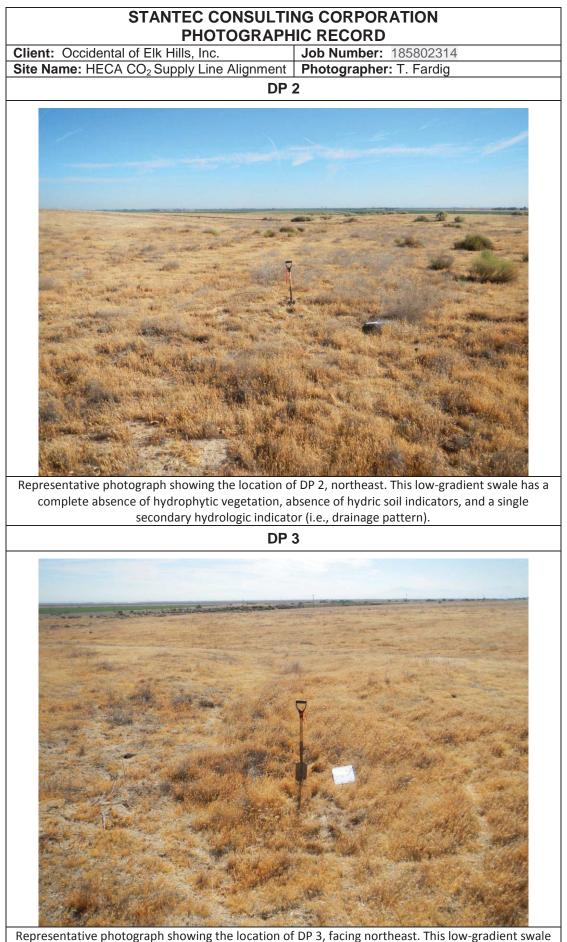
APPENDIX C

PRELIMINARY JURISDICTIONAL DELINEATION OF WATERS OF THE UNITED STATES OEHI CO₂ EOR PROJECT

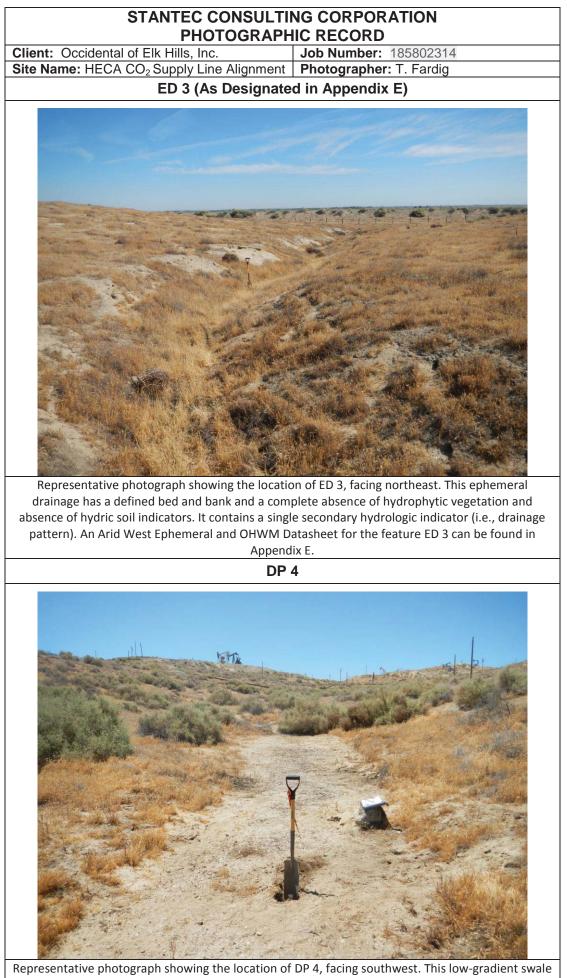
Photographs of the Project Area



Representative photograph showing the location of ED 2, facing northeast. This ephemeral drainage has a defined bed and bank and a complete absence of hydrophytic vegetation and absence of hydric soil indicators. It contains a single secondary hydrologic indicator (i.e., drainage pattern). An Arid West Ephemeral and OHWM Datasheet for the feature ED 2 can be found in Appendix E.



Representative photograph showing the location of DP 3, facing northeast. This low-gradient swale has a complete absence of hydrophytic vegetation, absence of hydric soil indicators, and a single secondary hydrologic indicator (i.e., drainage pattern).



Representative photograph showing the location of DP 4, facing southwest. This low-gradient swale has a complete absence of hydrophytic vegetation, absence of hydric soil indicators, and a single secondary hydrologic indicator (i.e., drainage pattern).



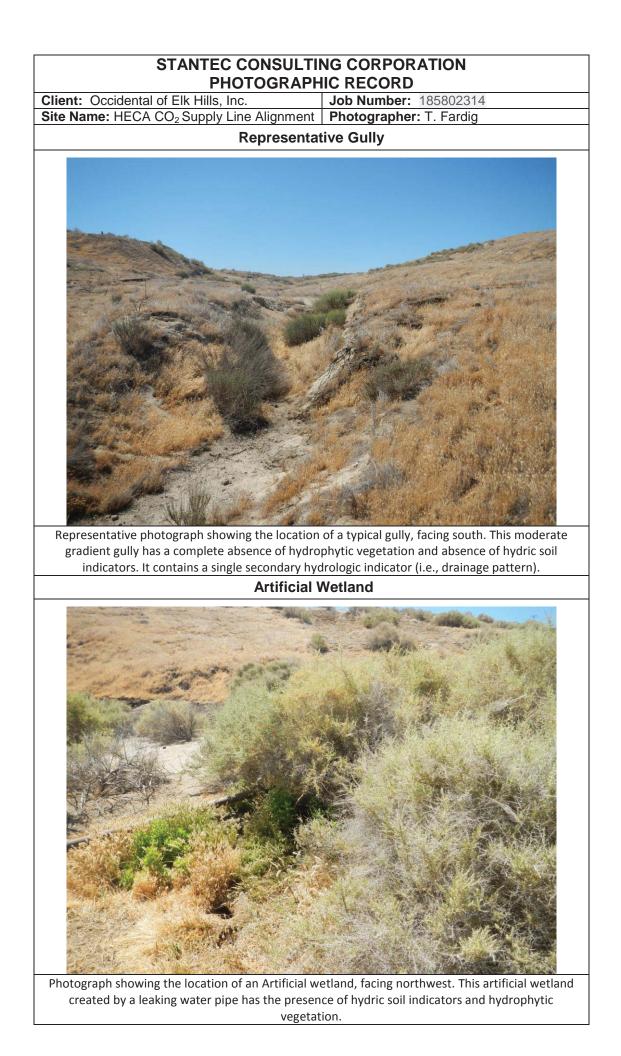
Representative photograph showing the location of DP 6, facing north. This low-gradient swale has a complete absence of hydrophytic vegetation, absence of hydric soil indicators, and a single secondary hydrologic indicator (i.e., drainage pattern).



Representative photograph showing a shallow gully, facing southwest. This moderately steep gradient gully has a complete absence of hydrophytic vegetation and absence of hydric soil indicators. It contains a single secondary hydrologic indicator (i.e., drainage pattern). Erosional head cutting at top of feature.



Representative photograph showing the location of a shallow ephemeral drainage, facing east. This ephemeral drainage has a complete absence of hydrophytic vegetation and absence of hydric soil indicators. It contains a single secondary hydrologic indicator (i.e., drainage pattern) and has a defined bed and bank.





Representative photograph showing the location of DP 150, facing east. This feature is an artificial wetland induced by leaky water pipes. Upland and wetland data points (DP150c and DP150d) were taken to determine existing conditions along the mapped boundary; the Munsell field book marks the upland position and the shovel marks the location of the wetland test pit.

APPENDIX D

PRELIMINARY JURISDICTIONAL DELINEATION OF WATERS OF THE UNITED STATES OEHI CO₂ EOR PROJECT

Soils of the Project Area

Kern County, California, Northwestern Part

126—Cajon loamy sand, 2 to 5 percent slopes

Map Unit Setting

Elevation: 200 to 4,000 feet *Mean annual precipitation:* 4 to 9 inches *Mean annual air temperature:* 63 to 70 degrees F *Frost-free period:* 250 to 300 days

Map Unit Composition

Cajon and similar soils: 85 percent Minor components: 15 percent

Description of Cajon

Setting

Landform: Alluvial fans Landform position (two-dimensional): Footslope Landform position (three-dimensional): Tread Down-slope shape: Linear Across-slope shape: Linear Parent material: Alluvium derived from granite

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 3 percent
Available water capacity: Moderate (about 6.9 inches)

Interpretive groups

Farmland classification: Prime farmland if irrigated Land capability (nonirrigated): 7e Hydrologic Soil Group: A Ecological site: SANDY (R017XG030CA)

Typical profile

0 to 9 inches: Loamy sand 9 to 44 inches: Sand, fine sand 44 to 60 inches: Stratified sand to loamy fine sand

Minor Components

Kimberlina

Percent of map unit: 5 percent

Kimberlina gravelly sandy loam Percent of map unit: 5 percent



Wasco

Percent of map unit: 5 percent

Data Source Information

Soil Survey Area: Kern County, California, Northwestern Part Survey Area Data: Version 5, Jul 22, 2008



Kern County, California, Northwestern Part

146—Elkhills sandy loam, 9 to 50 percent slopes, eroded

Map Unit Setting

Elevation: 400 to 1,600 feet *Mean annual precipitation:* 6 to 8 inches *Mean annual air temperature:* 61 to 64 degrees F *Frost-free period:* 240 to 300 days

Map Unit Composition

Elkhills and similar soils: 85 percent *Minor components:* 15 percent

Description of Elkhills

Setting

Landform: Erosion remnants on terraces Landform position (two-dimensional): Backslope Landform position (three-dimensional): Side slope Down-slope shape: Concave Across-slope shape: Convex Parent material: Alluvium derived from igneous and sedimentary rock

Properties and qualities

Slope: 9 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 8.0 mmhos/cm)
Available water capacity: Moderate (about 6.7 inches)

Interpretive groups

Farmland classification: Not prime farmland *Land capability (nonirrigated):* 7e *Hydrologic Soil Group:* B *Ecological site:* Loamy 6-8" P.Z. (R017XG043CA)

Typical profile

0 to 29 inches: Gravelly sandy loam 29 to 49 inches: Gravelly sandy loam 49 to 65 inches: Stratified gravelly sand to silt loam

Minor Components

Torriorthents, stratified

Percent of map unit: 5 percent

USDA

Very sandy soils Percent of map unit: 5 percent

Unnamed, finer textured underlying material Percent of map unit: 5 percent

Data Source Information

Soil Survey Area: Kern County, California, Northwestern Part Survey Area Data: Version 5, Jul 22, 2008



Kern County, California, Northwestern Part

232—Torriorthents stratified, eroded-Elkhills complex, 9 to 50 percent slopes

Map Unit Setting

Landscape: Valleys Elevation: 400 to 3,500 feet Mean annual precipitation: 6 to 8 inches Mean annual air temperature: 61 to 64 degrees F Frost-free period: 240 to 300 days

Map Unit Composition

Torriorthents, stratified, eroded, and similar soils: 50 percent *Elkhills and similar soils:* 30 percent *Minor components:* 20 percent

Description of Torriorthents, Stratified, Eroded

Setting

Landform: Fan remnants Landform position (two-dimensional): Backslope Landform position (three-dimensional): Side slope Down-slope shape: Linear Across-slope shape: Concave Parent material: Alluvium derived from mixed and/or lacustrine deposits

Properties and qualities

Slope: 9 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Gypsum, maximum content: 3 percent
Maximum salinity: Slightly saline to moderately saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 50.0

Available water capacity: Low (about 5.4 inches)

Interpretive groups

Farmland classification: Not prime farmland *Land capability (nonirrigated):* 7e *Hydrologic Soil Group:* C

Typical profile

0 to 4 inches: Sandy loam 4 to 54 inches: Stratified sand to silty clay loam 54 to 60 inches: Stratified clay loam to clay

USDA

Description of Elkhills

Setting

Landform: Fan remnants Landform position (two-dimensional): Backslope Landform position (three-dimensional): Side slope Down-slope shape: Linear Across-slope shape: Linear Parent material: Alluvium derived from mixed and/or lacustrine deposits

Properties and qualities

Slope: 9 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 8.0 mmhos/cm)
Available water capacity: Moderate (about 6.7 inches)

Interpretive groups

Farmland classification: Not prime farmland *Land capability (nonirrigated):* 7e *Hydrologic Soil Group:* B *Ecological site:* Loamy 6-8" P.Z. (R017XG043CA)

Typical profile

0 to 29 inches: Gravelly sandy loam 29 to 49 inches: Coarse sandy loam 49 to 65 inches: Stratified sand to gravelly silt loam

Minor Components

Unnamed, severely eroded

Percent of map unit: 12 percent Landform: Fan remnants, hills

Unnamed, hardpan

Percent of map unit: 4 percent Landform: Fan remnants, hills

Unnamed, sandy

Percent of map unit: 4 percent Landform: Fan remnants, drainageways Landform position (two-dimensional): Summit

Data Source Information

Soil Survey Area: Kern County, California, Northwestern Part Survey Area Data: Version 5, Jul 22, 2008

USDA

APPENDIX E

PRELIMINARY JURISDICTIONAL DELINEATION OF WATERS OF THE UNITED STATES OEHI CO₂ EOR PROJECT

Arid West Ephemeral / Intermittent Streams OHWM Datasheet

Project: Oxy HECK Supply Line	Date: 5/30/13 Time: 7:45 AM.			
Project Number:	Town: Tupman State: CA			
Stream: Unnamed ephemical draininge	Photo begin file#: Photo end file#:			
Investigator(s): Chuis Bronny; Tom Fardig	The second secon			
$Y \boxtimes / N \square$ Do normal circumstances exist on the site?	Location Details: Corresponds with mupped Feature ED-Z			
Y \square / N \bowtie Is the site significantly disturbed?	Projection: Datum: Coordinates:			
Potential anthropogenic influences on the channel sys Ripeline construction (grading	tem:			
Brief site description:	Iman Almanhart - some portions may have			
Low-evident Feature is explemend draininge and "	Inter they in channel			
become imputed by put road a Greater Wa	Inear About- some portions may have raching. No hydrophytic veg in channel histord Discinage Pattern towards OA Aguedade			
Checklist of resources (if available):				
Aerial photography Stream gag				
Dates: Gage num				
Topographic maps Period of r				
	y of recent effective discharges			
	s of flood frequency analysis			
	recent shift-adjusted rating			
	heights for 2-, 5-, 10-, and 25-year events and the			
Existing delineation(s) for site most recent event exceeding a 5-year event				
Global positioning system (GPS)				
Other studies				
Hydrogeomorphic F	Floodplain Units			
Active Floodplain	Low Terrace			
Low-Flow Channels	/ / OHWM Paleo Channel			
Procedure for identifying and characterizing the flood				
1. Walk the channel and floodplain within the study area				
vegetation present at the site.				
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.				
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.				
a) Record the floodplain unit and GPS position.	close size) and the vesset in the state			
b) Describe the sediment texture (using the Wentworth floodplain unit.	class size) and the vegetation characteristics of the			
c) Identify any indicators present at the location.				
	odulain units across the cross section			
 Repeat for other points in different hydrogeomorphic floodplain units across the cross section. Identify the OHWM and record the indicators. Record the OHWM position via: 				
Mapping on aerial photograph GPS				
Digitized on computer	Other:			

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project ID:	Cross section ID:	ED-2	Date: 5/30/13	Time: 7:55 AM
Cross section drawing	<u>z:</u>			
-	Top of Bank			
OHWM	5.05 1			
<u>OHWM</u>				
GPS point: Live Feadore	_			
Indicators: Change in average Change in vegeta Change in vegeta		Other:	n bank slope Thalweg	
C				
Comments:				
Thelweg sp.	onely vegetiled; coar	rsp allunum	in bed	
		And the second second		
Floodplain unit:	Low-Flow Channel	Active F	Floodplain	Low Terrace
CPS point:				
GPS point:				
Characteristics of the floo	dplain unit:			
Average sediment texture:				
Total veg cover:% Community successional s	Tree:% Shr	ub:%	Herb:%	
	tage:			
Early (herbaceous	& seedlings)	Late (her	baceous, shrubs, sapl	ings)
	(, , , , , , , , , , , , , , , , , , ,		baceous, shrubs, mat	ure trees)
Indicators:				
Mudcracks		Soil deve	elopment	
Ripples		Surface r		
Drift and/or debris				
Presence of bed an	nd bank	Other:		_
Benches		Other:		- Anna
Comments:				-

Project: Dxy HECA Supply Line Project Number: Stream: Unnamed Ephemeral Dramupe	Date:5/30/13Time:9:45 A.MTown:Tup ManState:CAPhoto begin file#:Photo end file#:
Investigator(s): Broking, Furdig Y 🖾 / N 🗌 Do normal circumstances exist on the site?	Location Details: Corresponds with mapped
$Y \square / N \boxtimes$ Is the site significantly disturbed?	Feature ED-3 Projection: Datum: Coordinates:
Potential anthropogenic influences on the channel syst	Coordinates: em:
Pupline alignment/gradiny/fill	
Brief site description: Epheneral Feature his a bed/back + a 15 how truncaled by CA Adgueduet.	dvainage Rubbern, but hydrologic connectivity OHWY + Top of Buck mayred with GPS technology
□ Vegetation maps □ Results ⊠ Soils maps □ Most re □ Rainfall/precipitation maps □ Gage h	per:
Hydrogeomorphic F	loodplain Units
Active Floodplain	OHWM Paleo Channel
Procedure for identifying and characterizing the flood	
 Walk the channel and floodplain within the study area to vegetation present at the site. Select a representative cross section across the channel. I B. Determine a point on the cross section that is characteristical a) Record the floodplain unit and GPS position. Describe the sediment texture (using the Wentworth of floodplain unit. c) Identify any indicators present at the location. Repeat for other points in different hydrogeomorphic floodplain 	o get an impression of the geomorphology and Draw the cross section and label the floodplain units. stic of one of the hydrogeomorphic floodplain units. class size) and the vegetation characteristics of the
5. Identify the OHWM and record the indicators. Record the Mapping on aerial photograph Digitized on computer	he OHWM position via: GPS Other:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project ID:	Cross section ID:	ED3 Da	nte: 5/30/2013	Time: 10:00AM
Cross section drawing	:			
	Top of Bently			
OHWM	(*************************************			
GPS point: Pdugan				
Indicators: Change in averag Change in vegeta Change in vegeta	tion species	Break in bar Other: Other:		
Comments: Browns 1	undrikusse and Awrend Source physiodic Scour	the major down	inate within l	pressy channel -
Floodploin unit:				
Floodplain unit:	Low-Flow Channel	Active Floor	iplain	Low Terrace
GPS point:				
Characteristics of the floor Average sediment texture: Total veg cover:% Community successional st NA Early (herbaceous	Tree:% Shru tage:	b:% Her	b:% eous, shrubs, sapli eous, shrubs, matu	ngs) ire trees)
Indicators: Mudcracks Ripples Drift and/or debris Presence of bed an Benches Comments:				

Did D WEAR C) Line	D to E to The The State of the			
Project: Dxy HECH Supply Line	Date: 5/30/13 Time: 1:30 PM			
Project Number: Stream: Unnamed Ephenneral Drainage	Town: Topman State: CA			
Stream: United Epicited Di	Photo begin file#: Photo end file#:			
Investigator(s): Browny, Farding Y $N \square$ Do normal circumstances exist on the site?	Location Details: Correspond, with Mupped Feature ED4			
$Y \square / N \boxtimes Is$ the site significantly disturbed?	Projection: Datum: Coordinates:			
Potential anthropogenic influences on the channel syst				
Pipeline Construction, Gradung/Fill				
Brief site description:				
Unnamed Futuroval Drainage System				
Unnamed Extrement Drainage System Low-gradient - springely regetided savily gran	vel bed; Banks Schewhat Tulernitheat in some portions			
Checklist of resources (if available):				
Aerial photography Stream gag	e data			
Dates: Gage numb	ber:			
Topographic maps Period of r	ecord:			
	y of recent effective discharges			
	s of flood frequency analysis			
	ecent shift-adjusted rating			
Rainfall/precipitation maps Gage h	eights for 2-, 5-, 10-, and 25-year events and the			
	ecent event exceeding a 5-year event			
Global positioning system (GPS)	-01 12			
Other studies				
Hydrogeomorphic F	loodplain Units			
Active Floodplain	, Low Terrace .			
the second secon				
Low-Flow Channels	OHWM Paleo Channel			
Procedure for identifying and characterizing the flood				
 Walk the channel and floodplain within the study area to vegetation present at the site. 	o get an impression of the geomorphology and			
2. Select a representative cross section across the channel. I	Draw the cross section and label the flood plain units			
 Select a representative cross section across the channel. Draw the cross section and label the floodplain units. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. 				
a) Record the floodplain unit and GPS position.	0			
b) Describe the sediment texture (using the Wentworth of	class size) and the vegetation characteristics of the			
floodplain unit.				
c) Identify any indicators present at the location.				
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.				
5. Identify the OHWM and record the indicators. Record the OHWM position via:				
Mapping on aerial photograph	GPS			
Digitized on computer	Other:			

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project ID: Cross section ID	: ED4 Date: 5/30/13 Time: 1.35PM.
Cross section drawing:	
Top of B	U OHWMY
OHWM GPS point:	
Indicators: Change in average sediment texture Change in vegetation species Change in vegetation cover	Break in bank slope Other: Other:
Comments: Uplant vegetation in Third along bank	liver ; some chempod shubc present
Floodplain unit: A Low-Flow Channel GPS point: Features	Active Floodplain Low Terrace
Characteristics of the floodplain unit: Average sediment texture:	Shrub: <u>30</u> % Herb: <u>30</u> % Mid (herbaceous, shrubs, saplings) Late (herbaceous, shrubs, mature trees)
Indicators: Mudcracks Ripples Drift and/or debris Presence of bed and bank Benches Comments:	 Soil development Surface relief Other: Other: Other:
1999 (Marcal Marcal Constant)	

Arid west Ephemeral and Intermit	
Project: HECA CO2 Supply Line Alignment Project Number: Stream: Unnamed Ephemeral Drainage Investigator(s): Class Browny; Tommy Fardig	Date: 5/31/2013 Time: 11:45AU Town: Topman State: CA Photo begin file#: Photo end file#:
$Y \square / N \square$ Do normal circumstances exist on the site?	Corresponds with HECH Figure; DP 154
$Y \square / N \boxtimes$ Is the site significantly disturbed?	Projection: Datum: Coordinates:
Potential anthropogenic influences on the channel syst Proposed Pipeline Alignment Project, Norma with Oil Production infrustructure.	tem: 1 Cut/fill grading activities associated
Brief site description: Sample area lowed in low-quicklent by a number of non-juriedictional 5 abundage. Intermittent scour along	ephenend drainage that is hydrologically support wales. Mapped feature is truncated bed; bed and bank fairly well defined in this reach.
Aerial photography Stream gag Dates: Gage number Topographic maps Period of r Geologic maps History Vegetation maps Result Soils maps Most r Rainfall/precipitation maps Gage h	ge data ber:
Hydrogeomorphic F	Floodplain Units
Active Floodplain	OHWM Paleo Channel
Procedure for identifying and characterizing the flood	plain units to assist in identifying the OHWM:
 Walk the channel and floodplain within the study area to vegetation present at the site. Select a representative cross section across the channel. If 3. Determine a point on the cross section that is characteria a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth floodplain unit. c) Identify any indicators present at the location. Repeat for other points in different hydrogeomorphic flips. Identify the OHWM and record the indicators. Record to mapping on aerial photograph Digitized on computer 	to get an impression of the geomorphology and Draw the cross section and label the floodplain units. istic of one of the hydrogeomorphic floodplain units. class size) and the vegetation characteristics of the loodplain units across the cross section.

