

## 5.3 BIOLOGICAL RESOURCES

The purpose of this section is to assess potential impacts to biological resources associated with the proposed Plains Exploration and Production (PXP) Arroyo Grande Oil Field Produced Water Reclamation Facility, located directly east and west of Price Canyon Road in San Luis Obispo County. This section includes a review of pertinent literature and field surveys, the results of coordination with resource agencies, discussion and analysis of pertinent regulatory requirements, and an assessment of the impacts of the Proposed Project on biological resources.

### 5.3.1 Regulatory Setting

This section identifies those plans and policies administered by resource agencies pertaining to those biological resources that are known to exist and/or have the potential to occur within the project area.

#### 5.3.1.1 Special-Status Species

Federal Authority. The Federal Endangered Species Act (FESA), administered by the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS), provides protection to species listed as Threatened (FT) or Endangered (FE), or proposed for listing as Threatened (PFT) or Endangered (PFE). In addition to the listed species, the Federal government also maintains lists of species that are neither formally listed nor proposed, but could potentially be listed in the future. Federal candidate species (FC) include taxa for which substantial information on biological vulnerability and potential threats exist, and are maintained in order to support the appropriateness of proposing to list the taxa as an endangered or threatened species. Federal Species of Concern (FSC) comprise those species that should be given consideration during environmental review.

Section 9 of the FESA prohibits the “take” of any member of a listed species. Take is defined as, “...to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Harass is “an intentional or negligent act or omission that creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding, or sheltering.” Harm is defined as “...significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering.”

Projects that would result in the take of a Federally listed or proposed species are required to consult with USFWS or NMFS. The objective of consultation is to determine whether the project would jeopardize the continued existence of a listed or proposed species, and to determine what mitigation measures would be required to avoid jeopardy.

Consultations are conducted under Sections 7 or 10 of FESA depending on the involvement by the Federal government. Section 7 requires agencies to make a finding on all Federal actions, including the approval by an agency of a public or private action, such as the

issuance of a permit pursuant to Section 10/404 of the Clean Water Act, on the potential to jeopardize the continued existence of any listed or proposed species potentially impacted by the action. Section 10 is conducted when there is no Federal involvement in a project except compliance with FESA.

Under Section 7, the USFWS and NMFS are authorized to issue Incidental Take Permits (ITP) for the take of a listed species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency. The ITP includes measures to minimize the take. Under Section 10(a), the USFWS and NMFS can issue ITPs for non-Federal projects.

The USFWS also administers the Federal Migratory Bird Treaty Act of 1918 (16 USC 703-711). Under the MBTA, it is unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR 10, including feathers or other parts, nests, eggs or products, except as allowed by implementing regulations (50 CFR 21).

State Authority. The California Department of Fish and Game (CDFG) administers a number of laws and programs designed to protect fish and wildlife resources. Principal of these is the California Endangered Species Act of 1984 (CESA - Fish and Game Code Section 2050) that regulates the listing and take of State endangered (SE) and threatened species (ST). Under Section 2081 of CESA, CDFG may authorize the take of an Endangered and/or Threatened species, or candidate species by a permit or Memorandum of Understanding (MOU) for scientific, educational, or management purposes.

CDFG maintains lists of Candidate-Endangered species (SCE) and Candidate-Threatened species (SCT). California candidate species are afforded the same level of protection as listed species. CDFG also designates Species of Special Concern (CSC) that are species of limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. These species do not have the same legal protection as listed species, but may be added to official lists in the future. The CSC list is intended by CDFG as a management tool to call attention to declining populations and focus efforts on decreasing threats to long-term viability.

CDFG administers other State laws designed to protect wildlife and plants. Under Section 3511 of the Fish and Game Code, CDFG designates species that are afforded "fully protected" (FP) status. Under this protection, designated species can only be taken or possessed with a permit. Section 3503 of the Fish and Game Code protects all birds-of-prey, their eggs, and their nests.

CDFG manages the California Native Plant Protection Act of 1977 (Fish and Game Code Section 1900, et seq), which was enacted to identify, designate and, protect rare plants. In accordance with CDFG guidelines, California Native Plant Society (CNPS) 1B list plants are considered "rare" under the Act, and are evaluated in California Environmental Quality Act (CEQA) reports.