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Project ID: Cross section ID:	DP 154 Date: 5/31/2013 Time: 11:50 AM
Cross section drawing:	
-	
	and the second se
1- OHWM-1	
Approx. 3' in u	widoh in sample area locator
<u>OHWM</u>	
GPS point: Polygon	
Indicators:	
Change in average sediment texture	🖾 Break in bank slope
Change in vegetation species	Other:
Change in vegetation cover	Other:
Comments:	
Thatwey of channel Spursely Veg	retated by upland species - primarily californica, + Atriplex polycarpa
Rumue Madvitensis, Gutievezia	L Californica, + Atriplex polycarpa
Sediments coarce sands at SM	null gravel.
Floodplain unit: 🔀 Low-Flow Channel	Active Floodplain Low Terrace
GPS point: Polygon	
Characteristics of the floodplain unit:	
Average sediment texture: Course Sanks	
Total veg cover: <u>40</u> % Tree: <u>%</u> Sh	$uub: \underline{30} \% Herb: \underline{10} \%$
Community successional stage:	MACIA I A
Early (herbaceous & seedlings)	Mid (herbaceous, shrubs, saplings) Late (herbaceous, shrubs, mature trees)
	Late (nerbaceous, shrubs, mature trees)
ndicators:	
Mudcracks	Soil development
Ripples	Surface relief
Drift and/or debris	Other:
Presence of bed and bank Benches	
The second s	Other:
comments:	

Arid West Ephemeral and Intermi	ttent Streams OHWM Datasheet
Project: HECH CO2 Supply Line Alignment Project Number: Stream: UNMAmmed Exphemeral Draininge Investigator(s): Chris Bronny; Tommy Fardig	Date: 5/30 2013 Time: 9:30 AM Town: Typman State: CA Photo begin file#: Photo end file#:
Investigator(s): $Chins Browny;$ Tommy Fardiq Y \square / N \square Do normal circumstances exist on the site?	Location Details: Corresponds with HECA Figure; DP 155
$Y \square / N \boxtimes$ Is the site significantly disturbed?	Projection: Datum: Coordinates:
Potential anthropogenic influences on the channel syst Proposed Pipeline Alignment Project; Novi with Oil production infrustructure.	tem: mal Cot/fill grading activities associated
Brief site description: Sample area louded in lo supported by a number of micro watershed, trunceded downlope. Internitlet scour alon	w-quadrant exprement drainage that is hydrologically Non-jurisdictional surdes. Mupped Rature 12 y bed; bed and bank frinky well-defined in this reach.
Vegetation mapsResultSoils mapsMost rRainfall/precipitation mapsGage l	ber:
Hydrogeomorphic F	Floodplain Units
Active Floodplain	OHWM Paleo Channel
Procedure for identifying and characterizing the flood	plain units to assist in identifying the OHWM:
 Walk the channel and floodplain within the study area to vegetation present at the site. Select a representative cross section across the channel. Determine a point on the cross section that is characteric a) Record the floodplain unit and GPS position. Describe the sediment texture (using the Wentworth floodplain unit. c) Identify any indicators present at the location. Repeat for other points in different hydrogeomorphic flips. Identify the OHWM and record the indicators. Record the indicators. Record the indicators. 	to get an impression of the geomorphology and Draw the cross section and label the floodplain units. istic of one of the hydrogeomorphic floodplain units. class size) and the vegetation characteristics of the loodplain units across the cross section.

Project ID: Cross section ID: DP 155 Date: 5/30/13 Time: 9:45A
Cross section drawing:
TOHWAN -
OHWM
GPS point: Polygon lines
Indicators:
Change in average sediment texture Break in bank slope
Change in vegetation species Other:
Change in vegetation cover
Comments:
Thatweg of channel spuricly regetated by splant species - primarily
Thalwey of channel sparschy regetated by spland species - primarily Browne medicitence, Amsmillion Sp., Scheemes barbatus, Gutierrezia Californica, at Atriplex polycurps. Channel sectiments Coarce sends (small gra
Californica at Advibler Doly Carp. Channel sectiments Cource sends (small gre
curre mou, act in the polospa. Comoi o
Floodploin unite
Floodplain unit: Low-Flow Channel Active Floodplain Low Terrace
GPS point: Polygon/ lines
Characteristics of the floodplain unit:
Average sediment texture: <u>Course Card</u> Total veg cover: <u>30</u> % Tree: <u>%</u> Shrub: <u>25</u> % Herb: <u>5</u> %
Community successional stage:
NA Mid (herbaceous, shrubs, saplings)
Early (herbaceous & seedlings)
Indicators:
Mudcracks Soil development
Ripples Surface relief
Drift and/or debris Other:
Comments:

APPENDIX F

PRELIMINARY JURISDICTIONAL DELINEATION OF WATERS OF THE UNITED STATES OEHI CO₂ EOR PROJECT

> Wetland Determination Data Forms And Arid West Region

Project Site:	HECA Carbon D	ioxide Supply Li	ne Ali	gnment	City/County:	/	Kern		Sampling	Date:	5/29/	13	
Applicant/Owner:	<u>OEHI</u>							State: CA	Sampling	Point:	DP1		
Investigator(s):	Chris Bronny: To	ommy Fardig			Section, Tow	nship, R	ange						
Landform (hillslope,	terrace, etc.): Sv	wale		Lo	cal relief (conca	ave, conv	vex, n	one): <u>concave</u>		Slop	be (%):	<u>5</u>	
Subregion (LRR)	: <u>LRR C</u>		Lat	::		Long:		_	Dat	um: _			
Soil Map Unit Name	:							NWI classif	ication:				
Are climatic / hyd	drologic conditions	s on the site typi	cal for	this time of year?	Yes 🗌	No	\boxtimes	(If no, explain in Ren	narks.)				
Are Vegetation D,	Soil 🛛,	Soil 🖾, or Hydrology 🖾 signif			ed? Are "Normal Circumstances" present?					Yes	\boxtimes	No	
Are Vegetation	Soil 🛛,	or Hydrology	\boxtimes	naturally problematic	? (If need	ed, expl	ain ar	y answers in Remark	s.)				

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	\boxtimes			
Hydric Soil Present?	Yes	No	\boxtimes	Is the Sampled Area within a Wetland?	Yes 🗌	No 🖂
Wetland Hydrology Present?	Yes	No	\boxtimes			
				Elk Hills drainages now truncated by CA Aqueduct; do no		

with oil production practices; accreting sediments and hydrocarbon residues mask historic soils in low- and moderate gradient swales. Mapped wetland features created in uplands by leaky water pipes. Precipitation below-average for 2012-2013 rainy season.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute <u>% Cover</u>	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:		
1 2				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u>	(A)
3 4				Total Number of Dominant Species Across All Strata:	<u>1</u>	(B)
50% =, 20% = <u>Sapling/Shrub Stratum</u> (Plot size:)		= Total Cove	r	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u>	(A/B)
1				Prevalence Index worksheet:		
2				Total % Cover of :	Multiply by:	
3				OBL species	x1 =	
4				FACW species	x2 =	
5				FAC species	x3 =	
50% =, 20% =		= Total Cove	r	FACU species	x4 =	
Herb Stratum (Plot size:)				UPL species	x5 =	
1. <u>Bromus madritensis</u>	<u>40</u>	yes	UPL	Column Totals: (A)		(B)
2. <u>Amsinckia sp.</u>	<u>1</u>	no	UPL	Prevalence Index = B/A =		
3				Hydrophytic Vegetation Indicators:		
4				Dominance Test is >50%		
5				Prevalence Index is $\leq 3.0^1$		
6				Morphological Adaptations ¹ (Provi		
7				data in Remarks or on a separate	sheet)	
8				Problematic Hydrophytic Vegetation	on ¹ (Explain)	
50% =, 20% =		= Total Cove	r	1		
Woody Vine Stratum (Plot size:)				¹ Indicators of hydric soil and wetland hydrolog be present, unless disturbed or problematic.	jy must	
1						
2				Hydrophytic		
50% =, 20% =		= Total Cove	r	Vegetation Yes	□ No	\boxtimes
% Bare Ground in Herb Stratum 60	% Cover	of Biotic Crust		Present?		
Remarks: Bare ground/thatch = 60% cover	; prevalence	of upland speci	es within san	nple area.		
-						
US Army Corps of Engineers				Arid	West - Version	2.0

SOIL															Sampli	ing Poir	nt: <u>DP</u>
Profile Desc	ription: (Descri	be to th	e depti	n need	ed to d	ocument			irm the abs	sence of	indica	tors.)					
Depth	Matr	ix					Redox Fe	atures									
(inches)	Color (moist)	%	Co	lor (Mo	ist)	<u>%</u>	Type ¹	Loc	-	Textu	re	Remark	<u>(S</u>			
<u>0-15"</u>	<u>7.5YR4/4</u>		100							_	Silty c	lay					
	. <u></u>	-								_							
	. <u></u>	-								_							
		-								_							
		-								_							
				Deduc				Costad Can		21			M. Motrix				
	ncentration, D=I	•						Coaled Sand	i Grains.	Location		ore Lining, icators for			vdric S	oile ³	
Histoso		licable		.nns, u			Redox (S5)					luck (A9)		•	0115 .	
	Epipedon (A2)					-							luck (A10)	-	-		
	Histic (A3)						d Matrix (S Mucky Mir						ed Vertic (-	2)		
	gen Sulfide (A4)					-	Gleyed Ma						arent Mate		F2)		
	ed Layers (A5) (L					-	d Matrix (I						Explain in				
	luck (A9) (LRR E						Dark Surfa	,				Other (I INCINE	1115)		
	ed Below Dark S		Δ11)					rface (F7)									
	Dark Surface (A1		(ATT)				Depression	. ,									
	Mucky Mineral (Pools (F9)	15 (1 0)					ors of hyc		0		
	Gleyed Matrix (S					veniair	-0015 (1 9)						and hydrol ess distur				,
- ·	_ayer (if present											un	633 013101	beu oi	problei	matic.	
Type:	Layer (ii present	.).															
Depth (Inche	s). "								Hydric So	oils Pres	ent?		Ye	es		No	
Remarks:	Absence of hyd	ric soil i	indicato	rs: neal	rlv nure	sand held	ow 2" of si	urface							<u> </u>		
	Aboonoo or nya		indicato	10, 1104	ily pure		0112 010										
HYDROLO	GY																
Wetland Hyd	drology Indicate	ors:															
Primary Indic	ators (minimum	of one r	required	; check	all that	t apply)					Seco	ndary Indic	ators (2 o	or more	e require	ed)	
	e Water (A1)					Salt Cru	ust (B11)					Water Ma	rks (B1) (F	Riverir	ne)		
High V	Vater Table (A2)					Biotic C	rust (B12)					Sediment	Deposits	(B2) (F	Riverine	e)	
Satura	ation (A3)					Aquatic	Invertebra	ates (B13)				Drift Depo	sits (B3) (Riveri	ne)		
Water	Marks (B1) (Nor	nriverin	e)			Hydroge	en Sulfide	Odor (C1)			\boxtimes	Drainage	Patterns (B10)			
Sedim	ent Deposits (B2	!) (Non r	iverine)		Oxidize	d Rhizosp	heres along	Living Root	s (C3)		Dry-Seaso	on Water	Table ((C2)		
Drift D	eposits (B3) (No	nriverii	ne)			Presenc	ce of Redu	iced Iron (C4	ł)			Crayfish B	Surrows (C	(8)			
Surfac	e Soil Cracks (B	6)				Recent	Iron Redu	ction in Tille	d Soils (C6)			Saturation	Visible o	n Aeria	al Image	ery (C9))
🗌 Inunda	ation Visible on A	erial Im	agery (I	B7)		Thin Mu	ick Surfac	e (C7)				Shallow A	quitard (D	3)			
Water-	-Stained Leaves	(B9)				Other (E	Explain in	Remarks)				FAC-Neut	ral Test (I	D5)			
Field Observ	vations:																
Surface Wate	er Present?	Yes		No	\boxtimes	Dep	oth (inches	s):									
Water Table	Present?	Yes		No	\boxtimes	Dep	oth (inches	s):									
Saturation Pr (includes cap		Yes		No	\boxtimes	Dep	oth (inches	s):		Wetlar	nd Hyd	rology Pre	esent?		Yes		No

Remarks: Presence of single secondary hydrologic indicator; absence of wetland hydrology. US Army Corps of Engineers

No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Arid West - Version 2.0

Project Site:	HECA Carbon D	ioxide Supply Li	ne Alig	<u>gnment</u>	City/County:	/	Kern		Sampling	Date:	<u>5/30/</u>	13	
Applicant/Owner:	<u>OEHI</u>							State: CA	Sampling	Point:	DP2		
Investigator(s):	Chris Bronny: To	ommy Fardig			Section, Tow	nship, R	ange:						
Landform (hillslope,	terrace, etc.): St	wale		Lo	cal relief (conca	ve, conv	vex, n	one): <u>concave</u>		Slop	be (%):	<u>3</u>	
Subregion (LRR)	: <u>LRR C</u>		Lat	:		Long:		_	Datum:				
Soil Map Unit Name	:							NWI classif	ication:				
Are climatic / hyd	drologic conditions	s on the site typi	cal for	this time of year?	Yes 🗌	No	\boxtimes	(If no, explain in Rer	marks.)				
Are Vegetation D,	Soil 🛛,	or Hydrology	\boxtimes	significantly disturbed	? Are "No		Yes	\boxtimes	No				
Are Vegetation	Soil 🛛,	Soil 🖾, or Hydrology 🖾 naturally proble				ed, expla	ain ar	y answers in Remark	(s.)				

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	\boxtimes			
Hydric Soil Present?	Yes	No	\boxtimes	Is the Sampled Area within a Wetland?	Yes 🗌	No 🖂
Wetland Hydrology Present?	Yes	No	\boxtimes			
				Elk Hills drainages now truncated by CA Aqueduct; do no		

with oil production practices; accreting sediments and hydrocarbon residues mask historic soils in low- and moderate gradient swales. Mapped wetland features created in uplands by leaky water pipes. Precipitation below-average for 2012-2013 rainy season.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute <u>% Cover</u>	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:	
1 2				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u>	(A)
3 4				Total Number of Dominant Species Across All Strata:	(B)
50% =, 20% = <u>Sapling/Shrub Stratum</u> (Plot size:)		= Total Cove	er	Percent of Dominant Species That Are OBL, FACW, or FAC:	(A/B)
1				Prevalence Index worksheet:	
2				Total % Cover of : Mult	iply by:
3				OBL species x1 =	·
4				FACW species x2 =	·
5				FAC species x3 =	·
50% =, 20% =		= Total Cove	er	FACU species x4 =	·
Herb Stratum (Plot size:)				UPL species x5 =	·
1. Bromus madritensis	<u>20</u>	yes	UPL	Column Totals: (A)	(B)
2. <u>Amsinckia sp.</u>	<u>1</u>	no	UPL	Prevalence Index = B/A =	
3. <u>Schismus barbatus</u>	<u>55</u>	yes	UPL	Hydrophytic Vegetation Indicators:	
4. <u>Lessingia glandulifera</u>	<u>1</u>	no	UPL	Dominance Test is >50%	
5				Prevalence Index is $\leq 3.0^1$	
6 7.				Morphological Adaptations ¹ (Provide su data in Remarks or on a separate shee	ipporting t)
					,
8				Problematic Hydrophytic Vegetation ¹ (E	Explain)
50% =, 20% =		= Total Cove	er	¹ Indicators of hydric soil and wetland hydrology mu	st
Woody Vine Stratum (Plot size:)				be present, unless disturbed or problematic.	
1					
2			—	Hydrophytic Vogetation Yes	No 🖂
50% =, 20% =		= Total Cove		Vegetation Yes Present?	
% Bare Ground in Herb Stratum 25	% Cove	r of Biotic Crust	i <u> </u>		
Remarks: Bare ground/thatch = 25% cove	er; Lessingia a	nd Amsinckia <	:1% cover. P	revalence of upland species within sample area.	
US Army Corps of Engineers				Arid Wes	t – Version 2.0

SOIL															Sampl	ing Poir	nt: <u>DF</u>	22
Profile Desc	cription: (Descri	be to th	e depti	n neede	ed to d	ocument	the indic	ator or conf	firm the abs	sence o	of indica	tors.)						
Depth	Matr	ix					Redox Fe	atures										
(inches)	Color (moist)	<u>%</u>	Co	lor (Mo	ist)	%	Type ¹	Loc ²	2	Textu	ire	Re	marks				
0-0.5"	<u>10YR3/1</u>		100							_	<u>Sandy</u>	<u>clay</u>						
<u>0.5-2"</u>	<u>7.5YR5/4</u>		100							_	<u>Sandy</u>	<u>clay</u>						
		_								_		_						
		_								_		_						
		-								_								
		_								_		_						
	oncentration, D=		-			-		Coated San	d Grains. 2	² Locatio		ore Linir						
Hydric Soil	Indicators: (App	olicable	to all L	.RRs, u	nless	otherwise	e noted.)				Ind	icators	for Prol	blematic	Hydric S	Soils ³ :		
	ol (A1)					Sandy F	Redox (S5)				1 cm	n Muck ((A9) (LRF	R C)			
Histic I	Epipedon (A2)					Stripped	d Matrix (S	6)				2 cm	n Muck ((A10) (LF	RRB)			
Black I	Histic (A3)					Loamy	Mucky Mir	neral (F1)				Red	uced Ve	ertic (F18)			
Hydrog	gen Sulfide (A4)					Loamy	Gleyed Ma	atrix (F2)				Red	Parent	Material	(TF2)			
Stratifi	ed Layers (A5) (I	LRR C)				Deplete	d Matrix (F	=3)				Othe	er (Expla	ain in Rer	marks)			
1 cm N	Muck (A9) (LRR I))				Redox I	Dark Surfa	ce (F6)										
Deplet	ed Below Dark S	urface (A11)			Deplete	d Dark Su	rface (F7)										
Thick I	Dark Surface (A1	2)				Redox I	Depressio	ns (F8)				³ Indi	cators o	f hydropł	nvtic veae	etation a	nd	
Sandy	Mucky Mineral (S1)				Vernal I	Pools (F9)							ydrology				
Sandy	Gleyed Matrix (S	64)											unless d	listurbed	or proble	matic.		
Restrictive	Layer (if presen	t):																
Туре:																		
Depth (Inche	es): <u>"</u>								Hydric So	oils Pre	esent?			Yes		No	\boxtimes	
Remarks:	Absence of hyd	lric soil i	ndicato	rs; neai	rly pure	sand bel	ow 2". Dar	k band exte	nds 0.5" bel	ow surf	ace; sor	ne orgar	nic matte	er presen	t.			
HYDROLO	GV																	
	drology Indicato	ors:																
-	cators (minimum		equired	· check	all that	t apply)					Seco	ndarv In	dicators	s (2 or mo	ore requir	ed)		
	ce Water (A1)	01 0110 1	oquiou	, 011001			ust (B11)							31) (Rive		04)		
_	Water Table (A2)						rust (B12)							osits (B2)	-	۵)		
_	ation (A3)						Invertebra						-	B3) (Rive	-	0)		
	r Marks (B1) (No i	nriverin	۵)					Odor (C1)						rns (B10)	-			
	nent Deposits (B2		-	`				heres along	Living Root	e (C3)		-		ater Table				
	Deposits (B3) (No	, .		,			-	iced Iron (C4	-	3 (03)			h Burrov		5 (02)			
	ce Soil Cracks (B							ction in Tille	,			-		ole on Ae	rial Imag			
	ation Visible on A	,	ogon//	D7)					u 30115 (CO)		_		v Aquita		nai inay	ery (C9		
	r-Stained Leaves		ayery (I	(10			uck Surfac Explain in I						eutral Te	. ,				
Field Obser		(09)						nemarks)		1		170-10		531 (D3)				
Surface Wat		Voc		No		De	nth (inchor	.).										
		Yes		No			pth (inches											
Water Table Saturation P		Yes		No	\boxtimes	De	pth (inches	»)										
	pillary fringe)	Yes		No	\boxtimes	De	pth (inches	s):		Wetla	and Hyd	rology l	Present	?	Yes		No	\boxtimes

Remarks: Presence of single secondary hydrologic indicator; absence of wetland hydrology. US Army Corps of Engineers

No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Arid West - Version 2.0

Project Site:	HECA Carbon	Dioxide Supply L	ine Alio	<u>gnment</u>	City/County:	/	Kern		Sampling	g Date:	<u>5/30/</u>	13	
Applicant/Owner:	OEHI							State: CA	Sampling	Point:	DP3		
Investigator(s):	Chris Bronny;	<u>Tommy Fardig</u>			Section, Towr	nship, R	ange:						
Landform (hillslope,	terrace, etc.):	<u>Swale</u>		Lo	ocal relief (conca	ve, conv	/ex, n	one): <u>concave</u>		Slop	be (%):	<u>3</u>	
Subregion (LRR)	: LRR C		Lat	:		Long:		_	Dat	tum:			
Soil Map Unit Name	:							NWI classif	fication:				
Are climatic / hyd	drologic conditio	ns on the site typi	cal for	this time of year?	Yes 🔲	No	\boxtimes	(If no, explain in Rei	marks.)				
Are Vegetation D,	Soil 🛛,	or Hydrology		significantly disturbe	d? Are "Normal Circumstances" present?					Yes	\boxtimes	No	
Are Vegetation	Soil 🛛,	or Hydrology		naturally problematic	c? (If neede	ed, expla	ain ar	y answers in Remark	ks.)				