Local Authority. Special-status species of the project area are afforded protection by the County of San Luis Obispo under goals and polices contained in the County of San Luis Obispo General Plan, Agriculture & Open Space Element (1998) and the San Luis Bay Area Inland Planning Area Plan (2002). These documents provide a framework of policies designed to protect special-status species and sensitive habitat areas. Project-related adverse impacts on special-status species are considered significant for CEQA purposes.

### 5.3.1.2 Waters and Wetlands

Federal Authority. The Corps is responsible for the issuance of permits for the placement of dredged or fill material into waters of the United States (waters) pursuant to Section 404 of the Clean Water Act (33 USC 1344). As defined by the Corps at 33 CFR 328.3(a)(3), waters are those that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; tributaries and impoundments to such waters; all interstate waters including interstate wetlands; and territorial seas. (Note: Based on the recent U.S. Supreme Court decision in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* [2001], and guidance from the U.S. Army Corps of Engineers and U.S. Environmental Protection Agency [2001], the Federal government no longer asserts jurisdiction over isolated waters and wetlands under Section 404 of the Clean Water Act based on the "migratory bird rule." Further guidance on the issue of isolated wetlands and waters is expected (U.S. Army Corps of Engineers, 2001).

Wetlands are a special category of waters, and are defined at 33 CFR 328.3(b) as: "...those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

In non-tidal waters, the lateral extent of Corps jurisdiction is determined by the ordinary high water mark (OHWM), which is defined as the: "...line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." (33 CFR 328[e]).

In addition, a wetland definition has been adopted by the U.S. Fish and Wildlife Service to include both vegetated and non-vegetated wetlands, recognizing that some types of wetlands may lack vegetation (e.g., mudflats, sandbar, rocky shores, and sand flats), but still provide functional habitat for fish and wildlife species (Cowardin, et al., 1979). These wetlands are defined as "...lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by

*shallow water at some time during the growing season of each year."* Some of the USFWS-defined wetlands are not regulated by the Federal government.

The upper (landward) limit of USFWS-defined wetlands are the boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover; the boundary between soil that is predominantly hydric and soil that is predominantly non-hydric; or in the case of wetlands without vegetation or soil, the boundary between land that is flooded or saturated at some time each year and land that is not (Cowardin et al., 1979). The lower limit in inland areas is established at a depth of 6.6 feet below the water surface; unless emergent plants, shrubs, or trees grow beyond this depth, at which the deepwater edge of such vegetation is the boundary (Cowardin et al., 1979).

State and Local Authority. Pursuant to Section 1601 of the California Fish and Game Code, CDFG requires a streambed alteration agreement (SAA) between CDFG and any State or local governmental agency or public utility before the initiation of any construction project that will: 1) divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake; 2) use materials from a streambed; or 3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake.

The California Fish and Game Commission adopted a modification of the USFWS definition of wetlands on March 9, 1987 as its principal means of wetland identification in conjunction with on-site inspections for implementation of the Fish and Game Commission's policy (Rollins, 1987). Unlike USFWS, the CDFG definition only requires the presence of one wetland indicator for an area to qualify as a wetland. CDFG does not have a wetland regulatory program, but advises other state agencies on wetland issues.

County of San Luis Obispo General Plan, Agriculture & Open Space Element identifies a series of unique plant or animal habitats including the following: habitat of rare, endangered or threatened plant or animal species as classified by state and Federal agencies and the California Native Plant Society (CNPS); wetlands and marshes; and sensitive natural communities as identified in the California Department of Fish and Game Natural Diversity Data Base (such as Central maritime chaparral).

The importance of wetlands has long been recognized in the San Luis Obispo County General Plan. However, there is no inventory of the wetland resources in the County, so the identification and protection of these resources most often occurs when a development proposal is submitted on property that may include a wetland.