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	\boxtimes			
Hydric Soil Present?	Yes	No	\boxtimes	Is the Sampled Area within a Wetland?	Yes 🗌	No 🖂
Wetland Hydrology Present?	Yes	No	\boxtimes			
				Elk Hills drainages now truncated by CA Aqueduct; do no		

connectivity to greater "waters of the U.S." All hillslope drainages have been altered by cut and fill activities and accelerated erosion associated with oil production practices; accreting sediments and hydrocarbon residues mask historic soils in low- and moderate gradient swales. Mapped wetland features created in uplands by leaky water pipes. Precipitation below-average for 2012-2013 rainy season.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute <u>% Cover</u>	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:		
1 2.				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u>	(A)
3 4.			_	Total Number of Dominant Species Across All Strata:	<u>1</u>	(B)
50% =, 20% = Sapling/Shrub Stratum (Plot size:)		= Total Cove	 r	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u>	(A/B)
1				Prevalence Index worksheet:		
2				Total % Cover of :	Multiply by:	
3				OBL species	x1 =	-
4				FACW species	x2 =	-
5				FAC species	x3 =	-
50% =, 20% =		= Total Cove	r	FACU species	x4 =	-
Herb Stratum (Plot size:)				UPL species	x5 =	-
1. <u>Bromus madritensis</u>	<u>70</u>	yes	UPL	Column Totals: (A)		(B)
2. <u>Amsinckia sp.</u>	<u>1</u>	no	UPL	Prevalence Index = B/A =		
3				Hydrophytic Vegetation Indicators:		
4				Dominance Test is >50%		
5				Prevalence Index is $\leq 3.0^1$		
6				Morphological Adaptations ¹ (Prov data in Remarks or on a separate	vide supporting	
7					sneet)	
8				Problematic Hydrophytic Vegetati	on ¹ (Explain)	
50% =, 20% =	<u>70</u>	= Total Cove	r	¹ Indicators of hydric soil and wetland hydrolog	av must	
Woody Vine Stratum (Plot size:)				be present, unless disturbed or problematic.	gymusi	
1						
2				Hydrophytic		5-7
50% =, 20% =		= Total Cove	r	Vegetation Yes Present?	□ No	\boxtimes
% Bare Ground in Herb Stratum <u>30</u>	% Cover	of Biotic Crust				
Remarks: Bare ground/thatch = 30% cover	; Amsinckia <	1% cover. Pre	valence of up	pland species within sample area.		
US Army Corps of Engineers				Aric	d West – Version	2.0

SOIL															Samp	ling Poi	nt: <u>D</u>	P3
Profile Des	cription: (Descri	be to th	e deptl	h need	ed to d	ocumen			irm the abs	sence of	f indica	ors.)						
Depth	Matr	ix					Redox Fe	atures										
(inches)	Color (moist	<u>)</u>	<u>%</u>	Co	lor (Mo	ist)	<u>%</u>	Type ¹	Loc ²		Textu	re	Re	marks				
<u>0-5"</u>	7.5YR4/4		100							_	Clayey s	sand						
		-								_								
		-								_								
		-								_								
		-								_								
71	Concentration, D=		,			,		Coated Sand	d Grains.	Locatio		ore Linin				2		
_	Indicators: (App	olicable	to all L	.RRs, u			-							olematic		Soils':		
	sol (A1)					-	Redox (S5)							A9) (LRF	-			
	Epipedon (A2)						d Matrix (S							A10) (LF	-			
	Histic (A3)					-	Mucky Min							rtic (F18				
-	ogen Sulfide (A4)					-	Gleyed Ma					Red	Parent I	Material	(TF2)			
	fied Layers (A5) (I						ed Matrix (F	,				Othe	r (Expla	in in Rer	narks)			
	Muck (A9) (LRR I	,					Dark Surfa											
-	eted Below Dark S	Surface ((A11)			Deplete	ed Dark Su	rface (F7)										
	Dark Surface (A1	2)				Redox	Depressior	ns (F8)				³ Indic	cators of	f hydropł	nytic veg	etation	and	
Sandy	y Mucky Mineral (S1)				Vernal	Pools (F9)							/drology				
Sandy	y Gleyed Matrix (S	54)										ι	unless d	isturbed	or proble	ematic.		
Restrictive	Layer (if presen	t):																
Туре:																		
Depth (Inch	es): <u>"</u>								Hydric So	oils Pre	sent?			Yes		No	\boxtimes	1
Remarks:	Absence of hyd	lric soil i	indicato	rs; sma	II amou	int of org	anic matter	present with	nin top 0.5"	of soil p	rofile.							
HYDROLO	JGY																	
	vdrology Indicate	ors:																
-	icators (minimum		equired	I: check	all that	t apply)					Seco	ndarv Ind	dicators	(2 or mo	ore requir	red)		
	ace Water (A1)			,			ust (B11)					-		1) (Rive		/		
	Water Table (A2)						Crust (B12)							sits (B2)		ne)		
	ration (A3)						c Invertebra	tes (B13)					-	B3) (Rive	-	,		
	er Marks (B1) (No i	nriverin	e)				en Sulfide	. ,						rns (B10)				
	ment Deposits (B2		-	•				neres along	l iving Roots	s (C3)		-		ater Table				
	Deposits (B3) (No	<i>,</i> ,		,				ced Iron (C4	-	000)		Crayfish			0 (02)			
	ace Soil Cracks (B		10)					ction in Tille	,					ble on Ae	rial Imag	erv (CC)	
	dation Visible on A		agery (B7)			uck Surface		2 30113 (00)			Shallow			i inidy	,5,7 (03	,	
	er-Stained Leaves		lagery (I	.,			Explain in F					FAC-Ne		. ,				
Field Obse		(00)						(onurto)										
	iter Present?	Yes		No	\boxtimes	De	pth (inches	·)·										
Water Table		Yes					pth (inches											
Saturation F		Yes		No No			pth (inches			Wetla	ind Hyd	rology F	Present	?	Yes		No	

Remarks: Presence of single secondary hydrologic indicator; absence of wetland hydrology. US Army Corps of Engineers

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Project Site:	HECA Carbon	Dioxide Supply L	ine Ali	<u>gnment</u>	City/County:	/	Kern		Sampling	g Date:	<u>5/29/</u>	13	
Applicant/Owner:	<u>OEHI</u>							State: <u>CA</u>	Sampling	Point:	DP4		
Investigator(s):	Chris Bronny;	Tommy Fardig			Section, Town	ship, R	ange	:					
Landform (hillslope,	terrace, etc.):	<u>Swale</u>		Lo	cal relief (concav	ve, conv	/ex, n	ione): <u>concave</u>		Slop	be (%):	<u>5</u>	
Subregion (LRR)	: <u>LRR C</u>		Lat	::		Long:		_	Dat	um:			
Soil Map Unit Name	:							NWI classif	ication:				
Are climatic / hyd	drologic conditio	ons on the site typ	ical for	this time of year?	Yes 🔲	No	\boxtimes	(If no, explain in Rer	marks.)				
Are Vegetation D,	Soil 🛛,	or Hydrology	\boxtimes	significantly disturbed	Are "Nor	mal Cir	cums	tances" present?		Yes	\boxtimes	No	
Are Vegetation D,	Soil 🛛,	or Hydrology	\boxtimes	naturally problematic	? (If neede	d, expl	ain ar	ny answers in Remark	ks.)				

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	\boxtimes			
Hydric Soil Present?	Yes	No	\boxtimes	Is the Sampled Area within a Wetland?	Yes 🗌	No 🖂
Wetland Hydrology Present?	Yes	No	\boxtimes			
				Elk Hills drainages now truncated by CA Aqueduct; do no		

with oil production practices; accreting sediments and hydrocarbon residues mask historic soils in low- and moderate gradient swales. Mapped wetland features created in uplands by leaky water pipes. Precipitation below-average for 2012-2013 rainy season.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute <u>% Cover</u>	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:		
1 2.				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u>	(A)
3				Total Number of Dominant Species Across All Strata:	<u>1</u>	(B)
4						
50% =, 20% =		= Total Cove	er	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u>	(A/B)
Sapling/Shrub Stratum (Plot size:)						
1				Prevalence Index worksheet:		
2				<u>Total % Cover of :</u>	Multiply by:	
3				OBL species	x1 =	-
4				FACW species	x2 =	-
5				FAC species	x3 =	-
50% =, 20% =		= Total Cove	er	FACU species	x4 =	-
Herb Stratum (Plot size:)				UPL species	x5 =	_
1. <u>Bromus madritensis</u>	<u>60</u>	yes	UPL	Column Totals: (A)		(B)
2. <u>Amsinckia sp.</u>	<u>1</u>	no	UPL	Prevalence Index = B/A	=	
3				Hydrophytic Vegetation Indicators:		
4				Dominance Test is >50%		
5				Prevalence Index is $\leq 3.0^1$		
6				Morphological Adaptations ¹ (Pro		
7				data in Remarks or on a separa	te sheet)	
8				Problematic Hydrophytic Vegeta	ation ¹ (Explain)	
50% =, 20% =		= Total Cove	er	1		
Woody Vine Stratum (Plot size:)				¹ Indicators of hydric soil and wetland hydrol be present, unless disturbed or problematic		
1						
2				Hydrophytic		
50% =, 20% =		= Total Cove	er	Vegetation Yes	□ No	\boxtimes
% Bare Ground in Herb Stratum 60	% Cover	r of Biotic Crust	. <u> </u>	Present?		
Remarks: Bare ground/thatch = 60% cove	r; prevalence	of upland spec	ies within sar	nple area.		
-						
US Army Corps of Engineers				Ar	rid West – Versior	1 2.0

SOIL															Samp	ling Poir	nt: <u>DP4</u>
	ription: (Describ		ne depth	n neede	ed to d	ocument			irm the abs	sence of i	indica	ors.)					
Depth	Matri						Redox Fe										
(inches)	Color (moist)	-	<u>%</u>	Co	lor (Mo	ist)	<u>%</u>	Type ¹	Loc	-	Textu		Remar	<u>ks</u>			
<u>0-18"</u>	<u>7.5YR4/4</u>		<u>100</u>							_	Silty c	<u>ay</u>					
		_															
		_															
<u> </u>		-					<u> </u>			_							
		-								_							
Type: C= Co	oncentration, D=D	_ Depletio	on, RM=	Reduce	ed Matr	ix, CS=Co	overed or (Coated Sand	d Grains.	Location:	: PL=P	ore Lining,	M=Matri	х.			
lydric Soil	Indicators: (App	licable	to all L	RRs, u	nless	otherwise	e noted.)					cators for			Hydric \$	Soils ³ :	
Histos	ol (A1)					Sandy F	Redox (S5))				1 cm M	uck (A9)	(LRR	C)		
Histic I	Epipedon (A2)					Stripped	d Matrix (S	6)				2 cm M	uck (A10) (LR	R B)		
Black I	Histic (A3)					Loamy I	Mucky Min	eral (F1)				Reduce	d Vertic	(F18)			
] Hydrog	gen Sulfide (A4)					Loamy	Gleyed Ma	trix (F2)				Red Pa	rent Mat	erial (TF2)		
Stratifi	ed Layers (A5) (L	RR C)				Deplete	d Matrix (F	3)				Other (I	Explain ii	n Rem	narks)		
] 1 cm N	/luck (A9) (LRR D))				Redox [Dark Surfa	ce (F6)									
Deplet	ed Below Dark S	urface ((A11)			Deplete	d Dark Su	rface (F7)									
Thick [Dark Surface (A12	2)				Redox [Depressior	ns (F8)				³ Indicat	ors of hy	droph	vtic vog	otation a	nd
□ Sandy	Mucky Mineral (S	S1)				Vernal F	Pools (F9)						nd hydro				
Sandy	Gleyed Matrix (S	64)										unle	ess distu	rbed o	or proble	matic.	
Restrictive I	Layer (if present):															
Туре:																	
Depth (Inche	es): <u>"</u>								Hydric S	oils Prese	ent?		Y	es		No	\boxtimes
Remarks:	Absence of hyd	ric soil i	indicato	rs.													
IYDROLO	GY																
Vetland Hy	drology Indicato	rs:															
rimary Indic	cators (minimum o	of one r	required	; check	all that	t apply)					Seco	ndary Indic	ators (2 o	or mo	re requir	ed)	
Surfac	ce Water (A1)					Salt Cru	ust (B11)					Water Mar	ks (B1) (River	ine)		
High V	Vater Table (A2)					Biotic C	rust (B12)					Sediment I	Deposits	(B2)	(Riverin	ie)	
Satura	ation (A3)					Aquatic	Invertebra	tes (B13)				Drift Depos	sits (B3)	(Rive	rine)		
Water	Marks (B1) (Non	nriverin	e)			Hydroge	en Sulfide	Odor (C1)			\boxtimes	Drainage F	Patterns	(B10)			
Sedim	ent Deposits (B2) (Nonr	viverine)		Oxidize	d Rhizospł	neres along	Living Root	s (C3)		Dry-Seaso	n Water	Table	(C2)		
Drift D	eposits (B3) (No	nriverir	ne)			Presend	ce of Redu	ced Iron (C4	ł)			Crayfish B	urrows (C8)			
_ Surfac	ce Soil Cracks (Be	6)				Recent	Iron Redu	ction in Tilled	d Soils (C6)			Saturation	Visible c	on Aer	ial Imag	ery (C9)	
Inunda	ation Visible on A	erial Im	nagery (B	B7)		Thin Mu	ick Surface	e (C7)				Shallow Ad	quitard (I	D3)			
Water	-Stained Leaves	(B9)				Other (E	Explain in F	Remarks)				FAC-Neutr	al Test (D5)			
ield Obser	vations:																
Surface Wate	er Present?	Yes		No	\boxtimes	Dep	pth (inches):									
Vater Table	Present?	Yes		No	\boxtimes	Dep	oth (inches	s):									
Saturation Pr	resent? pillary fringe)	Yes		No	\boxtimes	Dep	oth (inches):		Wetlan	d Hyd	rology Pre	sent?		Yes		No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Presence of single secondary hydrologic indicator; absence of wetland hydrology. US Army Corps of Engineers

Project Site:	HECA Carbon	Dioxide Supply L	ine Ali	<u>gnment</u>	City/County:	/	Kern		Sampling	Date:	<u>5/29/</u>	13	
Applicant/Owner:	<u>OEHI</u>							State: CA	Sampling	Point:	DP5		
Investigator(s):	Chris Bronny;	Tommy Fardig			Section, Town	ship, R	ange:	:					
Landform (hillslope,	terrace, etc.):	Swale		Lo	cal relief (concav	ve, conv	/ex, n	one): <u>concave</u>		Slop	be (%):	<u>5</u>	
Subregion (LRR)	: <u>LRR C</u>		Lat	t:		Long:		_	Dat	um:			
Soil Map Unit Name	:							NWI classif	ication:				
Are climatic / hyd	drologic conditic	ons on the site typi	ical for	this time of year?	Yes 🔲	No	\boxtimes	(If no, explain in Rer	marks.)				
Are Vegetation D,	Soil 🛛,	or Hydrology	\boxtimes	significantly disturbed	I? Are "Nor	mal Cir	cums	tances" present?		Yes	\boxtimes	No	
Are Vegetation	Soil 🛛,	or Hydrology	\boxtimes	naturally problematic	? (If neede	d, expl	ain ar	ny answers in Remark	ks.)				

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	\boxtimes			
Hydric Soil Present?	Yes	No	\boxtimes	Is the Sampled Area within a Wetland?	Yes 🗌	No 🖂
Wetland Hydrology Present?	Yes	No	\boxtimes			
				Elk Hills drainages now truncated by CA Aqueduct; do no		

with oil production practices; accreting sediments and hydrocarbon residues mask historic soils in low- and moderate gradient swales. Mapped wetland features created in uplands by leaky water pipes. Precipitation below-average for 2012-2013 rainy season.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute <u>% Cover</u>	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:		
1				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u>	(A)
2				That Ale OBE, I ACW, OF I AC.		
3				Total Number of Dominant	2	(B)
4				Species Across All Strata:	_	
50% =, 20% =		= Total Cove	er	Percent of Dominant Species	<u>0</u>	(A/B)
Sapling/Shrub Stratum (Plot size:)				That Are OBL, FACW, or FAC:		
1				Prevalence Index worksheet:		
2				Total % Cover of :	Multiply by:	
3				OBL species	x1 =	_
4				FACW species	x2 =	-
5				FAC species	x3 =	_
50% =, 20% =		= Total Cove	er	FACU species	x4 =	-
Herb Stratum (Plot size:)				UPL species	x5 =	_
1. <u>Bromus madritensis</u>	<u>30</u>	yes	UPL	Column Totals: (A)		- · ·
2. <u>Amsinckia sp.</u>	<u>5</u>	no	UPL	Prevalence Index = B/A =	=	
3. <u>Schismus barbatus</u>	<u>20</u>			Hydrophytic Vegetation Indicators:		
4. <u>Erodiumcicutarium</u>	<u>5</u>			Dominance Test is >50%		
5				Prevalence Index is $\leq 3.0^1$		
6				Morphological Adaptations ¹ (Pro		
7				data in Remarks or on a separat	e sheet)	
8				Problematic Hydrophytic Vegeta	tion ¹ (Explain)	
50% =, 20% =		= Total Cove	er			
Woody Vine Stratum (Plot size:)				¹ Indicators of hydric soil and wetland hydrolo be present, unless disturbed or problematic.		
1						
2				Hydrophytic		
50% =, 20% =		= Total Cove	er	Vegetation Yes	□ No	\boxtimes
% Bare Ground in Herb Stratum 40	% Cover	r of Biotic Crust		Present?		
Remarks: Bare ground/thatch = 40% cov	er; prevalence	of upland spec	ies within sar	nple area.		
US Army Corps of Engineers				Ari	id West – Version	n 2.0

SOIL															Sampli	ng Poin	:: <u>DP5</u>
	ription: (Describ		ne depth	n neede	ed to d				rm the abs	sence of i	indica	ors.)					
Depth	Matri						Redox Fea			<u>, </u>	_						
(inches)	Color (moist)	-	<u>%</u>	Co	lor (Mo	ist)	<u>%</u>	Type ¹	Loc ²		<u>Textu</u>		Remarks	5			
<u>0-12"</u>	<u>7.5YR4/4</u>		<u>100</u>							_	Silty c	ay					
·		-								_							
		-								_			_				
		-								_			_				
		-								_							
Гуре: С= Со	oncentration, D=D	 Depletio	on, RM=	Reduce	ed Matr	ix, CS=Co	overed or C	Coated Sand	I Grains. 2	Location:	PL=P	ore Lining, I	M=Matrix.				
ydric Soil	Indicators: (App	licable	to all L	RRs, u	nless	otherwise	noted.)					cators for		tic Hy	/dric S	oils ³ :	
] Histos	ol (A1)					Sandy R	Redox (S5)					1 cm Mu	uck (A9) (I		;)		
Histic I	Epipedon (A2)					Stripped	Matrix (Se	6)				2 cm Mu	uck (A10)	(LRR	B)		
Black I	Histic (A3)					Loamy N	Mucky Min	eral (F1)				Reduce	d Vertic (F	18)			
] Hydrog	gen Sulfide (A4)					Loamy (Gleyed Ma	trix (F2)				Red Par	ent Mater	ial (TF	-2)		
Stratifi	ed Layers (A5) (L	RR C)				Depleted	d Matrix (F	3)				Other (E	xplain in I	Rema	rks)		
] 1 cm N	/luck (A9) (LRR D))				Redox D	Dark Surfac	ce (F6)									
Deplet	ed Below Dark S	urface ((A11)			Depleted	d Dark Sur	face (F7)									
Thick [Dark Surface (A12	2)				Redox D	Depression	s (F8)				³ Indicato	ors of hydr	ophyti		tation a	ad
□ Sandy	Mucky Mineral (S	S1)				Vernal F	Pools (F9)						nd hydrolo				iu
Sandy	Gleyed Matrix (S	4)											ss disturb				
Restrictive I	Layer (if present):															
Туре:																	
Depth (Inche	es): <u>"</u>								Hydric So	oils Prese	ent?		Yes	s		No	\boxtimes
Remarks:	Absence of hyd	ric soil i	indicato	rs.													
IYDROLO	GY																
Vetland Hy	drology Indicato	rs:															
rimary Indic	cators (minimum o	of one r	required	; check	all that	t apply)					Seco	ndary Indica	ators (2 or	more	require	ed)	
Surfac	ce Water (A1)					Salt Cru	st (B11)					Water Mark	(B1) (R	iverin	e)		
] High V	Vater Table (A2)					Biotic Cr	rust (B12)					Sediment D	Deposits (I	B2) (R	iverine	e)	
Satura	ation (A3)					Aquatic	Invertebra	tes (B13)				Drift Depos	its (B3) (F	Riverin	ne)		
Water	Marks (B1) (Non	riverin	e)			Hydroge	en Sulfide (Ddor (C1)			\boxtimes	Drainage P	atterns (B	310)			
Sedim	ent Deposits (B2) (Nonr	riverine)		Oxidized	d Rhizosph	eres along l	_iving Roots	s (C3)		Dry-Seasor	n Water T	able (0	C2)		
	eposits (B3) (No						-	ced Iron (C4	-			Crayfish Bu			-		
	ce Soil Cracks (Be							tion in Tilled	,			Saturation		,	l Image	ry (C9)	
	ation Visible on A		agery (I	37)			ck Surface		. ,			Shallow Aq			Ũ	,	
	-Stained Leaves	(B9)	(Explain in F					FAC-Neutra					
ield Obser	vations:	ź				, ,	-	,									
Surface Wate	er Present?	Yes		No	\boxtimes	Dep	oth (inches): _									
Vater Table		Yes		No	\boxtimes	-	oth (inches										
Saturation P		Yes		No			oth (inches			Wetlan	d Hyd	rology Pres	sent?		Yes		No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Presence of single secondary hydrologic indicator; absence of wetland hydrology. US Army Corps of Engineers

Project Site:	HECA Carbon Di	ioxide Supply Li	ne Ali	<u>gnment</u>	City/County:	/	Kern		Sampling	Date:	5/30/	13	
Applicant/Owner:	<u>OEHI</u>							State: CA	Sampling	Point:	DP6		
Investigator(s):	Chris Bronny: To	mmy Fardig			Section, Tow	nship, R	ange:						
Landform (hillslope,	terrace, etc.): Sv	vale		Lo	ocal relief (conca	ve, conv	/ex, n	one): <u>concave</u>		Slop	oe (%)	<u>3</u>	
Subregion (LRR)	: <u>LRR C</u>		Lat	t:		Long:		_	Dat	um:			
Soil Map Unit Name	:							NWI classif	ication:				
Are climatic / hyd	drologic conditions	on the site typi	cal for	this time of year?	Yes 🔲	No	\boxtimes	(If no, explain in Rei	marks.)				
Are Vegetation D,	Soil 🛛,	or Hydrology	\boxtimes	significantly disturbed	d? Are "No	rmal Cir	cumst	tances" present?		Yes	\boxtimes	No	
Are Vegetation	Soil 🛛,	or Hydrology	\boxtimes	naturally problematic	? (If need	ed, expl	ain ar	y answers in Remark	(s.)				

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	\boxtimes			
Hydric Soil Present?	Yes	No	\boxtimes	Is the Sampled Area within a Wetland?	Yes 🗌	No 🖂
Wetland Hydrology Present?	Yes	No	\boxtimes			
				Elk Hills drainages now truncated by CA Aqueduct; do no		

connectivity to greater "waters of the U.S." All hillslope drainages have been altered by cut and fill activities and accelerated erosion associated with oil production practices; accreting sediments and hydrocarbon residues mask historic soils in low- and moderate gradient swales. Mapped wetland features created in uplands by leaky water pipes. Precipitation below-average for 2012-2013 rainy season.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute <u>% Cover</u>	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:		
1 2				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u>	(A)
3 4				Total Number of Dominant Species Across All Strata:	<u>2</u>	(B)
50% =, 20% = <u>Sapling/Shrub Stratum</u> (Plot size:)		= Total Cove	er	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u>	(A/B)
1				Prevalence Index worksheet:		
2				Total % Cover of :	Multiply by:	
3				OBL species	x1 =	
4				FACW species	x2 =	
5				FAC species	x3 =	
50% =, 20% =		= Total Cove	er	FACU species	x4 =	
Herb Stratum (Plot size:)				UPL species	x5 =	
1. <u>Bromus madritensis</u>	<u>2</u>	no	UPL	Column Totals: (A)		(B)
2. <u>Schismus barbatus</u>	<u>20</u>	yes	UPL	Prevalence Index = B/A =		
3. <u>Erodium cicutarium</u>	<u>10</u>	yes	UPL	Hydrophytic Vegetation Indicators:		
4				Dominance Test is >50%		
5				Prevalence Index is $\leq 3.0^1$		
6				Morphological Adaptations ¹ (Provi		
7				data in Remarks or on a separate	sheet)	
8				Problematic Hydrophytic Vegetation	on ¹ (Explain)	
50% =, 20% =	<u>32</u>	= Total Cove	er	1		
Woody Vine Stratum (Plot size:)				¹ Indicators of hydric soil and wetland hydrolog be present, unless disturbed or problematic.	jy must	
1						
2				Hydrophytic		
50% =, 20% =		= Total Cove	er	Vegetation Yes	□ No	\boxtimes
% Bare Ground in Herb Stratum 68	% Cover	of Biotic Crust		Present?		
Remarks: Bare ground = 68% cover. Preva	alence of upla	nd species with	nin sample ar	ea.		
US Army Corps of Engineers				٨٠٠٨	West – Version	2.0

SOIL															Samp	ling Po	int: <u>D</u>	DP6
Profile Desc	ription: (Describ	be to th	ne depth	n neede	ed to d				irm the abs	sence of	indicat	ors.)						
Depth	Matri	Х					Redox Fea	atures										
(inches)	Color (moist)		<u>%</u>	Co	or (Mo	ist)	<u>%</u>	Type ¹	Loc ²		Textu	re	Ren	narks				
<u>0-9"</u>	<u>7.5YR4/4</u>		<u>100</u>			-				-	Silty sa	ind						
		-				-				-								
		-				-				-								
		-				-				-								
		-				-				-								
	ncentration, D=D		n RM-	Reduce	d Matr	iv CS-Co	vered or C	`oated Sand	I Grains 2			ore Lining		atriv				
71	ndicators: (Appl		,			,		Joaleu Gant	oranis.	Location		cators fo			Hydric	Soils ³ :		
] Histoso				, .			edox (S5)							49) (LRI	•			
	pipedon (A2)					-	Matrix (Se	6)						410) (LF	-			
_	listic (A3)						lucky Mine					Redu	ced Ver	tic (F18)			
	en Sulfide (A4)					-	Bleyed Mat							/laterial				
] Stratifie	ed Layers (A5) (L	RR C)				Depleted	Matrix (F	3)				Other	· (Explai	n in Rei	narks)			
] 1 cm M	uck (A9) (LRR D)				Redox D	ark Surfac	e (F6)										
] Deplete	ed Below Dark Su	urface ((A11)			Depleted	Dark Sur	face (F7)										
] Thick D	ark Surface (A12	2)				Redox D	epression	s (F8)				³ Indic	ators of	hydroph	nytic veg	otation	and	
Sandy	Mucky Mineral (S	S1)				Vernal P	ools (F9)								must be			
Sandy	Gleyed Matrix (S	4)													or proble			
lestrictive L	ayer (if present)):																
Гуре:																		
Depth (Inches	s): <u>"</u>								Hydric So	oils Pres	sent?			Yes		No	\triangleright	\triangleleft
Remarks:	Absence of hydr	ric soil i	indicato	rs.														
IYDROLO	GY																	
letland Hyd	rology Indicato	rs:																
rimary Indic	ators (minimum d	of one r	required	; check	all that	t apply)					Seco	ndary Ind	licators	(2 or mo	ore requi	red)		
Surfac	e Water (A1)					Salt Crus	st (B11)					Water M	arks (B	1) (Rive	rine)			
] High W	/ater Table (A2)					Biotic Cr	ust (B12)					Sedimen	nt Depos	sits (B2)	(Riverin	ne)		
Satura	tion (A3)					Aquatic I	nvertebrat	es (B13)				Drift Dep	osits (B	3) (Rive	erine)			
Water	Marks (B1) (Non	riverin	e)			Hydroge	n Sulfide (Odor (C1)			\boxtimes	Drainage	e Patteri	ns (B10)			
Sedimo	ent Deposits (B2)) (Nonr	viverine)		Oxidized	Rhizosph	eres along	Living Roots	s (C3)		Dry-Sea	son Wa	ter Tabl	e (C2)			
Drift D	eposits (B3) (No	nriverir	ne)			Presence	e of Reduc	ced Iron (C4)			Crayfish	Burrow	s (C8)				
Surfac	e Soil Cracks (B6	5)				Recent I	ron Reduc	tion in Tilleo	d Soils (C6)			Saturatio	on Visibl	e on Ae	rial Imag	ery (C	9)	
lnunda	tion Visible on A	erial Im	agery (E	B7)		Thin Muo	ck Surface	(C7)				Shallow	Aquitar	d (D3)				
Water-	Stained Leaves ((B9)				Other (E	xplain in R	lemarks)				FAC-Net	utral Tes	st (D5)				
ield Observ	ations:																	
Surface Wate	er Present?	Yes		No	\boxtimes	Dep	th (inches)):										
Vater Table I	Present?	Yes		No	\boxtimes	Dep	th (inches)):										
Saturation Princludes cap		Yes		No			th (inches)				nd Hydi	ology P	resent?	,	Yes		No	

Remarks: Presence of single secondary hydrologic indicator; absence of wetland hydrology. US Army Corps of Engineers

Project Site:	HECA Carbon Di	ioxide Supply L	ine Alig	nment	City/Co	unty:	/Kern		Sampling	Date:	<u>5/29/</u>	3	
Applicant/Owner:	<u>OEHI</u>							State: CA	Sampling	Point:	DP 15	50a	
Investigator(s):	Chris Bronny: To	mmy Fardig			Section,	Township, I	Range	Section 27S, Town	nship 30S, R	ange 2	4 <u>E</u>		
Landform (hillslope,	terrace, etc.): Up	bland		L	ocal relief (concave, cor	nvex, n	one): <u>none</u>		Slop	e (%):	<u>2</u>	
Subregion (LRR)	: <u>LRRC</u>		Lat:	<u>35.2838120°</u>		Long:	<u>-119</u> .	<u>.3827321°</u>	Dat	um:			
Soil Map Unit Name	: Elkhills sandy lo	<u>pam, 9 to 50 pe</u>	rcent slo	opes, eroded.				NWI class	ification:				
Are climatic / hyd	drologic conditions	on the site typi	cal for t	his time of year?	Yes	□ No	\boxtimes	(If no, explain in Re	emarks.)				
Are Vegetation D,	Soil 🛛,	or Hydrology	🛛 s	ignificantly disturbe	ed? Ar	e "Normal C	rcums	tances" present?		Yes	\boxtimes	No	
Are Vegetation	Soil 🛛,	or Hydrology	🛛 n	aturally problemati	ic? (If	needed, exp	lain ar	ny answers in Remar	rks.)				

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	\boxtimes	
Hydric Soil Present?	Yes	No	\boxtimes	Is the Sampled Area within a Wetland? Yes 🗌 No 🖂
Wetland Hydrology Present?	Yes	No	\boxtimes	
				y CA Aqueduct and do not exhibit hydrologic connectivity to greater "waters of

the U.S." within the region. All hillslope drainages have been altered by cut and fill activities and accelerated erosion associated with oil production practices; accreting sediments and hydrocarbon residues mask historic soils in low- and moderate gradient swales. Mapped wetland features created in uplands by leaky water pipes. Precipitation below-average for 2012-2013 rainy season.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute <u>% Cover</u>	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:		
1 2				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u>	(A)
3 4				Total Number of Dominant Species Across All Strata:	<u>3</u>	(B)
50% =, 20% = <u>Sapling/Shrub Stratum</u> (Plot size:)		= Total Cove	r	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u>	(A/B)
1. <u>Atriplex polycarpa</u>	<u>5</u>	no	UPL	Prevalence Index worksheet:		
2				Total % Cover of :	Multiply by:	
3				OBL species	x1 =	
4				FACW species	x2 =	
5				FAC species	x3 =	
50% =, 20% =	<u>5</u>	= Total Cove	r	FACU species	x4 =	
Herb Stratum (Plot size:)				UPL species	x5 =	
1. <u>Bromus madritensis</u>	<u>15</u>	yes	UPL	Column Totals: (A)		(B)
2. <u>Schimus barbatus.</u>	<u>3</u>	no	UPL	Prevalence Index = B/A =		
3				Hydrophytic Vegetation Indicators:		
4				Dominance Test is >50%		
5				Prevalence Index is $\leq 3.0^1$		
6				Morphological Adaptations ¹ (Prov		
7				data in Remarks or on a separate	e sheet)	
8				Problematic Hydrophytic Vegetat	ion ¹ (Explain)	
50% =, 20% =	<u>18</u>	= Total Cove	r	1		
Woody Vine Stratum (Plot size:)				¹ Indicators of hydric soil and wetland hydrolo be present, unless disturbed or problematic.	gy must	
1				· · ·		
2.				Hydrophytic		
Z						
50% =, 20% =		= Total Cove	r	Vegetation Yes	□ No	\boxtimes
	% Cover	= Total Cove of Biotic Crust	r	Vegetation Yes Present?	□ No	
50% =, 20% =		of Biotic Crust		Present?	□ No	

US Army Corps of Engineers

Remarks: Absence of hydric soil indicators. HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required) Surface Water (A1) Salt Crust (B11) Water Marks (B1) (Riverine) High Water Table (A2) Biotic Crust (B12) Sediment Deposits (B2) (Riverine) Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Drift Deposits (B3) (Riverine) Water Marks (B1) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Dry-Season Water Table (C2) Drift Deposits (B3) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Dry-Season Water Table (C2) Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Surface Soil Cracks (B6) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Shallow Aquitard (D3) Water-Stained Leaves (B9) Other (Explain in Remarks) FAC-Neutral Test (D5)	SOIL													5	Sampling	Point:	<u>DP 1</u>	<u>50a</u>
(inches) Color (Moist) % Type! Loc? Texture Remarks 9.8' 10YR4/4 100	Profile Descr	iption: (Describ	e to th	e depth	neede	ed to d				irm the abs	sence of	indicat	ors.)					
0-8' 10YR44 100	Depth	Matrix	(R	edox Feat										
"Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix. "type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix. "type: C= Concentration, D=Depletion, RM=Reduced Matrix, (CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix. "type: C= Concentration, D=Depletion, RM=Reduced Varic (F1) Indicators for Problematic Hydric Soils ¹ : Histosol (A1) Sinpped Matrix (S6) 2 cm Muck (A0) (LRR C) Black Hists (A3) Loamy Mucky Mineral (F1) Reduced Varic (F18) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) Reduced Varic (F18) Depleted Balow Dark Surface (A11) Depleted Matrix (F3) Other (Explain in Remarks) I cm Muck (A9) (LRR D) Redox Dark Surface (F7) Sandy Gleged Matrix (S4) unless disturbed or problematic. Sandy Mucky Mineral (S1) Vermal Pools (F9) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (If present): Type: Type: Depleted Matrix (S4) Wetland Hydrology Indicators: WHDROLOGY Sath Crust (B11) Water Marks (B1) (Nonriverine) Sath Crust (B12)					Col	or (Mo	ist)	<u>%</u>	Type ¹	Loc ²		Textu	e	Remarks				
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ² : Histosol (A1) Sandy Redox (S5) 1 cm Muck (A9) (LRR C) Histic Epipedon (A2) Stripped Matrix (S6) 2 cm Muck (A10) (LR R B) Black Histic (A3) Loamy Mucky Mineral (F1) Red Veced Vertic (F18) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Red Parent Material (TF2) Stratified Layers (A5) (LRR C) Depleted Matrix (F3) Other (Explain in Remarks) 1 cm Muck (A9) (LRR D) Redox Dark Surface (F6) Depleted Bolew Dark Surface (A12) Redox Daressions (F8) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (If present): Type:	<u>0-8"</u>	<u>10YR4/4</u>	-	<u>100</u>							-			_				
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Type:																		
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Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Dry-Season Water Table (C2) Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Surface Soil Cracks (B6) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Shallow Aquitard (D3) Water-Stained Leaves (B9) Other (Explain in Remarks) FAC-Neutral Test (D5)	Saturat	ion (A3)					Aquatic In	vertebrate	s (B13)				Drift Deposi	its (B3) (Riv	erine)			
Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Crayfish Burrows (C8) Surface Soil Cracks (B6) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Shallow Aquitard (D3) Water-Stained Leaves (B9) Other (Explain in Remarks) FAC-Neutral Test (D5)	Water M	Marks (B1) (Nonr	riverin	e)			Hydrogen	Sulfide O	dor (C1)				Drainage P	atterns (B10))			
Surface Soil Cracks (B6) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9) Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Shallow Aquitard (D3) Water-Stained Leaves (B9) Other (Explain in Remarks) FAC-Neutral Test (D5)	Sedime	ent Deposits (B2)	(Nonri	iverine)		Oxidized I	Rhizosphe	res along	Living Roots	s (C3)		Dry-Seasor	n Water Tab	le (C2)			
Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Shallow Aquitard (D3) Water-Stained Leaves (B9) Other (Explain in Remarks) FAC-Neutral Test (D5)	Drift De	eposits (B3) (Non	riverin	ne)			Presence	of Reduce	ed Iron (C4	-)			Crayfish Bu	irrows (C8)				
Water-Stained Leaves (B9) Other (Explain in Remarks) FAC-Neutral Test (D5)	Surface	e Soil Cracks (B6)				Recent Iro	on Reducti	on in Tilleo	d Soils (C6)			Saturation \	visible on A	erial Imaç	gery (C	9)	
	Inundat	tion Visible on Ae	erial Ima	agery (E	37)		Thin Mucl	k Surface (C7)				Shallow Aq	uitard (D3)				
	Water-	Stained Leaves (I	B9)				Other (Ex	plain in Re	marks)				FAC-Neutra	al Test (D5)				
	ield Observ	ations:																
Surface Water Present? Yes 🗌 No 🛛 Depth (inches):	Surface Wate	r Present?	Yes		No	\boxtimes	Depth	n (inches):										
Water Table Present? Yes 🗌 No 🖾 Depth (inches):	Water Table F	Present?	Yes		No	\boxtimes	Depth	n (inches):										
Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	(includes capi	llary fringe)					•	· ,				nd Hydr	ology Pres	ent?	Yes		No	D

Remarks: Absence of hydrologic indicators and wetland hydrology. US Army Corps of Engineers

Project Site:	HECA Carbon Dioxide Supply L	Line Alignment	City/County:	/Kern	Sampling Date:	5/29/13
Applicant/Owner:	<u>OEHI</u>			State: CA	Sampling Point:	DP 150b
Investigator(s):	Chris Bronny: Tommy Fardig		Section, Township	o, Range: <u>Section 27S</u> ,	Township 30S, Range 2	<u>24E</u>
Landform (hillslope,	terrace, etc.): Artificial Wetland	1	Local relief (concave, o	convex, none): <u>concave</u>	<u>e</u> Slop	pe (%): <u>0</u>
Subregion (LRR)	: <u>LRRC</u>	Lat: <u>35.2838120°</u>	Lon	g: <u>-119.3827321°</u>	Datum:	
Soil Map Unit Name	Elkhills sandy loam, 9 to 50 pe	ercent slopes, eroded.		NWI	classification:	
Are climatic / hyd	drologic conditions on the site typ	pical for this time of year	? Yes 🗌 🗌	No 🛛 (If no, explain	in Remarks.)	
Are Vegetation D,	Soil D, or Hydrology	significantly distu	Irbed? Are "Normal	Circumstances" presen	t? Yes	🗆 No 🖾
Are Vegetation 🛛,	Soil 🖾, or Hydrology	naturally problem	natic? (If needed, e	explain any answers in R	Remarks.)	

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	\boxtimes	No						
Hydric Soil Present?	Yes	\boxtimes	No		Is the Sampled Area within a Wetland?	Yes	\boxtimes	No 🗆	
Wetland Hydrology Present?	Yes	\boxtimes	No						
Remarks: East/northern side of historic Elk Hills dra	inages	now	trunca	ated by	y CA Aqueduct and do not exhibit hydrologic connectivity	/ to gre	ater "	waters	of

the U.S." within the region. Mapped wetland features created in uplands by leaky water pipes. Precipitation below-average for 2012-2013 rainy season.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. <u>Salix gooddingii</u>	20	yes	FACW	Number of Dominant Species	(4)
2. <u>Tamarix ramosissima</u>	<u>10</u>	<u>ves</u>	<u>-</u>	That Are OBL, FACW, or FAC: 2	(A)
3 4				Total Number of Dominant Species Across All Strata: <u>3</u>	(B)
50% =, 20% = Sapling/Shrub Stratum (Plot size:)	<u>30</u>	= Total Cov	er	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u>	(A/B)
1.				Prevalence Index worksheet:	
2.				Total % Cover of : Multiply by:	
3.				OBL species x1 =	
4.				FACW species x2 =	
5.				FAC species x3 =	
50% = , 20% =		= Total Cov	er	FACU species x4 =	
Herb Stratum (Plot size:)				UPL species x5 =	
1. <u>Bromus madritensis</u>	<u>5</u>	no	UPL	Column Totals: (A) (B	3)
2. Laennecia coulteri	<u>15</u>	ves	FAC	Prevalence Index = B/A =	
3. Typha angustifolia	4	no	OBL	Hydrophytic Vegetation Indicators:	
4. <u>Erigeron canadensis</u>	10	no	FACU	Dominance Test is >50%	
5. <u>Polypogon monspeliensis</u>	<u>5</u>	no	FACW	Prevalence Index is $< 3.0^1$	
 <u>Aster (chilensis)</u> Lactuca serriola 	<u>5</u> 1	<u>no</u> no	<u>UPL</u> FACU	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
8.	-	_		Problematic Hydrophytic Vegetation ¹ (Explain)	
50% = , 20% =	45	= Total Cov	er		
Woody Vine Stratum (Plot size:)				¹ Indicators of hydric soil and wetland hydrology must	
1				be present, unless disturbed or problematic.	
2				- Understadie	
50% =, 20% =		= Total Cov	er	Hydrophytic Vegetation Yes 🛛 No	
% Bare Ground in Herb Stratum 25	% Cove	r of Biotic Crus	t	Present?	

US Army Corps of Engineers

SOIL												Sampling	Point: <u>D</u>	DP 150
	ption: (Describe to	the depth r	needed to d	locumer			rm the abs	ence	of indica	tors.)				
Depth	Matrix				Redox F									
(inches)	Color (moist)	<u>%</u>	Color (Mo	ist)	<u>%</u>	Type ¹	Loc ²		Textu	ire	<u>Remarks</u>			
<u>0-5"</u>	<u>10YR5/4</u>	<u>100</u>						-	Sandy	clay				
<u>5-15"</u>	<u>GLEY2.5/5BG</u>	<u>60</u>						-	Sandy r	nuck				
<u>5-15"</u>	<u>10YR5/4</u>	<u>40</u>						_	<u>Sandy</u>	<u>clay</u>				
								_						
								-						
					<u> </u>									
	centration, D=Deple	-					Grains. ²	Location			, M=Matrix.		3	
	dicators: (Applicat	ole to all LR	·								r Problemati		Soils':	
Histosol				-	Redox (S						/luck (A9) (Ll			
-	ipedon (A2)				ed Matrix (,					/luck (A10) (l	-		
] Black Hi	. ,			-	/ Mucky M						ed Vertic (F1	,		
	n Sulfide (A4)			-	/ Gleyed N						arent Materia			
Stratified	Layers (A5) (LRR (C)		Deplet	ted Matrix	(F3)				Other	(Explain in R	emarks)		
1 cm Mu	ck (A9) (LRR D)			Redox	Dark Surf	ace (F6)								
Depleted	Below Dark Surfac	e (A11)		Deplet	ted Dark S	urface (F7)								
] Thick Da	rk Surface (A12)			Redox	Depressio	ons (F8)				³ Indica	tors of hydro	phytic veo	petation a	nd
Sandy N	lucky Mineral (S1)			Verna	l Pools (F9)					and hydrolog			
] Sandy G	leyed Matrix (S4)									un	less disturbe	d or probl	ematic.	
estrictive La	yer (if present):													
/pe:	<u>0</u>													
epth (Inches)	:						Hydric So	oils Pr	esent?		Yes	\boxtimes	No	
emarks: F	Presence of hydric s	soil indicator	s.											
YDROLOG	Y													
	ology Indicators:													
rimary Indica	tors (minimum of on	e required; c	check all that	t apply)					Seco	ndary Indi	cators (2 or n	nore requ	ired)	
Surface	Water (A1)			Salt C	rust (B11)					Water Ma	urks (B1) (Riv	verine)		
] High Wa	ater Table (A2)			Biotic	Crust (B12	2)				Sediment	Deposits (B	2) (Riveri	ne)	
Saturati	on (A3)			Aquati	ic Inverteb	rates (B13)				Drift Depo	osits (B3) (Ri	verine)		
] Water M	larks (B1) (Nonrive	rine)	\boxtimes	Hydro	gen Sulfide	e Odor (C1)			\boxtimes	Drainage	Patterns (B1	0)		
] Sedime	nt Deposits (B2) (No	onriverine)		Oxidiz	ed Rhizos	pheres along L	iving Roots	s (C3)		Dry-Seas	on Water Tal	ole (C2)		
] Drift De	posits (B3) (Nonrive	erine)		Prese	nce of Red	luced Iron (C4)			Crayfish I	Burrows (C8)			
	Soil Cracks (B6)			Recer	t Iron Red	uction in Tilled	Soils (C6)			Saturation	n Visible on A	erial Ima	gery (C9)	
	on Visible on Aerial	Imagery (B7			luck Surfa						Aquitard (D3)		,	
	tained Leaves (B9)					Remarks)					tral Test (D5))		
eld Observa						- /			_					

Water Table Present? \boxtimes Yes No Depth (inches): Saturation Present? Wetland Hydrology Present? Yes \boxtimes Yes \boxtimes Depth (inches): No Surface (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Depth (inches):

Remarks: Indicators of wetland hydrology are present; however, feature is hydrologically isolated and does not exhibit a significant nexus to a TNW. US Army Corps of Engineers Arid West – V Arid West - Version 2.0

7"

 \boxtimes

Yes

No

Surface Water Present?

No

Project Site:	HECA Carbon Di	ioxide Supply L	ine Alig	nment	City/C	county:	/	Kern		Samp	ling Date:	5/29/	3	
Applicant/Owner:	<u>OEHI</u>								State: CA	Sampl	ing Point:	<u>DP 1</u> 5	50c	
Investigator(s):	Chris Bronny; To	mmy Fardig			Sectio	n, Towns	ship, R	ange	Section 27S, Tov	vnship 308	S, Range 2	<u>24E</u>		
Landform (hillslope,	terrace, etc.): Up	bland		I	Local relief	(concav	e, conv	vex, n	ione): <u>concave</u>		Slo	oe (%):	<u>3</u>	
Subregion (LRR)	LRRC		Lat:	<u>35.2838120°</u>		I	Long:	<u>-119</u>	. <u>3827321°</u>		Datum:			
Soil Map Unit Name	Elkhills sandy lo	<u>pam, 9 to 50 pe</u>	rcent sl	opes, eroded.					NWI clas	sification:				
Are climatic / hyd	Irologic conditions	on the site typi	ical for	this time of year?	Yes		No	\boxtimes	(If no, explain in R	Remarks.)				
Are Vegetation D,	Soil 🛛,	or Hydrology	🛛 s	significantly disturb	ed?	Are "Norr	mal Cir	cums	tances" present?		Yes		No	\boxtimes
Are Vegetation	Soil 🛛,	or Hydrology	🛛 r	naturally problemat	tic?	If neede	d, expl	ain ar	ny answers in Rema	arks.)				