### 5.3.2 Setting

The following description of the biological setting is based on a review of pertinent literature and field reconnaissance surveys of the project site. The literature review included the examination of the following documents:

- PXP Arroyo Grande Oil Field Produced Water Reclamation Facility Site Plans (PXP);

- Supplemental Information to Land Use Application, PXP Arroyo Grande Oil Field Produced Water Reclamation Facility (Entrix, 2006);
- Revised Hydrologic, Water Quality, and Biological Characterization of Pismo Creek, PXP Arroyo Grande Oil Field Produced Water Reclamation Facility (Entrix, 2006);
- Final Environmental Impact Report (EIR), PXP Phase IV Development Plan, Arroyo Grande Oil Field (Padre, 2004);
- PXP Phase IV Biological Resources Mitigation Monitoring Report 2006-1 (DWE Principal Ecologists, 2006);
- PXP Arroyo Grande Oil Field Environmental Constraint Map (Firma Consultants, 2007);
- Recovery Plan for the Tidewater Goby (USFWS, 2005);
- CDFG Stream Survey of Pismo Creek (CDFG, 2006);
- Arroyo Grande Creek Watershed Management Plan (Central Coast Salmon Enhancement, 2005);
- Oceano Dunes Protected Fish Species Surveys: Technical Memorandum (HES, 2005); and,
- USGS 7.5-minute topographical maps.

In addition, the California Natural Diversity Database (CNDDDB) was queried for records of special-status species within the Pismo Beach and Arroyo Grande NE 7.5 minute quadrangle maps (CDFG, 2007). The categories of special-status species are listed in Tables 5.3-2 and 5.3-4 and the CNDDDB report is included under Appendix E. Special-status taxa that are known to exist or have the potential to exist on the project sites were also identified through a review of relevant literature (California Native Plant Society, 2001; and Zeiner et al., 1988; 1990a, b), and previous biological studies in the area (Entrix, 2006; DWE Principal Ecologists, 2006; Firma, 2007). Further, a list of Federally threatened and endangered species potentially occurring within the area was also obtained from the USFWS (see Appendix E).

Field reconnaissance surveys were conducted at the project site for the purpose of identifying the varying vegetation communities/habitat areas, determining typical species associated with the different vegetation communities, identifying and assessing potentially impacted oak trees, and to document occurrences of special-status species and habitats. This included a focused spring botanical survey of all project impact areas, including proposed pipeline routes and pipeline buffer areas, margins and interiors of the proposed Project Site and surrounding habitat areas (i.e., adjacent grasslands, etc.).

Field surveys for wildlife were conducted by walking transects of opportunity through habitat types and recording species observed based on visual observation using 10X42 binoculars, auditory cues (calls and songs), and indirect signs (tracks, scat, skeletal remains, burrows, etc.). In addition, USFWS protocol-level California red-legged frog (CRLF) surveys were conducted within the proposed tempering pond, adjacent stock pond, and within the

proposed outfall location to Pismo Creek including a 500-foot buffer upstream and downstream of the proposed outfall site. Lastly, a reconnaissance-level snorkel survey and preliminary habitat assessment of the creek corridor was conducted with emphasis on the presence/absence of steelhead.

California coast live oaks (*Quercus agrifolia*), although not considered to be a sensitive species, represent an essential component of coast live oak woodland, a habitat that is increasingly threatened by development and agriculture along the central California coast. As such, focused oak tree surveys were conducted to identify those oak trees which could potentially be affected by project activities. Trees surveyed were limited to living oak trees located within or immediately adjacent to designated potential impact areas, including those trees expected to be completely removed and/or impacted as a result of project implementation. Surveys included a measurement of oak tree diameter at breast height (DBH) and canopy cover which were recorded on field observation forms (see Appendix E). Additionally, all oak trees were numbered and mapped accordingly. Physical data was collected only on those oak trees considered mature and all saplings were mapped as components of coast live oak woodland habitat. Specifically, oaks classified as mature were greater than 10 cm (3.93 in.) DBH and oaks classified as saplings were less than 10 cm DBH. The following Table 5.3 -1 lists the field surveys performed and the dates they were conducted.

**Table 5.3-1. Biological Field Survey Dates**

Field Survey Type	Dates Conducted
Botanical Surveys	May 24 & 30, 2007
Oak Tree Survey	May 17, 2007
Wetland Assessment	June 18, 2007
General Wildlife Surveys	May 1 & 8, 2003
Protocol-level CRLF Surveys	April, May, July 2007
Steelhead Snorkel Survey	April 26, 2007
Steelhead Habitat Assessment	May 31, 2007

**5.3.2.1 Physical Setting**

The project area is located approximately three miles north of the City of Pismo Beach along Price Canyon Road in central San Luis Obispo County. The site is situated within the Outer South Coast Range district of the Central Western California floristic province (Hickman, 1993).