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	\boxtimes			
Hydric Soil Present?	Yes		No	\boxtimes	Is the Sampled Area within a Wetland?	Yes 🗌	No 🛛
Wetland Hydrology Present?	Yes		No	\boxtimes			
Remarks: East/northern side of historic Elk Hills dra	ainages	now	trunca	ated b	y CA Aqueduct and do not exhibit hydrologic connectivity	to greater	"waters of

the U.S." within the region. Mapped wetland features created in uplands by leaky water pipes. Precipitation below-average for 2012-2013 rainy season.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1				Number of Dominant Species	4)
2				That Are OBL, FACW, or FAC:	9
3				Total Number of Dominant	3)
4				Species Across All Strata:	-)
50% =, 20% =		= Total Cove	r	Percent of Dominant Species	4/B)
Sapling/Shrub Stratum (Plot size:)				That Are OBL, FACW, or FAC:	<i>(</i> , <i>D</i>)
1. <u>Atriplex polycarpa</u>	<u>10</u>	no	UPL	Prevalence Index worksheet:	
2				Total % Cover of : Multiply by:	
3				OBL species x1 =	
4				FACW species x2 =	
5				FAC species X3 =	
50% =, 20% =	<u>10</u>	= Total Cove	r	FACU species x4 =	
Herb Stratum (Plot size:)				UPL species x5 =	
1. <u>Bromus madritensis</u>	<u>40</u>	ves	UPL	Column Totals: (A) (B)	
2. <u>Schimus barbatus.</u>	<u>10</u>	<u>ves</u>	UPL	Prevalence Index = B/A =	
3. <u>Laennecia coulteri</u>	<u>8</u>	<u>no</u>	FAC	Hydrophytic Vegetation Indicators:	
4. <u>Lactucus serriola</u>	<u>5</u>	no	FAC	Dominance Test is >50%	
5				Prevalence Index is $\leq 3.0^1$	
6				Morphological Adaptations ¹ (Provide supporting	
7				data in Remarks or on a separate sheet)	
8				Problematic Hydrophytic Vegetation ¹ (Explain)	
50% =, 20% =	<u>63</u>	= Total Cove	r		
Woody Vine Stratum (Plot size:)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1					
2				Hydrophytic	
50% =, 20% =	<u>73</u>	= Total Cove	r	Vegetation Yes 🗆 No 🛛	\boxtimes
% Bare Ground in Herb Stratum 27	% Cover	of Biotic Crust		Present?	
Remarks: Bare ground/thatch = 27% cover.					
LIS Army Corps of Engineers				Arid Wast Version 2.0	

US Army Corps of Engineers

SOIL												S	ampling I	Point:	<u>DP 1</u>	<u>50c</u>
Profile Descr	ription: (Describe	e to th	e deptł	n neede	ed to d	ocument the indica	ator or conf	irm the abs	ence of	indicat	ors.)					
Depth	Matrix					Redox Fe	atures									
(inches)	Color (moist)		<u>%</u>	Co	lor (Mo	<u>ist) %</u>	Type ¹	Loc ²		Textu	re <u>F</u>	Remarks				
0-6"	<u>10YR5/4</u>	-	100						_	Silty cl	ay	-				
									_			-				
									_			-				
		-							_			-				
		-							-			-				
		_							_			-				
71	,		,			ix, CS=Covered or (Coated Sand	I Grains. 2	Locatior		ore Lining, M=					
_	ndicators: (Appli	cable	to all L	.RRs, u		otherwise noted.)					cators for Pr	oblematic	Hydric S	Soils ³ :		
Histoso	I (A1)					Sandy Redox (S5))				1 cm Mucl	< (A9) (LRI	τC)			
Histic E	pipedon (A2)					Stripped Matrix (S	6)				2 cm Mucl	k (A10) (LF	RR B)			
Black H	listic (A3)					Loamy Mucky Min	eral (F1)				Reduced	/ertic (F18)			
	en Sulfide (A4)					Loamy Gleyed Ma	atrix (F2)				Red Parer	nt Material	(TF2)			
Stratifie	d Layers (A5) (LF	RR C)				Depleted Matrix (F	-3)				Other (Exp	plain in Rer	marks)			
1 cm M	uck (A9) (LRR D)					Redox Dark Surfa	ce (F6)									
Deplete	d Below Dark Su	rface (A	A11)			Depleted Dark Su	rface (F7)									
Thick D	ark Surface (A12))				Redox Depressior	ns (F8)				³ Indicators	of hydropi	nytic veqe	etation	and	
Sandy I	Mucky Mineral (S	1)				Vernal Pools (F9)						hydrology	, ,			
Sandy (Gleyed Matrix (S4)									unless	disturbed	or proble	matic.		
Restrictive L	ayer (if present):															
Туре:																
Depth (Inches	s):							Hydric So	oils Pres	sent?		Yes		No	\triangleright	3
Remarks:	Absence of hydri	c soil ii	ndicato	rs.												
HYDROLOG	GY															
Netland Hyd	rology Indicator	s:														
Primary Indica	ators (minimum of	f one re	equired	; check	all that	t apply)				Seco	ndary Indicato	rs (2 or mo	ore requir	ed)		
Surface	e Water (A1)					Salt Crust (B11)					Water Marks	(B1) (Rive	rine)			
🔲 🛛 High W	ater Table (A2)					Biotic Crust (B12)					Sediment De	posits (B2)	(Riverin	e)		
Saturat	tion (A3)					Aquatic Invertebra	ates (B13)				Drift Deposits	(B3) (Rive	erine)			
Water I	Marks (B1) (Nonr	iverin	e)			Hydrogen Sulfide	Odor (C1)			\boxtimes	Drainage Pat	terns (B10))			
Sedime	ent Deposits (B2)	(Nonri	iverine)		Oxidized Rhizospl	heres along	Living Roots	s (C3)		Dry-Season \	Vater Tabl	e (C2)			
Drift De	eposits (B3) (Non	riverin	ne)			Presence of Redu	ced Iron (C4)			Crayfish Burr	ows (C8)				
Surface	e Soil Cracks (B6))				Recent Iron Redu	ction in Tilled	d Soils (C6)			Saturation Vi	sible on Ae	rial Imag	ery (C	9)	
🗌 Inunda	tion Visible on Ae	rial Ima	agery (I	B7)		Thin Muck Surface	e (C7)				Shallow Aqui	tard (D3)				
Water-	Stained Leaves (E	39)				Other (Explain in I	Remarks)				FAC-Neutral	Test (D5)				
Field Observ	ations:															
Surface Wate	r Present?	Yes		No	\boxtimes	Depth (inches	s):									
Water Table F	Present?	Yes		No	\boxtimes	Depth (inches	s):									
Saturation Pre (includes capi	esent?	Yes		No	\boxtimes	Depth (inches			Wetla	nd Hydi	ology Prese	nt?	Yes		No	D
		m gau	ae. moi	nitorina	well. a	erial photos, previou	us inspection	s), if availat	ble:							

Remarks: Absence of wetland hydrology. US Army Corps of Engineers

Project Site:	HECA Carbon Dioxide S	upply Line Ali	<u>gnment</u>	City/County:	/Kern		Sampling Date	: <u>5/29/</u>	13	
Applicant/Owner:	<u>OEHI</u>					State: CA	Sampling Point	: <u>DP 1</u>	<u>50d</u>	
Investigator(s):	Chris Bronny; Tommy Fa	rdig		Section, Township,	Range:	Section 27S, Town	<u>ship 30S, Range</u>	<u>24E</u>		
Landform (hillslope,	terrace, etc.): Artificial W	etland	Loca	al relief (concave, co	onvex, n	one): <u>concave</u>	SI	ope (%):	<u>5</u>	
Subregion (LRR)	LRRC	Lat	t: <u>35.2838120°</u>	Long	j: <u>-119.</u>	<u>3827321°</u>	Datum:			
Soil Map Unit Name	Elkhills sandy loam, 9 to	50 percent	slopes, eroded.			NWI classif	ication:			
Are climatic / hyd	Irologic conditions on the	site typical for	this time of year?	Yes 🗌 🛛 N	o 🛛	(If no, explain in Rer	marks.)			
Are Vegetation D,	Soil 🔲, or Hyd	rology 🛛	significantly disturbed?	Are "Normal (Circumst	tances" present?	Yes		No	\boxtimes
Are Vegetation 🖾,	Soil 🖾, or Hyd	rology 🛛	naturally problematic?	(If needed, ex	plain an	y answers in Remark	(S.)			

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	\boxtimes	No				
Hydric Soil Present?	Yes	\boxtimes	No	Is the Sampled Area within a Wetland?	Yes 🛛	3	No 🗆
Wetland Hydrology Present?	Yes	\boxtimes	No				
				y CA Aqueduct and do not exhibit hydrologic connectivity			

the U.S." within the region. Mapped wetland features created in uplands by leaky water pipes. Precipitation below-average for 2012-2013 rainy season.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute <u>% Cover</u>	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:
1 2		_	_	Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A
3 4.				Total Number of Dominant Species Across All Strata: 2 (B)
50% =, 20% = Sapling/Shrub Stratum (Plot size:)		= Total Cov	er	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A
1. Atriplex polycarpha	5	no	UPL	Prevalence Index worksheet:
2.	<u>5</u>	110		Total % Cover of : Multiply by:
3.				OBL species x1 =
4.				FACW species x2 =
5.				FAC species x3 =
50% = , 20% =	5	= Total Cov	er	FACU species x4 =
Herb Stratum (Plot size:)	<u> </u>	i otal o'o'i		UPL species x5 =
1. Bromus madritensis	10	no	UPL	Column Totals: (A) (B)
2. Laennecia coulteri	30	ves	FAC	Prevalence Index = B/A =
3. Aster (chilensis)	3	no	UPL	Hydrophytic Vegetation Indicators:
4. <u>Sonchus oleraceus</u>	10	no	UPL	Dominance Test is >50%
5. <u>Psuedognaphalium luteoalbum</u>	20	no	FAC	Prevalence Index is <3.0 ¹
 <u>Typha angustifolia</u> Erigeron canadensis 	<u>5</u> 5	<u>no</u> no	<u>OBL</u> FACU	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8.	<u>u</u>	10	1/100	Problematic Hydrophytic Vegetation ¹ (Explain)
50% = , 20% =	83	= Total Cov		
Woody Vine Stratum (Plot size:)	<u></u>			¹ Indicators of hydric soil and wetland hydrology must
1.				be present, unless disturbed or problematic.
2.				
50% =, 20% =	88	= Total Cov	er	Hydrophytic Vegetation Yes ⊠ No □
	_	of Biotic Crus		Present?

US Army Corps of Engineers

SOIL												5	Sampling	Point: <u>D</u>	P 150d
Profi	le Descri	ption: (Describe to	the depth	needed to d	document	the indic	cator or confirm	n the absence	of indica	ators.)					
D	epth	Matrix				Redox F	eatures		_						
<u>(in</u>	ches)	Color (moist)	<u>%</u>	Color (Mo	<u>pist)</u>	<u>%</u>	Type ¹	Loc ²	Textu	ure	R	emarks			
<u>0-</u>	0.5"	7.5YR4/4	<u>100</u>						Sandy	clay					
<u>0.</u>	5-9"	Pure sand	<u>99</u>						Cour	se					
_		2.5YR4/6	<u>1</u>						<u>Sandy</u>	<u>clay</u>	Sand,	tiny amou	unt of clay	4	
_															
_															
_															
¹ Type	e: C= Con	centration, D=Deple	tion, RM=I	Reduced Mat	trix, CS=Co	vered or	Coated Sand G	irains. ² Loca	tion: PL=F	Pore Lin	ing, M=	Matrix.			
Hydr	ic Soil In	dicators: (Applicab	le to all L	RRs, unless	otherwise	noted.)			Ind	licators	for Pro	oblematio	: Hydric	Soils ³ :	
	Histosol	(A1)			Sandy R	edox (S	5)		\boxtimes	1 c	m Muck	(A9) (LR	R C)		
	Histic Ep	ipedon (A2)			Stripped	Matrix (S6)			2 c	m Muck	(A10) (L	RR B)		
	Black His	stic (A3)			Loamy N	/lucky Mi	ineral (F1)			Re	duced \	/ertic (F18	3)		
	Hydroge	n Sulfide (A4)			Loamy C	Bleyed M	latrix (F2)			Re	d Paren	t Material	(TF2)		
	Stratified	Layers (A5) (LRR (C)		Depleted	d Matrix	(F3)			Oth	ner (Exp	lain in Re	marks)		
\square	1 cm Mu	ck (A9) (LRR D)			Redox D	ark Surf	ace (F6)								
	Depleted	Below Dark Surfac	e (A11)		Depleted	d Dark S	urface (F7)								
	Thick Da	rk Surface (A12)		\boxtimes	Redox D	epressio	ons (F8)			³ Inc	licators	of hydrop	hvtic veo	etation a	nd
	Sandy M	lucky Mineral (S1)			Vernal P	ools (F9)					hydrology			
	Sandy G	leyed Matrix (S4)									unless	disturbed	l or probl	ematic.	
Rest	rictive La	yer (if present):													
Туре	:														
Dept	h (Inches)	: <u>"</u>					I	lydric Soils P	resent?			Yes	\boxtimes	No	
Rema	arks: 7	Thin, approximately	0.5 " dark r	muck layer pr	resent.										
	ROLOG	v													
-		ology Indicators:													
		tors (minimum of on	e required:	check all tha	at apply)				Seco	ondary I	ndicato	rs (2 or m	ore requi	red)	
		Water (A1)	o roquirou,		Salt Cru	et (B11)				-		(B1) (Riv		104)	
		ater Table (A2)			Biotic Cr	. ,						osits (B2	-))	
	Saturatio						- <i>)</i> rates (B13)					(B3) (Riv			
		larks (B1) (Nonrive i	rine)		•		e Odor (C1)				•	erns (B1			
		nt Deposits (B2) (No	-				pheres along Liv	ing Roots (C3			-	Vater Tab			
		posits (B3) (Nonrive					luced Iron (C4)	ing 10003 (03				ows (C8)	02)		
	-	Soil Cracks (B6)	inite)				uction in Tilled S	oile (C6)				sible on A	arial Ima		
	Junace				I COOTIL I					Jaiure		IDIC UIT A	unai inital	JUIY (U3)	

 \boxtimes Surface Water Present? Yes No Depth (inches): 0.5" Water Table Present? \boxtimes Yes No Depth (inches): _ Saturation Present? Wetland Hydrology Present? Yes \boxtimes \boxtimes Depth (inches): Yes No Surface (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Other (Explain in Remarks)

Remarks: Indicators of wetland hydrology are present; however, feature is hydrologically isolated and does not exhibit a significant nexus to a TNW. US Army Corps of Engineers Arid West - Version 2.0

Field Observations:

Water-Stained Leaves (B9)

No

FAC-Neutral Test (D5)

Project Site: HECA Carbon Dioxide Supply Lin	ne Alianr	nent			City/Count	tv: /K	Kern		Samplir	ng Date:	5/31/ [,]	13	
Applicant/Owner: <u>OEHI</u>					j			ate: <u>CA</u>	Samplin	0		_	
Investigator(s): <u>Chris Bronny: Tommy Fardig</u>					Section, To	ownship, Ra		ection 22S, Tov		-			
Landform (hillslope, terrace, etc.): Shallow Basin				Loc	cal relief (cor	-	-			-	pe (%):	0	
Subregion (LRR): LRRC	Lat:	35.30	88337°			Long: -	119.381	1208°	Da	atum:			
Soil Map Unit Name: Cajon Loamy sand, 2 to 5 perce	ent slope	s						NWI clas	sification:				
Are climatic / hydrologic conditions on the site typic	-		e of year	?	Yes 🗌	No	🛛 (If	no, explain in R	emarks.)				
Are Vegetation , Soil , or Hydrology	□ sig	nifica	ntly distu	irbed	? Are "	Normal Circ	umstand	ces" present?		Yes	\boxtimes	No	
Are Vegetation , Soil , or Hydrology	na na	turally	y problem	natic?	? (If ne	eded, expla	in any a	nswers in Rema	ırks.)				
SUMMARY OF FINDINGS – Attach site map sh	nowing	sam	pling p	oint	locations,	, transects	, impo	rtant features	s, etc.				
Hydrophytic Vegetation Present?	Yes	\boxtimes	No [
Hydric Soil Present?	Yes		No [Is the Sam	npled Area	within a	Wetland?		Yes		No	\boxtimes
Wetland Hydrology Present?	Yes	\boxtimes	No [
Remarks: Feature embedded in low-gradient swale	; Featur	e is e	extremely	y sha	allow basin t	that interce	pts she	etflow runoff fo	orm surron	ding upl	ands.		
Precipitation below-average for 2012-201													
VEGETATION – Use scientific names of plants													
Tree Stratum (Plot size:)	Absolut % Cove		Dominar Species?		Indicator Status	Dominan	ce Test	Worksheet:					
1	// 0010	<u>, , , , , , , , , , , , , , , , , , , </u>		-		Number of	f Domin:	ant Species					
2								CW, or FAC:		<u>1</u>			(A)
3						Total Num	ber of D)ominant					-
4						Species A				<u>1</u>			(B)
50% =, 20% =			= Total C	Cover		Percent of		ant Species					
Sapling/Shrub Stratum (Plot size:)								CW, or FAC:		<u>100%</u>			(A/B)
1						Prevalence	ce Index	worksheet:					
2							Total	% Cover of :		Multiply	y by:		
3						OBL spec	ies			x1 =		_	
4						FACW spe	ecies			x2 =		_	
5						FAC spec	ies			x3 =		_	
50% =, 20% =			= Total C	Cover		FACU spe	ecies			x4 =		_	
Herb Stratum (Plot size:)						UPL speci	ies			x5 =			
1. Hordeum marinum	60		yes		FAC	Column To	otals:	(A)				_ (B)
2.	_					Column	01010.	Prevalence Inc					
3.						Hydrophy	/tic Vea	etation Indicate					
4.								ance Test is >5					
5								ence Index is <u><</u>					
6.								ological Adapta					
7								n Remarks or on			oning		
8.								e 11 1 1		1.1			
	<u> </u>		= Total C				Proble	matic Hydrophy	tic vegetation	on' (Exp	lain)		
50% =, 20% = <u>Woody Vine Stratum</u> (Plot size:)	<u>60</u>			Jover		¹ Indicators	s of hydr	ic soil and wetla	nd hydrolog	gy must			
						be presen	t, unless	s disturbed or pr	oblematic.				
1					—								
2			_ Total C	20110-		Hydrophy			Yes	\boxtimes	No		
50% =, 20% =	0/ 0		= Total C			Vegetatio Present?	11			ت			
% Bare Ground in Herb Stratum 40			f Biotic C										
Remarks: Bare ground/thatch = 40% cover;	prevalen	ce of	upland s	pecie	es surroundir	ng mapped f	eature.						

US Army Corps of Engineers

SOIL														Samplin	g Point	DP 1	<u>151</u>
Profile Desc	ription: (Descr	ibe to th	e depti	n need	ed to d	ocument the indicator	r or conf	irm the abs	sence of	indica	tors.)						
Depth	Mat					Redox Featu											
(inches)	Color (mois		<u>%</u>	Co	lor (Mo	<u>ist) %</u>	Type ¹	Loc ²	-	<u>Textu</u>		Rem	<u>narks</u>				
<u>8-11"</u>	<u>10YR4/4</u>		100						_	Silty c	ay						
		_							_								
		-							-								
<u> </u>		_							_								
		-							_								
¹ Type: C= Co	oncentration. D=	Depletio	n. RM=	Reduce	ed Matr	ix, CS=Covered or Coa	ated San	d Grains. 2	 ² Location	: PL=P	ore Lining,	M=Ma	atrix.				
	,		,			otherwise noted.)					icators for			Hydric	Soils ³ :		
Histoso	ol (A1)	-				Sandy Redox (S5)					1 cm N	luck (A	9) (LR	R C)			
Histic E	Epipedon (A2)					Stripped Matrix (S6)					2 cm N	luck (A	(10) (LF	RR B)			
Black H	Histic (A3)					Loamy Mucky Minera	al (F1)				Reduc	ed Ver	tic (F18)			
Hydrog	jen Sulfide (A4)					Loamy Gleyed Matrix	: (F2)				Red Pa	arent N	laterial	(TF2)			
Stratifie	ed Layers (A5) ((LRR C)				Depleted Matrix (F3)					Other	Explai	n in Re	marks)			
□ 1 cm M	luck (A9) (LRR	D)				Redox Dark Surface	(F6)										
Deplete	ed Below Dark S	Surface ((A11)			Depleted Dark Surfac	ce (F7)										
	Dark Surface (A	12)				Redox Depressions (F8)				³ Indica	tors of	hydrop	hytic veg	getation	and	
	Mucky Mineral					Vernal Pools (F9)								must be			
	Gleyed Matrix (1			un	less dis	sturbed	or probl	ematic.		
	.ayer (if presen	nt):															
Type:								Hudria Sa	oile Broo	0.042			Yes		No		a
Depth (Inches Remarks:	Absence of hy	drie soil i	indicato	re: no r	odov			Hydric So	UIIS FIES	entr			Tes		NO	\boxtimes	
Remarks.	Absence of hy		nuicato	15, 110 1	euux.												
HYDROLO	GY																
	drology Indicat	ors:															
Primary Indic	ators (minimum	of one r	equired	; check	all that	t apply)				Seco	ndary India	cators ((2 or mo	ore requ	ired)		
Surfac	e Water (A1)					Salt Crust (B11)					Water Ma	rks (B1) (Rive	rine)			
🔲 🛛 High V	Vater Table (A2))				Biotic Crust (B12)					Sediment	Depos	sits (B2)	(Riveri	ne)		
Satura	ition (A3)					Aquatic Invertebrates	s (B13)				Drift Depo	osits (B	3) (Riv	erine)			
□ Water	Marks (B1) (No	nriverin	e)			Hydrogen Sulfide Od	or (C1)				Drainage	Patterr	ns (B10)			
Sedim Sedim	ent Deposits (B	2) (Nonr	iverine)		Oxidized Rhizosphere	es along	Living Roots	s (C3)		Dry-Seas	on Wat	ter Tabl	e (C2)			
	eposits (B3) (No		ne)			Presence of Reduced		,			Crayfish E		. ,				
Surfac	e Soil Cracks (E	36)				Recent Iron Reductio	n in Tille	d Soils (C6)		\boxtimes	Saturation	visibl	e on Ae	erial Ima	gery (C	9)	
	ation Visible on A		agery (I	B7)		Thin Muck Surface (C					Shallow A	•	. ,				
	-Stained Leaves	s (B9)				Other (Explain in Rer	narks)		<u> </u>		FAC-Neut	ral Tes	st (D5)				
Field Observ			_		-												
Surface Wate		Yes		No		Depth (inches):											
Water Table Saturation Pr		Yes		No	\boxtimes	Depth (inches):											
(includes cap	illary fringe)	Yes		No		Depth (inches): erial photos, previous i	nspection	ns) if availat		nd Hyd	rology Pre	esent?		Yes		No	
			-					-		ppcore	to pend	ator fo	r chort	audrona	rioda d	uring th	
Remarks:		Historic d	drainage	e patter	n withir	ndary hydrologic indicat the greater area has b systems).											ie.
US Army Cor	rps of Engineers			- 3001		,,·							Ari	d West -	- Versio	n 2.0	

Project Site: HECA Carbon Dioxide Supply Li	ne Alignment	<u>t</u>	City/Count	y: <u>/Kern</u> San	npling Date:	5/29/13	
Applicant/Owner: <u>OEHI</u>				State: <u>CA</u> Sam	pling Point: I	DP 152	
Investigator(s): Chris Bronny; Tommy Fardig			Section, To	ownship, Range: <u>Section 22S, Township 3</u>	0S, Range 24	<u>E</u>	
Landform (hillslope, terrace, etc.): Swale		Loc	al relief (cor	ncave, convex, none): <u>concave</u>	Slope	e (%): 2	2
Subregion (LRR): LRRC	Lat: <u>35.3</u>	<u>052374°</u>		Long: <u>-119.3769344°</u>	Datum:		
Soil Map Unit Name: Cajon Loamy sand, 2 to 5 perc	ent slopes			NWI classification	n:		
Are climatic / hydrologic conditions on the site typi	cal for this tin	ne of year?	Yes 🗌	No 🛛 (If no, explain in Remarks	.)		
Are Vegetation \Box , Soil \Box , or Hydrology	signific	antly disturbed	? Are "l	Normal Circumstances" present?	Yes 🛛	⊠ N	lo 🗌
Are Vegetation , Soil , or Hydrology	natural	ly problematic?	(If ne	eded, explain any answers in Remarks.)			
SUMMARY OF FINDINGS – Attach site map sl	nowing sar	npling point	locations,	transects, important features, etc.			
Hydrophytic Vegetation Present?	Yes 🛛						
Hydric Soil Present?	Yes 🗌	No 🖾	Is the Sam	pled Area within a Wetland?	Yes [J N	lo 🖂
Wetland Hydrology Present?	Yes 🗌	No 🖾					
Remarks: Single descriptive waypoint taken in low season.	-gradient sw	ale that transi	tions to dee	eply incised gully. Precipitation below-av	erage for 201	2-2013	rainy
VEGETATION – Use scientific names of plants	s.						
Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:			
1	<u>/// Cover</u>	<u>opecies:</u>	<u>otatus</u>	Number of Dominant Species			
2.				That Are OBL, FACW, or FAC:	<u>0</u>		(A)
3.				Total Number of Dominant			
4.				Species Across All Strata:	<u>2</u>		(B)
50% =, 20% =		= Total Cover		Percent of Dominant Species			
Sapling/Shrub Stratum (Plot size:)				That Are OBL, FACW, or FAC:	<u>0</u>		(A/B)
1				Prevalence Index worksheet:			
2				Total % Cover of :	Multiply b	<u>oy:</u>	
3				OBL species	x1 =		
4				FACW species	x2 =		
5				FAC species	x3 =		
50% =, 20% =		= Total Cover		FACU species	x4 =		
Herb Stratum (Plot size:)				UPL species	x5 =		
1. Bromus madritensis	<u>30</u>	yes	UPL	Column Totals: (A)			(B)
2. <u>Amsinckia sp.</u>	1	no	UPL	Prevalence Index = B//	A =		
3. <u>Bromus diandrus</u>	<u>60</u>	yes	UPL	Hydrophytic Vegetation Indicators:	<u> </u>		
4. <u>Croton setiger</u>	<u>10</u>	<u>no</u>	UPL	Dominance Test is >50%			
5. <u>Cucurbita sp.</u>	3	no	UPL				
6. Trichostema ovatum	<u> </u>		UPL				
7	<u> </u>	<u>no</u>		Morphological Adaptations ¹ (F data in Remarks or on a separation)		ting	
				_			
8	400.0/		—	Problematic Hydrophytic Vege	tation' (Expla	in)	
50% =, 20% =	<u>100 %</u>	= Total Cover		¹ Indicators of hydric soil and wetland hydr	ology must		
Woody Vine Stratum (Plot size:)				be present, unless disturbed or problemat			
1			—				
2			—	Hydrophytic Vogetation Yes		No	\boxtimes
50% =, 20% =		= Total Cover		Vegetation Yes Present?			
% Bare Ground in Herb Stratum 0		of Biotic Crust					
Remarks: Bare ground/thatch = 60% cover; growth.	prevalence o	f upland specie	s within sam	ple area. Croton setiger = residual dry mat	ter from previo	ous sea	ison's

US Army Corps of Engineers

SOIL															Samplin	g Point:	DP 15
	ription: (Describ		ne depti	h need	ed to d	ocumer			irm the abs	sence of	indicat	ors.)					
Depth	Matri	ix					Redox Fe	atures									
(inches)	Color (moist)	<u>)</u>	<u>%</u>	Co	lor (Mo	ist)	<u>%</u>	Type ¹	Loc ²	-	Textu	re	Re	emarks			
<u>0-7"</u>	<u>10YR4/4</u>		100							_	Silty cl	ay	Gravel	inclusion	S		
		-								_		_					
		-								_		_					
		-								_		_					
		-					<u> </u>			_		_					
			DM	Deduc				Costod Con		21				Actrix			
71	ncentration, D=E		,			,		Coated Sand	d Grains.	Location			ning, M=N s for Pro		Hydric	Soils ³	
Histosc		licable					/ Redox (S5)					m Muck			30115 .	
	pipedon (A2)					-	ed Matrix (S						m Muck		-		
	listic (A3)						y Mucky Mir						duced Ve		-		
	en Sulfide (A4)						y Gleyed Ma						d Parent				
	ed Layers (A5) (L	RR C)					ted Matrix (I						ner (Expl				
_	luck (A9) (LRR D					-	c Dark Surfa					01			marks)		
	ed Below Dark S		(Δ11)				ted Dark Sulla										
	ark Surface (A12		(,,,,,)				C Depression	. ,									
_	Mucky Mineral (S						l Pools (F9)						dicators o				
	Gleyed Matrix (S					venia	i F00i5 (i 9)					,	wetland h	ydrology disturbed			t,
	ayer (if present	-											uniess (listuibeo		ematic.	
Type:	ayer (il present																
Depth (Inches									Hydric So	nils Pres	ent?			Yes		No	\boxtimes
Remarks:	Absence of hyd	ric soil i	indicato	rs					Tryane or	0113 1 1 0 3	Joint 1			103		NO	
Cernarks.	Absence of figu		indicato	13.													
HYDROLO	GY																
Vetland Hyd	Irology Indicato	rs:															
rimary Indic	ators (minimum o	of one r	required	l; check	all that	t apply)					Seco	ndary	Indicators	s (2 or m	ore requ	ired)	
Surfac	e Water (A1)					Salt C	rust (B11)					Wate	· Marks (I	31) (Rive	erine)		
🗌 🛛 High W	/ater Table (A2)					Biotic	Crust (B12)					Sedin	nent Dep	osits (B2) (Riveri	ne)	
Satura	tion (A3)					Aquat	ic Invertebra	ates (B13)				Drift D	eposits (B3) (Riv	erine)		
Water	Marks (B1) (Non	nriverin	ie)			Hydro	gen Sulfide	Odor (C1)			\boxtimes	Drain	age Patte	erns (B10))		
Sedim	ent Deposits (B2) (Non r	riverine)		Oxidiz	ed Rhizosp	heres along	Living Roots	s (C3)		Dry-S	eason W	ater Tab	le (C2)		
Drift D	eposits (B3) (No	nriveri	ne)			Prese	nce of Redu	iced Iron (C4	4)			Crayf	sh Burro	ws (C8)			
Surfac	e Soil Cracks (Be	6)				Recer	nt Iron Redu	ction in Tilleo	d Soils (C6)			Satur	ation Visi	ble on A	erial Ima	gery (CS))
lnunda	tion Visible on A	erial Im	nagery (B7)		Thin N	/luck Surfac	e (C7)				Shallo	w Aquita	rd (D3)			
Water-	Stained Leaves	(B9)				Other	(Explain in	Remarks)				FAC-	Neutral T	est (D5)			
ield Observ	vations:																
Surface Wate	er Present?	Yes		No	\boxtimes	D	epth (inches	s):									
Vater Table I	Present?	Yes		No	\boxtimes	D	epth (inches	s):									
Saturation Pr (includes cap		Yes		No	\boxtimes	D	epth (inches	s):		Wetlar	nd Hydi	rology	Present	?	Yes		No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Presence of single secondary hydrologic indicator; absence of wetland hydrology. Historic drainage pattern within the greater area has been truncated by the construction of the CA Aqueduct (i.e., absence of hydrologic connectivity to valley floor hydrogeomorphic systems). Remarks: US Army Corps of Engineers

Project Site:	HECA Carbon D	ioxide Supply Li	ne Alig	nment	City/Cou	nty:	/Kern		Sampling	g Date:	<u>5/29/</u>	13	
Applicant/Owner:	<u>OEHI</u>							State: CA	Sampling	Point:	<u>DP 1</u>	53	
Investigator(s):	Chris Bronny: To	ommy Fardig			Section,	Township, I	Range	Section 27S, Town	ship 30S, F	Range 2	<u>4E</u>		
Landform (hillslope,	terrace, etc.): Sv	wale		l	_ocal relief (c	oncave, cor	ivex, n	one): <u>concave</u>		Slop	be (%)	<u>2</u>	
Subregion (LRR)	: <u>LRRC</u>		Lat:	<u>35.2915578°</u>		Long:	119.3	3790584°	Dat	um:			
Soil Map Unit Name	: Elkhills sandy lo	<u>pam, 9 to 50 per</u>	rcent slo	opes, eroded.				NWI classif	ication:				
Are climatic / hyd	drologic conditions	s on the site typi	cal for t	his time of year?	Yes [] No	\boxtimes	(If no, explain in Rer	marks.)				
Are Vegetation D,	Soil 🛛,	or Hydrology	🛛 s	ignificantly disturb	ed? Are	"Normal C	rcums	tances" present?		Yes	\boxtimes	No	
Are Vegetation	Soil 🛛,	or Hydrology	🛛 n	aturally problemat	ic? (If r	needed, exp	lain ar	ny answers in Remark	ks.)				

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	\boxtimes	
Hydric Soil Present?	Yes	No	\boxtimes	Is the Sampled Area within a Wetland? Yes 🗌 No 🖂
Wetland Hydrology Present?	Yes	No	\boxtimes	
				y CA Aqueduct and do not exhibit hydrologic connectivity to greater "waters of

the U.S." within the region. All hillslope drainages have been altered by cut and fill activities and accelerated erosion associated with oil production practices; accreting sediments and hydrocarbon residues mask historic soils in low- and moderate gradient swales. Precipitation below-average for 2012-2013 rainy season.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute <u>% Cover</u>	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:		
1 2				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u>	(A)
3 4				Total Number of Dominant Species Across All Strata:	1	(B)
50% =, 20% = <u>Sapling/Shrub Stratum</u> (Plot size:)		= Total Cove	r	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0%</u>	(A/B)
1				Prevalence Index worksheet:		
2				Total % Cover of :	Multiply by:	
3				OBL species	x1 =	
4				FACW species	x2 =	
5				FAC species	x3 =	
50% =, 20% =		= Total Cove	r	FACU species	x4 =	
Herb Stratum (Plot size:)				UPL species	x5 =	
1. <u>Bromus madritensis</u>	<u>35</u>	yes	UPL	Column Totals: (A)		(B)
2				Prevalence Index = B/A =	:	
3				Hydrophytic Vegetation Indicators:		
4				Dominance Test is >50%		
5				Prevalence Index is $\leq 3.0^1$		
6				Morphological Adaptations ¹ (Prov	vide supporting	
7				data in Remarks or on a separate	e sheet)	
8				Problematic Hydrophytic Vegetat	ion ¹ (Explain)	
50% =, 20% =	<u>35</u>	= Total Cove	r	1		
Woody Vine Stratum (Plot size:)				¹ Indicators of hydric soil and wetland hydrolo be present, unless disturbed or problematic.	gy must	
1						
2				Hydrophytic		
50% =, 20% =		= Total Cove	r	Vegetation Yes	□ No	\boxtimes
% Bare Ground in Herb Stratum 65	% Cover	of Biotic Crust		Present?		
Remarks: Bare ground/thatch = 65% cove	r.					
US Army Corps of Engineers				Ario	d West - Version	2.0

SOIL												Samplin	g Point:	DP 153
Profile Descr	iption: (Describe t	to the dep	th need	ed to d	ocument th	e indica	ator or confi	m the abs	ence of	indica	tors.)			
Depth	Matrix				R	edox Fe	atures							
(inches)	Color (moist)	<u>%</u>	Co	lor (Mo	ist)	<u>%</u>	Type ¹	Loc ²		Textu				
0-2"	10YR4/6	100			_				_	Sandy	silt High sand perce	ntage; s	ome clays	<u>s</u>
<u>2-9"</u>	Sand	100			_				_	San	<u>d</u>			
					_				-					
									-	<u> </u>				
									-					
	ncentration, D=Dep						Coated Sand	Grains. 2	Location		ore Lining, M=Matrix.			
	dicators: (Applica	able to all	LRRs, ι								icators for Problematic		Soils':	
Histosol	(A1)				Sandy Re	dox (S5)				1 cm Muck (A9) (LR	τC)		
Histic E	pipedon (A2)				Stripped N	/latrix (S	6)				2 cm Muck (A10) (Ll	RR B)		
Black H	istic (A3)				Loamy Mu	icky Min	eral (F1)				Reduced Vertic (F18)		
Hydroge	en Sulfide (A4)				Loamy Gl	eyed Ma	atrix (F2)				Red Parent Material	(TF2)		
Stratifie	d Layers (A5) (LRR	2 C)			Depleted	Matrix (F	-3)				Other (Explain in Re	marks)		
] 1 cm Mu	uck (A9) (LRR D)				Redox Da	rk Surfa	ce (F6)							
Deplete	d Below Dark Surfa	ace (A11)			Depleted	Dark Su	rface (F7)							
Thick Da	ark Surface (A12)				Redox De	pressior	ns (F8)				³ Indicators of hydrop	nvtic ver	etation a	nd
Sandy N	/lucky Mineral (S1)				Vernal Po	ols (F9)					wetland hydrology			
Sandy G	Gleyed Matrix (S4)										unless disturbed	or probl	ematic.	
Restrictive La	ayer (if present):													
Гуре:														
Depth (Inches): <u>"</u>							Hydric So	oils Pres	ent?	Yes		No	\boxtimes
Remarks:	Absence of hydric s	soil indicat	ors; nea	rly pure	sand below	2" of su	urface.							
IYDROLOG	θY													
Vetland Hydi	rology Indicators:													
rimary Indica	ators (minimum of a	ne require	d; check	all that	apply)					Seco	ndary Indicators (2 or mo	ore requi	red)	
Surface	e Water (A1)				Salt Crust	(B11)					Water Marks (B1) (Rive	rine)		
High W	ater Table (A2)				Biotic Cru	st (B12)					Sediment Deposits (B2)	(Riveri	ne)	
Saturat	ion (A3)				Aquatic In	vertebra	ates (B13)				Drift Deposits (B3) (Riv	erine)		
Water M	Marks (B1) (Nonriv	erine)			Hydrogen	Sulfide	Odor (C1)				Drainage Patterns (B10)		
Sedime	ent Deposits (B2) (N	Ionriverin	e)		Oxidized I	Rhizospl	heres along L	iving Root	s (C3)		Dry-Season Water Tabl	e (C2)		
Drift De	posits (B3) (Nonri v	verine)			Presence	of Redu	ced Iron (C4)				Crayfish Burrows (C8)			
_ Surface	e Soil Cracks (B6)				Recent Iro	n Redu	ction in Tilled	Soils (C6)			Saturation Visible on Ae	rial Imag	gery (C9)	
Inundat	tion Visible on Aeria	al Imagery	(B7)		Thin Mucl	Surface	e (C7)				Shallow Aquitard (D3)			
Water-S	Stained Leaves (B9))			Other (Ex	plain in I	Remarks)				FAC-Neutral Test (D5)			
ield Observa	ations:													
Surface Water	r Present? Y	es 🗆	No	\boxtimes	Depth	(inches	s):							

Remarks: Presence of single secondary hydrologic indicator; absence of wetland hydrology. Historic drainage patterns within the greater Elk Hills area has been truncated by the construction of the CA Aqueduct (i.e., absence of hydrologic connectivity to valley floor hydrogeomorphic systems).

Depth (inches):

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Yes

No

 \boxtimes

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Saturation Present?

(includes capillary fringe)

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Yes

No 🖂

Wetland Hydrology Present?

Project Site:	HECA Carbon D	Dioxide Supply Lir	ne Aligr	<u>nment</u>	City	/County:	/	<u>Kern</u>		Sampli	ing Date:	<u>5/31/</u>	13	
Applicant/Owner:	<u>OEHI</u>								State: CA	Sampli	ng Point:	<u>DP 1</u>	<u>54</u>	
Investigator(s):	Chris Bronny; To	<u>ommy Fardig</u>			Sec	tion, Tow	nship, R	ange:	Section 27S, Tow	nship 30S	, Range 2	24E		
Landform (hillslope,	terrace, etc.): E	phemeral Draina	<u>je</u>	I	Local reli	ef (conca	ve, conv	vex, n	one): <u>concave</u>		Slop	oe (%)	<u>3</u>	
Subregion (LRR)	: <u>LRRC</u>		Lat:	<u>35.2943199°</u>			Long:	<u>-119.</u>	<u>3772882°</u>	C	Datum:			
Soil Map Unit Name	Elkhills sandy l	loam, 9 to 50 per	cent slo	pes, eroded.					NWI class	ification:				
Are climatic / hyd	drologic condition	s on the site typic	al for t	his time of year?	Ye	es 🗆	No	\boxtimes	(If no, explain in Re	emarks.)				
Are Vegetation D,	Soil 🛛,	or Hydrology	🛛 si	gnificantly disturb	ed?	Are "No	rmal Cir	cumst	tances" present?		Yes	\boxtimes	No	
Are Vegetation	Soil 🛛,	or Hydrology	🛛 n	aturally problemat	tic?	(If need	ed, expl	ain ar	y answers in Rema	rks.)				

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	\boxtimes			
Hydric Soil Present?	Yes	No	\boxtimes	Is the Sampled Area within a Wetland?	Yes 🗌	No 🖂
Wetland Hydrology Present?	Yes	No	\boxtimes			
				y CA Aqueduct and do not exhibit hydrologic connectivity		

the U.S." within the region. All hillslope drainages have been altered by cut and fill activities and accelerated erosion associated with oil production practices; accreting sediments and hydrocarbon residues mask historic soils in low- and moderate gradient swales. Precipitation below-average for 2012-2013 rainy season.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute <u>% Cover</u>	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:		
1 2				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u>	(A)
3 4				Total Number of Dominant Species Across All Strata:	<u>1</u>	(B)
50% =, 20% = <u>Sapling/Shrub Stratum</u> (Plot size:)		= Total Cove	r	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u>	(A/B)
1. <u>Atriplex polycarpa</u>	<u>5</u>	no	UPL	Prevalence Index worksheet:		
2				Total % Cover of :	Multiply by:	
3				OBL species	x1 =	
4				FACW species	x2 =	
5				FAC species	x3 =	
50% =, 20% =	<u>5</u>	= Total Cove	r	FACU species	x4 =	
Herb Stratum (Plot size:)				UPL species	x5 =	
1. <u>Bromus madritensis</u>	<u>55</u>	yes	UPL	Column Totals: (A)		(B)
2. <u>Amsinckia sp.</u>	<u>1</u>	no	UPL	Prevalence Index = B/A =		
3				Hydrophytic Vegetation Indicators:		
4				Dominance Test is >50%		
5				Prevalence Index is $\leq 3.0^1$		
6				Morphological Adaptations ¹ (Prov data in Remarks or on a separate		
7				· · ·		
8				Problematic Hydrophytic Vegetati	on ¹ (Explain)	
50% =, 20% =	<u>55</u>	= Total Cove	r	¹ Indicators of hydric soil and wetland hydrolog	ny must	
Woody Vine Stratum (Plot size:)				be present, unless disturbed or problematic.	gymust	
1						
2				Hydrophytic		
50% =, 20% =		= Total Cove	r	Vegetation Yes Present?	□ No	\boxtimes
% Bare Ground in Herb Stratum 40	% Cover	of Biotic Crust				
Remarks: Bare ground/thatch = 60% cover;	prevalence o	of upland specie	es within san	nple area.		
					West _ Version '	

US Army Corps of Engineers

_													
Depth	Matrix				Redox Featu	ures							
<u>(inches)</u> 0-9"	Color (moist) 7.5YR4/4	<u>%</u> 100	Color (Me	<u>pist)</u>	<u>%</u>	<u>Type¹</u>	Loc ²	<u>Textu</u> Sandy (<u>marks</u>			
_		_		-									
				_									
				_									
				_									
				_									
ype: C= Co	ncentration, D=Deple	tion, RM=F	Reduced Ma	rix, CS=C	overed or Co	ated Sand	Grains. ² Locati	on: PL=P	ore Lining, M=N	latrix.			
/dric Soil I	ndicators: (Applicab	le to all LF	RRs, unless	otherwis	e noted.)			Indi	icators for Prol	olematic	Hydric S	oils ³ :	
] Histoso	l (A1)			Sandy	Redox (S5)				1 cm Muck ((A9) (LRF	R C)		
Histic E	pipedon (A2)			Strippe	d Matrix (S6)				2 cm Muck ((A10) (LF	RB)		
Black H	listic (A3)			Loamy	Mucky Minera	al (F1)			Reduced Ve	ertic (F18)		
] Hydrog	en Sulfide (A4)			Loamy	Gleyed Matrix	k (F2)			Red Parent	Material	(TF2)		
Stratifie	ed Layers (A5) (LRR ()		Deplete	ed Matrix (F3)				Other (Expla	ain in Rer	narks)		
] 1 cm M	uck (A9) (LRR D)			Redox	Dark Surface	(F6)							
Deplete	ed Below Dark Surface	e (A11)		Deplete	ed Dark Surfa	ce (F7)							
Thick D	ark Surface (A12)			Redox	Depressions	(F8)			³ Indicators o	f bydropł	wtic vege	tation a	hd
] Sandy	Mucky Mineral (S1)			Vernal	Pools (F9)				wetland h				iu
] Sandy	Gleyed Matrix (S4)										or proble		
estrictive L	ayer (if present):												
ype:													
epth (Inche	s):						Hydric Soils Pr	esent?		Yes		No	\boxtimes
							and the state of the second second						
	Absence of hydric so	il indicators	s; No redox.	Presence	of hydrocarbo	on residues	s mixed in soil pro	ofile.					
emarks:		il indicators	s; No redox.	Presence	of hydrocarbo	on residues	s mixed in soil pro	ofile.					
emarks: YDROLO	GY	il indicators	s; No redox.	Presence	of hydrocarbo	on residues	s mixea in soil pro	ofile.					
emarks: YDROLO etland Hyd	GY Irology Indicators:				of hydrocarbo	on residues	s mixea in soil pro		ndary Indicators	; (2 or mc	ore require	ed)	
emarks: YDROLO Vetland Hyc rimary Indic	GY Irology Indicators: ators (minimum of one		check all tha	at apply)		on residues	s mixea in soil pro	Seco	ndary Indicators Water Marks (F			ed)	
emarks: YDROLO /etland Hyc rimary Indic Surfac	GY Irology Indicators: ators (minimum of one e Water (A1)		check all tha	at apply) Salt Cr	ust (B11)	on residues	s mixea in soil pro	Seco	Water Marks (E	81) (Rive	rine)		
YDROLO Vetland Hyc rimary Indic Surfac High W	GY Irology Indicators: ators (minimum of ond e Water (A1) /ater Table (A2)		check all tha	at apply) Salt Cr Biotic (ust (B11) Crust (B12)		s mixed in soil pro	Seco	Water Marks (E Sediment Depo	81) (Rive osits (B2)	rine) (Riverine		
emarks: YDROLO Yetland Hyc rimary Indic Surfac High W Satura	GY Irology Indicators: ators (minimum of one e Water (A1) /ater Table (A2) tion (A3)	e required;	check all the	at apply) Salt Cr Biotic (Aquatio	ust (B11) Crust (B12) c Invertebrates	s (B13)	s mixea in soil pro	Seco	Water Marks (E Sediment Depo Drift Deposits (81) (Rive osits (B2) B3) (Rive	rine) (Riverine) erine)		
YDROLO Vetland Hyc rimary Indic Surfac High V Satura Water	GY Irology Indicators: ators (minimum of one e Water (A1) /ater Table (A2) tion (A3) Marks (B1) (Nonriver	e required; ine)	check all the	at apply) Salt Cr Biotic (Aquatio Hydrog	ust (B11) Crust (B12) c Invertebrates	s (B13) lor (C1)		Seco	Water Marks (E Sediment Depo Drift Deposits (Drainage Patte	81) (Rive osits (B2) B3) (Rive rns (B10)	rine) (Riverine) erine)		
YDROLO etland Hyc imary Indic Surfac High V Satura Water Sedim	GY Irology Indicators: ators (minimum of one e Water (A1) /ater Table (A2) tion (A3) Marks (B1) (Nonriver ent Deposits (B2) (No	e required; ine) nriverine)	check all tha	at apply) Salt Cr Biotic C Aquatio Hydrog Oxidize	ust (B11) Crust (B12) Chivertebrates en Sulfide Oc	s (B13) lor (C1) res along L	iving Roots (C3)	Seco C C M M	Water Marks (E Sediment Depo Drift Deposits (Drainage Patte Dry-Season Wa	B1) (Rive psits (B2) B3) (Rive rns (B10) ater Table	rine) (Riverine) erine)		
YDROLO etland Hyc imary Indic Surfac High W Satura Water Sedim Drift D	GY Irology Indicators: ators (minimum of one e Water (A1) /ater Table (A2) tion (A3) Marks (B1) (Nonriver ent Deposits (B2) (No eposits (B3) (Nonrive	e required; ine) nriverine)	check all tha	at apply) Salt Cr Biotic C Aquatio Hydrog Oxidize Presen	ust (B11) Crust (B12) c Invertebrate: en Sulfide Oc ed Rhizospher ce of Reduce	s (B13) lor (C1) res along L d Iron (C4)	iving Roots (C3)	Seco C C C C C C C C	Water Marks (E Sediment Depo Drift Deposits (Drainage Patte Dry-Season Wa Crayfish Burrow	B1) (Rive osits (B2) B3) (Rive rns (B10) ater Table vs (C8)	rine) (Riverine) erine) e (C2)	9)	
YDROLO (etland Hyc imary Indic Surfac High W Satura Water Sedim Drift D Surfac	GY Irology Indicators: ators (minimum of one e Water (A1) /ater Table (A2) tion (A3) Marks (B1) (Nonriver ent Deposits (B2) (No eposits (B3) (Nonrive e Soil Cracks (B6)	e required; ine) nriverine) rine)	check all that	at apply) Salt Cr Biotic C Aquatio Hydrog Oxidize Presen Recent	ust (B11) Crust (B12) c Invertebrate: len Sulfide Oc ed Rhizospher ce of Reduce i Iron Reductio	s (B13) lor (C1) res along L d Iron (C4) on in Tilled	iving Roots (C3)	Seco C C C C C C C C C C C C C C C C C C C	Water Marks (E Sediment Depo Drift Deposits (Drainage Patte Dry-Season Wa Crayfish Burrov Saturation Visit	Bal) (Rive posits (B2) B3) (Rive rns (B10) ater Table vs (C8) ble on Ae	rine) (Riverine) erine) e (C2)	9)	
YDROLO YDROLO Yetland Hyc imary Indic Surfac High V Satura Water Sedim Drift D Surfac Inunda	GY Irology Indicators: ators (minimum of one e Water (A1) /ater Table (A2) tion (A3) Marks (B1) (Nonriver ent Deposits (B2) (No eposits (B3) (Nonrive e Soil Cracks (B6) tion Visible on Aerial	e required; ine) nriverine) rine)	check all tha	at apply) Salt Cr Biotic C Aquatio Hydrog Oxidize Presen Recent Thin M	ust (B11) Crust (B12) c Invertebrates len Sulfide Oc ad Rhizospher ce of Reduce i Iron Reductio uck Surface (f	s (B13) lor (C1) es along L d Iron (C4) on in Tilled C7)	iving Roots (C3)	Seco	Water Marks (E Sediment Depo Drift Deposits (Drainage Patte Dry-Season Wa Crayfish Burrov Saturation Visit Shallow Aquita	B1) (Rive osits (B2) B3) (Rive rns (B10) ater Table vs (C8) ole on Ae rd (D3)	rine) (Riverine) erine) e (C2)	9)	
emarks: YDROLO /etland Hyc rimary Indic Surfac High V Satura Water Sedim Drift D Surfac Inunda Water-	GY Irology Indicators: ators (minimum of one e Water (A1) /ater Table (A2) tion (A3) Marks (B1) (Nonriver ent Deposits (B2) (No eposits (B3) (Nonrive e Soil Cracks (B6) tion Visible on Aerial Stained Leaves (B9)	e required; ine) nriverine) rine)	check all that	at apply) Salt Cr Biotic C Aquatio Hydrog Oxidize Presen Recent Thin M	ust (B11) Crust (B12) c Invertebrate: len Sulfide Oc ed Rhizospher ce of Reduce i Iron Reductio	s (B13) lor (C1) es along L d Iron (C4) on in Tilled C7)	iving Roots (C3)	Seco C C C C C C C C C C C C C C C C C C C	Water Marks (E Sediment Depo Drift Deposits (Drainage Patte Dry-Season Wa Crayfish Burrov Saturation Visit	B1) (Rive osits (B2) B3) (Rive rns (B10) ater Table vs (C8) ole on Ae rd (D3)	rine) (Riverine) erine) e (C2)	9)	
YDROLO Yetland Hyc rimary Indic Surfac High W Satura Water Sedim Drift D Surfac Inunda Water- Water- Mathematical Math Math Math Mathematical Math Mathematical Mathematical Mathematical Math	GY rology Indicators: ators (minimum of ond e Water (A1) /ater Table (A2) tion (A3) Marks (B1) (Nonriver ent Deposits (B2) (No eposits (B3) (Nonriver e Soil Cracks (B6) tion Visible on Aerial Stained Leaves (B9) rations:	e required; ine) nriverine) rine) Imagery (B	check all tha	at apply) Salt Cr Biotic C Aquatic Hydrog Oxidize Presen Recent Thin M Other (ust (B11) Crust (B12) c Invertebrate: en Sulfide Oc ed Rhizospher ce of Reduce Iron Reductio uck Surface ((Explain in Re	s (B13) lor (C1) es along L d Iron (C4) on in Tilled C7)	iving Roots (C3)	Seco	Water Marks (E Sediment Depo Drift Deposits (Drainage Patte Dry-Season Wa Crayfish Burrov Saturation Visit Shallow Aquita	B1) (Rive osits (B2) B3) (Rive rns (B10) ater Table vs (C8) ole on Ae rd (D3)	rine) (Riverine) erine) e (C2)	9)	
Vetland Hyc Vetland Hyc Vetland Hyc Surfac High V Satura Satura Sedim Sedim Surfac Inunda	GY Irology Indicators: ators (minimum of one e Water (A1) /ater Table (A2) tion (A3) Marks (B1) (Nonriver ent Deposits (B2) (No eposits (B3) (Nonriver e Soil Cracks (B6) tion Visible on Aerial Stained Leaves (B9) vations: er Present? Yes	e required; ine) nriverine) rine) Imagery (B	check all tha	at apply) Salt Cr Biotic C Aquatic Hydrog Oxidize Presen Recent Thin M Other (ust (B11) Crust (B12) c Invertebrates len Sulfide Oc ad Rhizospher ce of Reduce i Iron Reductio uck Surface (f	s (B13) lor (C1) es along L d Iron (C4) on in Tilled C7)	iving Roots (C3)	Seco	Water Marks (E Sediment Depo Drift Deposits (Drainage Patte Dry-Season Wa Crayfish Burrov Saturation Visit Shallow Aquita	B1) (Rive osits (B2) B3) (Rive rns (B10) ater Table vs (C8) ole on Ae rd (D3)	rine) (Riverine) erine) e (C2)	9)	

Presence of single secondary hydrologic indicator; does not meet hydrologic criteria. Historic drainage patterns within the greater Elk Hills area has been truncated by the construction of the CA Aqueduct (i.e., absence of hydrologic connectivity to valley floor hydrogeomorphic systems). Remarks:

Depth (inches):

US Army Corps of Engineers

(includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Project Site:	HECA Car	bon Dioxide	Supply L	ine Alig	<u>nment</u>	(City/County:		/Kern		San	npling Date:	5/29)/13	
Applicant/Owner:	<u>OEHI</u>									State: CA	Sam	pling Point:	DP	155	
Investigator(s):	Chris Bror	ny: Tommy	Fardig			5	Section, Tow	nship, F	Range	: Section 27S,	Township 3	0S, Range	24E		
Landform (hillslope,	terrace, etc	:.): <u>Epheme</u>	ral Drain	age		Local	relief (conca	ve, con	vex, n	ione): <u>concave</u>		Slo	pe (%): <u>5</u>	
Subregion (LRR)	: LRRC			Lat:	<u>35.2900899°</u>			Long:	<u>119.3</u>	<u>3805821°</u>		Datum:			
Soil Map Unit Name	: <u>Elkhills s</u>	andy loam, 9) to 50 pe	rcent sl	opes, eroded.					NWI	classification	n:			
Are climatic / hyd	drologic con	ditions on th	e site typ	ical for	this time of year?	•	Yes 🗌	No	\boxtimes	(If no, explain	in Remarks	.)			
Are Vegetation D,	Soil	🖾, or H	/drology	🛛 s	ignificantly distur	rbed?	Are "No	rmal Ci	rcums	tances" present	?	Yes	\boxtimes	No	
Are Vegetation						atic?	(If need	ed, exp	lain ar	ny answers in R	emarks.)				

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	\boxtimes			
Hydric Soil Present?	Yes		No	\boxtimes	Is the Sampled Area within a Wetland?	Yes 🗌	No 🖂
Wetland Hydrology Present?	Yes		No	\boxtimes			
Remarks: East/northern side of historic Elk Hills dra	ainages	now	trunca	ated b	y CA Aqueduct and do not exhibit hydrologic connectivity	/ to greater '	waters of

the U.S." within the region. All hillslope drainages have been altered by cut and fill activities and accelerated erosion associated with oil production practices. Precipitation below-average for 2012-2013 rainy season.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute <u>% Cover</u>	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:	
1				Number of Dominant Species	(A)
2		—		That Are OBL, FACW, or FAC:	()
3				Total Number of Dominant	(B)
4				Species Across All Strata:	(2)
50% =, 20% =		= Total Cove	r	Percent of Dominant Species	(A/B)
Sapling/Shrub Stratum (Plot size:)				That Are OBL, FACW, or FAC:	(/////
1. <u>Gutierrezia californica</u>	<u>5</u>	no	UPL	Prevalence Index worksheet:	
2				Total % Cover of : Multiply by:	
3				OBL species x1 =	
4				FACW species x2 =	
5				FAC species x3 =	
50% =, 20% =	<u>5</u>	= Total Cove	r	FACU species x4 =	
Herb Stratum (Plot size:)				UPL species <u>8</u> x5 = <u>40</u>	
1. <u>Bromus madritensis</u>	<u>3</u>	<u>no</u>	UPL	Column Totals: <u>8</u> (A) <u>40</u> (B)	
2				Prevalence Index = $B/A = 5.0$	
3				Hydrophytic Vegetation Indicators:	
4				Dominance Test is >50%	
5				Prevalence Index is $\leq 3.0^1$	
6				Morphological Adaptations ¹ (Provide supporting	
7				data in Remarks or on a separate sheet)	
8				Problematic Hydrophytic Vegetation ¹ (Explain)	
50% =, 20% =	<u>3</u>	= Total Cove	r		
Woody Vine Stratum (Plot size:)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1					
2				Hydrophytic	
50% =, 20% =		= Total Cove	r	Vegetation Yes No	\boxtimes
% Bare Ground in Herb Stratum 92	% Cover	of Biotic Crust	<u> </u>	Present?	
Remarks: Bare ground/thatch = 60% cover	; Prevalence	Index > 3.0			
					-

US Army Corps of Engineers

SOIL														:	Sampling	g Point	DP	<u>155</u>
Profile Desc	ription: (Describ	e to the	depth	n neede	ed to d				irm the abs	sence o	of indica	tors.)						
Depth	Matrix						dox Feat											
(inches)	Color (moist)		<u>%</u>	Co	or (Mo	<u>st) %</u>	<u>b</u>	Type ¹	Loc	2	Textu		-	narks				
0-2"	<u>10YR 5/6</u>	<u>1</u>	00							_	Silty c	lay N	learly pu	ure sand	d below 2	2"		
<u>2-10"</u>	<u>Sand</u>	<u>1</u>	00					<u> </u>		_	<u>San</u>	<u>d</u>						
								<u> </u>		_								
										_								
										_								
1										2								
71	oncentration, D=D		,			,		ated Sand	d Grains.	² Locatio		ore Lining				a 3		
_	ndicators: (Appl	icable to	o all L	RRs, u			-					icators fo				Soils':		
Histoso						Sandy Redo							Muck (A		-			
	Epipedon (A2)					Stripped Ma							Muck (A		-			
	Histic (A3)					Loamy Mucl	-						ced Ver					
	en Sulfide (A4)					Loamy Gley							Parent N					
_	ed Layers (A5) (Ll	,				Depleted Ma						Other	(Explai	n in Rei	marks)			
	luck (A9) (LRR D)					Redox Dark												
	ed Below Dark Su		.11)			Depleted Da												
_	Dark Surface (A12	<i>'</i>				Redox Depr		(F8)				³ Indica	ators of	hydropl	hytic veg	etation	and	
	Mucky Mineral (S					Vernal Pools	s (F9)						-		must be			
	Gleyed Matrix (S4	,										u	nless dis	sturbed	or proble	ematic.		
	ayer (if present).	:																
Туре:	. —														_		_	_
Depth (Inche	,								Hydric S	oils Pro	esent?			Yes		No	Þ	\triangleleft
Remarks:	Absence of hydri	ic soil in	dicator	rs; neai	ly pure	sand below 2	?" of surf	ace.										
HYDROLO	GY																	
Wetland Hyd	Irology Indicator	'S:																
Primary Indic	ators (minimum o	f one re	quired	; check	all that	t apply)					Seco	ndary Ind	licators	(2 or mo	ore requi	red)		
Surfac	e Water (A1)					Salt Crust (E	311)					Water M	arks (B1	I) (Rive	rine)			
High V	Vater Table (A2)					Biotic Crust	(B12)					Sedimen	nt Depos	sits (B2)	(Riverin	ne)		
Satura	tion (A3)					Aquatic Inve	ertebrate	s (B13)				Drift Dep	osits (B	3) (Riv	erine)			
Water	Marks (B1) (Non	riverine)			Hydrogen S	ulfide O	dor (C1)			\boxtimes	Drainage	e Patterr	ns (B10)			
Sedim	ent Deposits (B2)	(Nonriv	/erine))		Oxidized Rh	nizosphe	res along	Living Root	ts (C3)		Dry-Seas	son Wat	ter Tabl	e (C2)			
Drift D	eposits (B3) (Non	riverine	e)			Presence of	Reduce	ed Iron (C4	+)			Crayfish	Burrow	s (C8)				
Surfac	e Soil Cracks (B6)				Recent Iron	Reducti	on in Tilleo	d Soils (C6))		Saturatio	on Visibl	e on Ae	erial Imag	gery (C	9)	
🗌 Inunda	ation Visible on Ae	erial Ima	gery (E	37)		Thin Muck S	Surface (C7)				Shallow	Aquitaro	d (D3)				
□ Water-	Stained Leaves (B9)				Other (Expla	ain in Re	marks)				FAC-Net	utral Tes	st (D5)				
Field Observ	vations:																	
Surface Wate	er Present?	Yes		No	\boxtimes	Depth (i	inches):											
Water Table	Present?	Yes		No	\boxtimes	Depth (i	inches):											
Saturation Pr		Yes		No	\boxtimes	Depth (i	inches):			Wetl	and Hyd	rology Pı	resent?		Yes		No	\boxtimes
(includes cap	ollary fringe) corded Data (strea						,	inspection	e) if availa	ble:	-							

Remarks: Presence of single secondary hydrologic indicator; absence of wetland hydrology; does not meet hydrologic criteria. Historic drainage patterns within the greater Elk Hills area has been truncated by the construction of the CA Aqueduct (i.e., absence of hydrologic connectivity to valley floor hydrogeomorphic systems).

US Army Corps of Engineers

Project Site:	HECA Carbon Di	ioxide Supply Li	ine Aligr	<u>nment</u>	City/Count	y:	/Kern		Sampling	g Date:	<u>5/29/</u>	13	
Applicant/Owner:	<u>OEHI</u>							State: <u>CA</u>	Sampling	Point:	<u>DP 1</u>	<u>56</u>	
Investigator(s):	Chris Bronny; To	mmy Fardig			Section, To	ownship, F	Range	Section 27S, Town	<u>ship 30S, F</u>	Range 2	4E		
Landform (hillslope,	terrace, etc.): Sv	vale		l	_ocal relief (cor	icave, cor	ivex, n	one): <u>concave</u>		Slop	e (%):	<u>5</u>	
Subregion (LRR)	: <u>LRRC</u>		Lat:	<u>35.2837232°</u>		Long:	<u>119.3</u>	<u>3813534°</u>	Dat	tum:			
Soil Map Unit Name	Elkhills sandy lo	<u>pam, 9 to 50 per</u>	rcent slo	pes, eroded.				NWI classi	fication:				
Are climatic / hyd	rologic conditions	on the site typi	cal for t	his time of year?	Yes 🗌	No	\boxtimes	(If no, explain in Re	marks.)				
Are Vegetation \Box ,	Soil 🛛,	or Hydrology	🛛 si	gnificantly disturb	ed? Are "Normal Circumstances" present? Yes 🛛 N							No	
Are Vegetation	Soil 🛛,	or Hydrology	🛛 n	aturally problemat	ic? (If ne	eded, exp	lain ar	ny answers in Remark	ks.)				

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	\boxtimes			
Hydric Soil Present?	Yes	No	\boxtimes	Is the Sampled Area within a Wetland?	Yes 🗌	No 🖂
Wetland Hydrology Present?	Yes	No	\boxtimes			
				y CA Aqueduct and do not exhibit hydrologic connectivity		

the U.S." within the region. All hillslope drainages have been altered by cut and fill activities and accelerated erosion associated with oil production practices; accreting sediments and hydrocarbon residues mask historic soils in low- and moderate gradient swales. Precipitation below-average for 2012-2013 rainy season.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute <u>% Cover</u>	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:		
1 2				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u>	(A)
3 4				Total Number of Dominant Species Across All Strata:	2	(B)
50% =, 20% = <u>Sapling/Shrub Stratum</u> (Plot size:)		= Total Cove	r	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0%</u>	(A/B)
1. <u>Atriplex polycarpa</u>	<u>20</u>	yes	UPL	Prevalence Index worksheet:		
2				Total % Cover of :	Multiply by:	
3				OBL species	x1 =	
4				FACW species	x2 =	
5				FAC species	x3 =	
50% =, 20% =	<u>20</u>	= Total Cove	r	FACU species	x4 =	
Herb Stratum (Plot size:)				UPL species	x5 =	
1. <u>Bromus madritensis</u>	<u>35</u>	yes	UPL	Column Totals: (A)	((B)
2. <u>Amsinckia sp.</u>	<u>1</u>	no	UPL	Prevalence Index = B/A = _		
3				Hydrophytic Vegetation Indicators:		
4				Dominance Test is >50%		
5				Prevalence Index is $\leq 3.0^1$		
6				Morphological Adaptations ¹ (Provid	de supporting	
7				data in Remarks or on a separate s	sheet)	
8				Problematic Hydrophytic Vegetatio	n ¹ (Explain)	
50% =, 20% =	<u>36</u>	= Total Cove	r	1		
Woody Vine Stratum (Plot size:)				¹ Indicators of hydric soil and wetland hydrology be present, unless disturbed or problematic.	y must	
1				· · ·		
2				Hydrophytic		
50% =, 20% =		= Total Cove	r	Vegetation Yes	□ No	\boxtimes
% Bare Ground in Herb Stratum 44	% Cover	of Biotic Crust		Present?		
Remarks: Bare ground/thatch = 44% cover;	prevalence c	of upland specie	es within san	nple area. Absence of hydrophyta.		
US Army Corps of Engineers				Arid	West _ Version 2	0

US Army Corps of Engineers

SOIL															Sampling	Point:	<u>DP</u>	<u>156</u>
Profile Descri	ption: (Describe	to the	depth	n neede	ed to d				rm the abs	sence o	f indica	tors.)						
Depth	Matrix					R	edox Fea											
(inches)	Color (moist)		<u>%</u>	Col	or (Mo	ist)	<u>%</u>	Type ¹	Loc	-	Textu			emarks				
<u>0-15"</u>	<u>7.5YR5/6</u>	<u>10</u>	00			_				_	Clayey	silt	Some s	and thro	ughout p	edon		
						-				_		_						
										-		_						
						_				_		_						
<u> </u>							<u> </u>	<u> </u>		_		_						
	centration, D=Der			Deduce	d Mot					21 a a a ti a				Antriv				
71	dicators: (Applic					,		oated Sand	Grains.	Locatio			ing, M=N		Hydric	Soils ³		
Histosol				.nns, u		Sandy Re	-							(A9) (LR		50115 .		
	ipedon (A2)					Stripped N)						(A10) (L	-			
Black His						Loamy Mu								ertic (F18	-			
	n Sulfide (A4)					Loamy Gl	-							Material				
	Layers (A5) (LRF	R C)				Depleted	-							ain in Re				
	ck (A9) (LRR D)	,				Redox Da						01			mantoj			
	Below Dark Surfa	ace (A [,]	11)			Depleted												
	rk Surface (A12)		,			Redox De						3.						
	ucky Mineral (S1)					Vernal Po	-	(-)							hytic veg must be			
	leyed Matrix (S4)						()					v			or proble		ι,	
Restrictive La	yer (if present):																	
Туре:																		
Depth (Inches)	:								Hydric S	oils Pre	sent?			Yes		No	\boxtimes	3
Remarks: A	bsence of hydric	soil inc	dicato	rs; No r	edox													
HYDROLOG	Y																	
Vetland Hydr	ology Indicators:																	
Primary Indicat	ors (minimum of o	one rec	quired	; check	all that	t apply)					Seco	ndary I	ndicator	s (2 or m	ore requi	red)		
Surface	Water (A1)					Salt Crust	(B11)					Water	Marks (I	31) (Rive	erine)			
High Wa	ater Table (A2)					Biotic Cru	st (B12)					Sedim	ent Dep	osits (B2) (Riverir	ie)		
Saturatio	on (A3)					Aquatic In	vertebrat	es (B13)				Drift D	eposits	(B3) (Riv	erine)			
Water N	larks (B1) (Nonriv	/erine))			Hydrogen	Sulfide C	dor (C1)			\boxtimes	Draina	ige Patte	erns (B10))			
Sedimer	nt Deposits (B2) (I	Nonriv	erine)		Oxidized I	Rhizosph	eres along l	_iving Root	s (C3)		Dry-Se	eason W	ater Tab	le (C2)			
Drift Dep	oosits (B3) (Nonri	verine	e)			Presence	of Reduc	ed Iron (C4)			Crayfi	sh Burro	ws (C8)				
Surface	Soil Cracks (B6)					Recent Irc	on Reduct	ion in Tillec	I Soils (C6)			Satura	tion Visi	ble on A	erial Imag	ery (C	9)	
Inundati	on Visible on Aeri	al Imag	gery (E	B7)		Thin Muck	Surface	(C7)				Shallo	w Aquita	rd (D3)				
Water-S	tained Leaves (BS	9)				Other (Ex	plain in R	emarks)				FAC-N	leutral T	est (D5)				
ield Observa	tions:																	
Surface Water	Present? Y	'es		No	\boxtimes	Depth	n (inches)	: <u> </u>										
Water Table P	resent? Y	′es		No	\boxtimes	Depth	n (inches)	: <u> </u>										
Saturation Pres (includes capill	ary fringe)	′es		No	\boxtimes		n (inches)				nd Hyd	rology	Presen	t ?	Yes		No	D
escribe Reco	rded Data (stream	n gauge	e, moi	nitoring	well, a	erial photos	, previous	s inspection	s), if availa	ble:								

 Remarks:
 Presence of single secondary hydrologic indicator; absence of wetland hydrology. Historic drainage patterns within the greater Elk Hills area has been truncated by the construction of the CA Aqueduct (i.e., absence of hydrologic connectivity to valley floor hydrogeomorphic systems).

 US Army Corps of Engineers
 Arid West – Version 2.0

Project Site:	HECA Carbon Di	ioxide Supply Li	ne Aligr	nment	City/Coun	ty:	/Kern		Samplin	g Date:	5/29/	13		
Soil Map Unit Name: Elkhills sandy loam. 9 to 50 percent slopes. eroded Are climatic / hydrologic conditions on the site typical for this time of ye								State: CA	Samplin	g Point:	<u>DP 1</u>	57		
Investigator(s):	Chris Bronny; To	mmy Fardig			Section, T	Section, Township, Range: Section 27S, Township 30S, Range 24E								
Landform (hillslope,	terrace, etc.): Sv	vale		L	ocal relief (co	ncave, con	ivex, n	ione): <u>concave</u>		Slop	e (%)	<u>3</u>		
Subregion (LRR)	: <u>LRRC</u>		Lat:	<u>35.2874704°</u>		Long: <u>119.3813995°</u>								
Soil Map Unit Name	Elkhills sandy lo	oam, 9 to 50 pe	rcent slo	pes, eroded.				NWI classif	fication:					
Are climatic / hyd	rologic conditions	on the site typi	cal for t	his time of year?	Yes 🗌	No	\boxtimes	(If no, explain in Rei	marks.)					
Are Vegetation D,	Soil 🛛,	or Hydrology	🛛 si	gnificantly disturbe	ed? Are '	Are "Normal Circumstances" present?					\boxtimes	No		
Are Vegetation	Soil 🛛,	or Hydrology	🛛 n	aturally problemati	ic? (If ne	(If needed, explain any answers in Remarks.)								

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	\boxtimes							
Hydric Soil Present?			No	\boxtimes	Is the Sampled Area within a Wetland? Yes 🗌 No 🛛						
Wetland Hydrology Present?		\boxtimes	No								
Remarks: East/northern side of historic Elk Hills drainages now truncated by CA Aqueduct and do not exhibit hydrologic connectivity to greater "waters of the U.S." within the region All billsione drainages have been altered by cut and fill activities and accelerated erosion associated with oil											

the U.S." within the region. All hillslope drainages have been altered by cut and fill activities and accelerated erosion associated with oil production practices; accreting sediments and hydrocarbon residues mask historic soils in low- and moderate gradient swales. Precipitation below-average for 2012-2013 rainy season.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute <u>% Cover</u>	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:				
1 2				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u>	(A)		
3 4				Total Number of Dominant Species Across All Strata:	<u>0</u>	(B)		
50% =, 20% = Sapling/Shrub Stratum (Plot size:)	= Total Co		r	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0%</u>	(A/B)		
<u>Sapiing/Smub Stratum</u> (Piot size:) 1.				Prevalence Index worksheet:				
···								
2				Total % Cover of :	Multiply by:			
3				OBL species	x1 =			
4				FACW species	x2 =			
5				FAC species	x3 =			
50% =, 20% =		= Total Cove	r	FACU species	x4 =			
Herb Stratum (Plot size:)				UPL species	x5 =			
1. <u>Bromus madritensis</u>	<u>1</u>	no	UPL	Column Totals: (A)		(B)		
2. <u>Amsinckia sp.</u>	<u>1</u>	no	UPL	Prevalence Index = B/A =				
3. <u>Schismus barbatus</u>	<u>1</u>	no	UPL	Hydrophytic Vegetation Indicators:				
4				Dominance Test is >50%				
5				Prevalence Index is $\leq 3.0^1$				
6				Morphological Adaptations ¹ (Providing the data in Remarks or on a separate set of the data in Remarks or on				
7					Sheet)			
8				Problematic Hydrophytic Vegetation	on ¹ (Explain)			
50% =, 20% =	<u>3</u> = Total Cov		r					
Woody Vine Stratum (Plot size:)				¹ Indicators of hydric soil and wetland hydrolog be present, unless disturbed or problematic.	y must			
1								
2				Hydrophytic				
50% =, 20% =		= Total Cove	r	Vegetation Yes Present?	□ No	\boxtimes		
% Bare Ground in Herb Stratum 90	Ground in Herb Stratum 90 % Cover of Biotic Crust							
Remarks: Sparsley vegetated swale; preva	lence of upla	nd species with	in sample ar	ea.				
US Army Corps of Engineers				Arid	West – Version 2	2.0		

SOIL														Sampling	Point: I	DP 15
	ription: (Describ		e depth	n neede	ed to d	ocumen			irm the abs	ence of i	ndicato	ors.)				
Depth	Matrix						Redox Fea				_	_				
		Co	Color (Moist)		<u>%</u>	Type ¹	Loc ²		Texture	<u>e R</u>	<u>emarks</u>					
<u>0-10"</u>	Sand	-	100							-	Sand					
		_								_		·				
		_								_		·				
		_								-		·				
		_								_		·				
							<u> </u>			<u> </u>		·				
	ncentration, D=D	-						oated Sand	d Grains. 2	Location:		re Lining, M=			3	
_	ndicators: (Appl	icable	to all L	RRs, u								ators for Pro			Soils":	
Histoso						-	Redox (S5)					1 cm Muck		-		
	pipedon (A2)						d Matrix (S6	,				2 cm Muck		-		
	listic (A3)						Mucky Mine					Reduced V				
	en Sulfide (A4)						Gleyed Mat	. ,				Red Parent		. ,		
Stratifie	ed Layers (A5) (L l	RR C)				Deplete	ed Matrix (F3	3)				Other (Exp	lain in Re	marks)		
] 1 cm M	uck (A9) (LRR D)				Redox	Dark Surfac	e (F6)								
] Deplete	ed Below Dark Su	urface (/	A11)			Deplete	ed Dark Surf	ace (F7)								
] Thick D	ark Surface (A12	2)				Redox	Depressions	s (F8)				³ Indicators	of hvdrop	hvtic veae	etation ar	nd
] Sandy I	Mucky Mineral (S	51)				Vernal	Pools (F9)						nydrology			
] Sandy	Gleyed Matrix (S4	4)										unless	disturbed	or proble	matic.	
estrictive L	ayer (if present)):														
ype:																
epth (Inches	s):								Hydric So	oils Prese	ent?		Yes		No	\boxtimes
emarks:	Absence of hydr	ic soil ir	ndicator	rs; neai	rly pure	sand. Pi	resence of h	ydrocarbon	s mixed in t	he sand.						
YDROLO	GY															
-	Irology Indicator		i		- 11 41						0		. (0			
	ators (minimum o	or one re	equirea;	, check								dary Indicator		-	ea)	
	e Water (A1)						ust (B11)					Water Marks (
-	/ater Table (A2)						Crust (B12)					Sediment Dep			e)	
	tion (A3)						c Invertebrat					Drift Deposits		-		
	Marks (B1) (Non		-				jen Sulfide C					Drainage Patt		,		
	ent Deposits (B2)	-	-)			ed Rhizosphe	-	-	s (C3)		Dry-Season W		e (C2)		
	eposits (B3) (Nor		ie)				ice of Reduc		,			Crayfish Burro	. ,			
Surface	e Soil Cracks (B6	S)				Recent	Iron Reduct	tion in Tilleo	d Soils (C6)			Saturation Vis	ible on Ae	erial Imag	ery (C9)	
lnunda	tion Visible on Ae	erial Ima	agery (E	37)		Thin M	uck Surface	(C7)				Shallow Aquita	ard (D3)			
Water-	Stained Leaves (B9)				Other (Explain in R	emarks)			D F	AC-Neutral T	est (D5)			
ield Observ	ations:															
urface Wate	er Present?	Yes		No	\boxtimes	De	epth (inches)	:								
Vater Table I	Present?	Yes		No	\boxtimes	De	pth (inches)	:								
aturation Pr	esent?			NI-		D -				Wetlen	d Llude		+2	Vac		No

Presence of single secondary hydrologic indicator; absence of wetland hydrology. Historic drainage patterns within the greater Elk Hills area has been truncated by the construction of the CA Aqueduct (i.e., absence of hydrologic connectivity to valley floor hydrogeomorphic systems). Remarks:

Depth (inches):

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(includes capillary fringe)

Yes

No

 \boxtimes

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

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Yes

No \boxtimes

Wetland Hydrology Present?

APPENDIX G

PRELIMINARY JURISDICTIONAL DELINEATION OF WATERS OF THE UNITED STATES OEHI CO₂ EOR PROJECT

Delineation Digital Data Files

Refer to CD Included in Hard Copy

APPENDIX H

PRELIMINARY JURISDICTIONAL DELINEATION OF WATERS OF THE UNITED STATES OEHI CO₂ EOR PROJECT

Jurisdictional Delineation for the OEHI Carbon Dioxide Supply Line Alignment

Occidental of Elk Hills, Inc. Technical Memorandum

Jurisdictional Delineation for OEHI Carbon Dioxide Supply Line Alignment

Prepared For: Occidental of Elk Hills, Inc.

Prepared By: Stantec Consulting

Date: June 3, 2013

INTRODUCTION

Hydrogen Energy California (HECA) is pursuing coverage under a U.S. Army Corps of Engineers (Corps) Nationwide Permit for construction of the HECA CO2 pipeline supplying the Occidental of Elk Hills, Inc. CO2 injection project. A delineation of wetlands and other waters in the HECA project study area was submitted to the Corps in early March as part of the Nationwide Permit review. OEHI has received comments from HECAstating that the Corps is requesting clarification of the delineation in several areas, including portions of the OEHI project area and requesting a response from HECA by June 7, 2013.

The attached Figure was provided by HECA and identifies the areas within the OEHI Project that require clarification. HECA is requesting information at each of the points indicated on this map (DP151-157) and a review of the drainage features shown on the map for potential ordinary high water mark indicators. Specifically, the the following information was requested for the sites identified on the map:

- Type of feature (e.g. stream channel, artificial ditch, pond, etc...)
- Seven wetland data sheets (at DP151-157) that identifies the presence/absence of the three wetland parameters (soil, veg, and hydrology)
- Dimensions of channels
- Any evidence of Ordinary High Water (as defined by the Corps)
- Identification of any wetland vegetation
- Photos (to clarify these areas for the Corps)

Stantec Consulting conducted a preliminary jurisdictional delineation of the areas identified in the Figure on May 29, 30, and 31, 2013. The field delineation was conducted for the purpose of identifying existing environmental conditions and the extent of Corps jurisdiction along the proposed pipeline alignment and proposed facility site. Visual observations as to the presence

or absence of indicators of wetland soil, vegetation and hydrological conditions were made during the investigation. The boundaries of all potential wetland/water features observed were further defined in accordance with the Corps regulations and the required methodology described in the 1987 Corps Wetlands Delineation Manual (1987 Manual), Arid West Supplement to the 1987 Manual (Arid West Supplement), and Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States (OHWM Supplement).

The complete results of our findings will be presented in the form of a draft jurisdictional delineation report that addresses the entire area of affect.

The following is the presentation of our findings regarding those eight sites. Exhibit A (attached) presents the eight site locations, descriptive, upland, and wetland GPS points, and insets showing the extent of potentially jurisdictional "other waters" of the U.S./state. Information recorded on Arid West and OHWM data forms can be viewed in Attachment A; corresponding photographs can be viewed in Attachment B.

<u>DP151</u>

Type of Feature: Shallow Basin

Arid West Data Form: Attachment A

Dimensions of Channels: N/A

Evidence of OHWM: N/A

Identification of Wetland Vegetation: Dominant hydrophytic species = *Hordeum marinum* (Mediterranean Barley; FAC) within sample test pit area/GPS-mapped boundary of feature.

Photographs: Attachment B

DP152

Type of Feature: Swale and Gully

Arid West Data Form: Attachment A

Dimensions of Channels: Three foot channel

Evidence of OHWM: Gully feature exhibits scour and deep incision within a defined bed and bank.

Identification of Wetland Vegetation: Absence of hydrophytic vegetation within low-gradient swale.

Photographs: Attachment B

<u>DP154</u>

Type of Feature: Ephemeral Drainage

Arid West/OHWM Data Forms: Attachment A

Dimensions of Channels: 3 foot average width within sample area.

Evidence of OHWM: Intermittent scour; break in bank slope; change in average sediment texture.

Identification of Wetland Vegetation: Absence of hydrophytic vegetation within low-gradient channel.

Photographs: Attachment B

DP153

Type of Feature: Swale

Arid West Data Form: Attachment A

Dimensions of Channels: N/A

Evidence of OHWM: Absence of a bed and bank.

Identification of Wetland Vegetation: Absence of hydrophytic vegetation within low-gradient swale.

Photographs: Attachment B

DP155

Type of Feature: Ephemeral Drainage

Arid West/OHWM Data Forms: Attachment A

Dimensions of Channels: 6 foot average width within sample area.

Evidence of OHWM: Intermittent scour; break in bank slope; change in average sediment texture.

Identification of Wetland Vegetation: Absence of hydrophytic vegetation within low-gradient channel.

Photographs: Attachment B

DP157

Type of Feature: Swale

Arid West Data Form: Attachment A

Dimensions of Channels: N/A

Evidence of OHWM: Absence of a bed and bank.

Identification of Wetland Vegetation: Absence of hydrophytic vegetation within low-gradient swale.

Photographs: Attachment B

DP150

Type of Feature: Artificial Wetland

Arid West Data Form: Attachment A

Dimensions of Channels: Average width is between 12 and 15 feet, approximately 0.007 acres.

Evidence of OHWM: N/A

Identification of Wetland Vegetation: Hydrophytic vegetation observed within mapped feature included:

- Laennecia coulteri = FAC
- Polypogon monspeliensis = FACW
- Salix gooddingii = FACW
- Typha angustifolia = OBL

Photographs: Attachment B

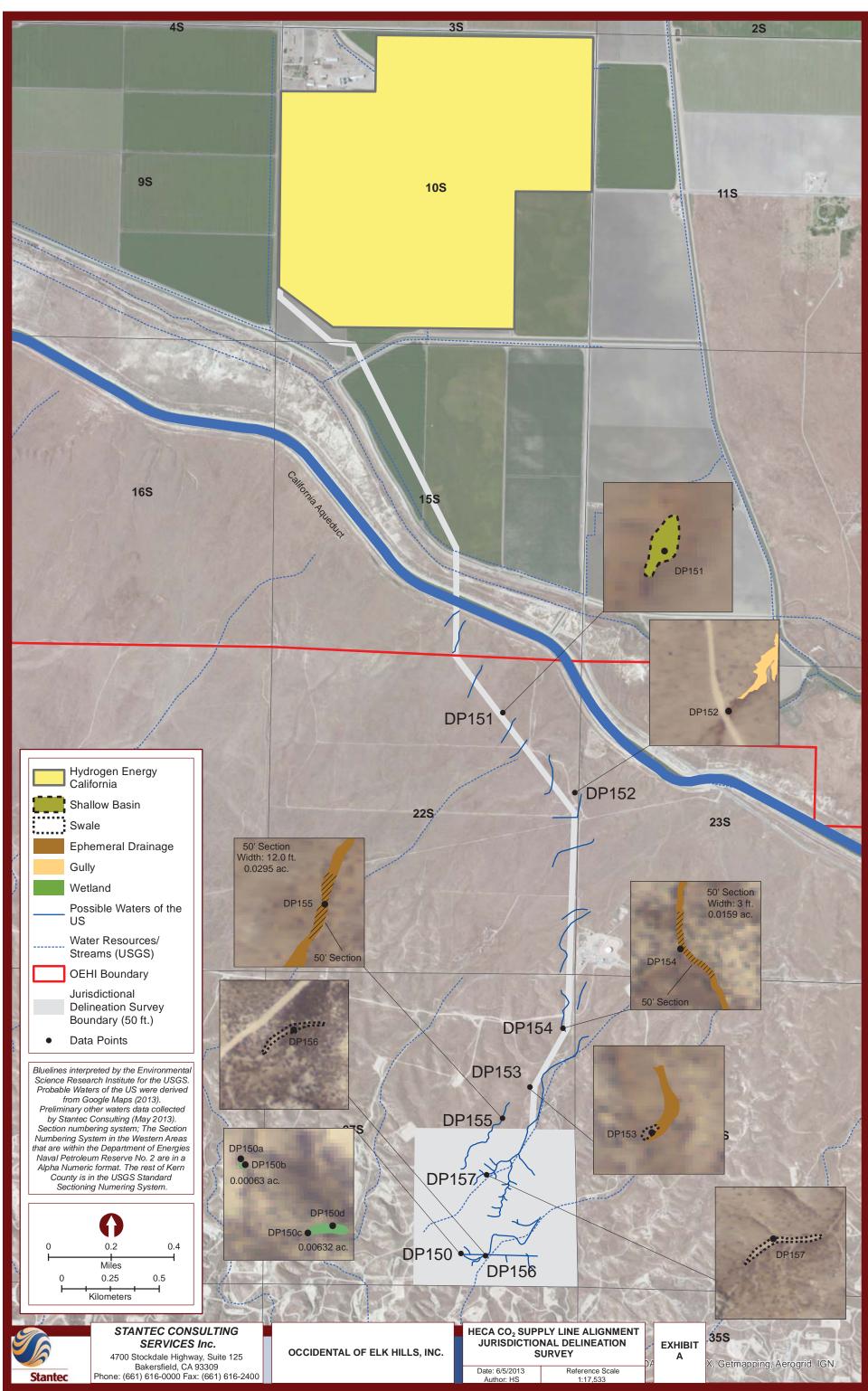
DP156 Type of Feature: Swale

Arid West Data Form: Attachment A

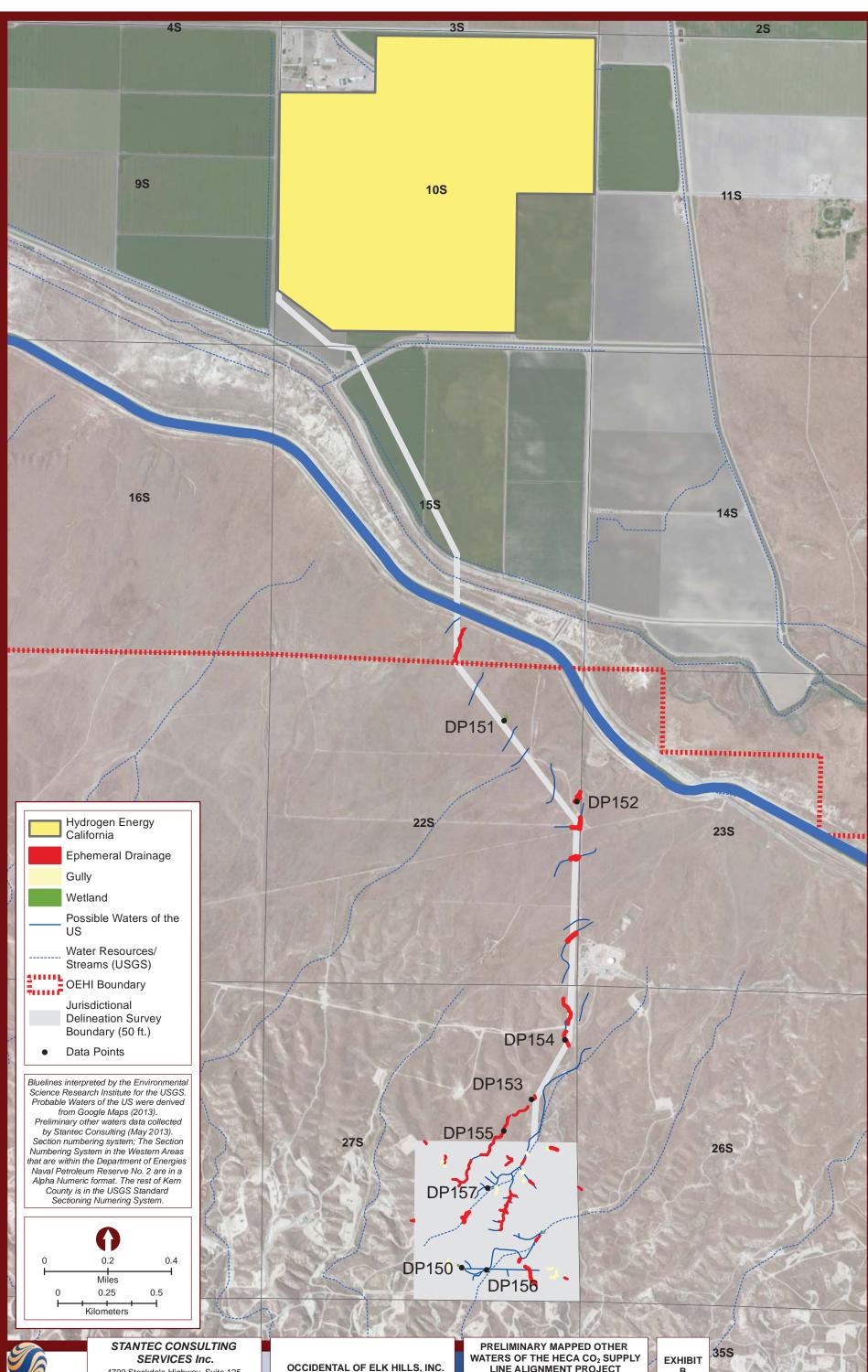
Dimensions of Channels: N/A

Evidence of OHWM: Absence of a bed and bank.

Identification of Wetland Vegetation: Absence of hydrophytic vegetation within low-gradient swale.



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WATERS OF THE HECA CO₂ SUPPLY LINE ALIGNMENT PROJECT Reference Scale 1:17,533 Date: 6/4/2013 Author: HS

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