**Vegetation.** Focused botanical field surveys were conducted by Padre biologists on May 24 and 30, 2007, within the typical spring flowering season of this floristic province (April-May). Based on the results of the botanical field surveys conducted by Padre personnel and results from previous botanical studies of the project area (Padre, 2003), a list of plant species was compiled (see Appendix E) and a map of vegetation communities occurring in the project area was generated (refer to Figure 5.3-1). A total of 127 vascular plant species were identified

during the field survey, which consisted of 69 (52 percent) native taxa and 64 (48 percent) non-native naturalized taxa. The percentage of non-native taxa is greater than for the State as a whole (17.4 percent), reflecting the relatively high level of disturbance associated with well site development and continuing operation and maintenance activities throughout the oil field.

The project site encompasses eight generalized vegetation communities: California Annual Grassland Series, Coyote Brush Series, Well's Manzanita Series, California Live Oak Woodland Series, Riparian Woodland, Streambed/bank, Bulrush-cattail Series, Seasonal Wetland, and Ruderal (disturbed) habitat. Classification of these habitat types or vegetation communities is based primarily on Sawyer and Keeler-Wolf (1995) with several modifications to more accurately characterize existing conditions in the field. The general location of these communities in relation to the project elements is depicted in Figure 5.3-1. The following is a description of each of the vegetative communities occurring within the project site:

- **California Annual Grassland Series (AG)**. This community is composed of low-growing native and non-native annual grasses and forbs in areas generally used for grazing, but may be fallow or inactive. Within the proposed Produced Water Reclamation Facility project area, the California annual grassland series was observed in close association with the California live oak woodland series and in areas of low relief. Dominant species included several invasive weedy species such as slender wild oats (*Avena barbata*), ripgut grass (*Bromus diandrus*), Italian thistle (*Carduus pycnocephalus*), red-stem filaree (*Erodium cicutarium*), and black mustard (*Brassica nigra*). This community represents the dominant cover along the proposed pipeline route within the northern portion of the project area (i.e., active cattle grazing area).
- **Coyote Brush Series (CBS)**. This community is dominated by coyote brush (*Baccharis pilularis*), a moderate-sized shrub (<2m) with mesophytic leaves and semiwoody stems growing from a woody base. Sub-dominant species included California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), sticky monkey flower (*Mimulus aurantiacus*). Arroyo willow (*Salix lasiolepis*) also occurred frequently in association within this community. Coyote brush habitat is present within and adjacent to the project area in scattered locations typically in close association with the California annual grassland, California live oak woodland series, and Well's manzanita series.
- **Well's Manzanita Series (WMS)**. This plant community is represented by areas dominated by Well's manzanita (*Arctostaphylos wellsii*), a broad-leaved sclerophyllous shrub, <3 meter tall, forming dense, often impenetrable stands. This community occurs along the proposed pipeline route located on the southern side of project site and around the proposed construction staging area on south-facing slopes and in close association with rocky outcrops and shallow soils associated with the Edna member of the Pismo formation (i.e., Edna tar sands deposits). It should be noted that this community is referred to as central maritime chaparral within the CNDDDB, and is considered a sensitive habitat area of limited distribution.

- **California Live Oak Woodland Series (OW).** California live oak woodland communities are characteristic of the rolling hills and valleys of California's central coast. This habitat is particularly important for its ability to support a wide variety of wildlife species due to its high value as foraging habitat and vegetative cover (e.g., acorn production, forest canopy, etc.). However, because this habitat is frequently lost to agriculture and/or development, oak woodlands have been declining for many years. This situation is aggravated by the long time period required for regeneration of this habitat. As a consequence, oak woodland is considered to be a sensitive resource by San Luis Obispo County. California live oak woodland is considered a climax plant community, which often forms dense, closed-canopies in mesic sites. Within the project site, this community is dominated by coast live oak primarily occurring in dense stands on north-facing slopes. Typical understory species occurring within this community included toyon (*Heteromeles arbutifolia*), California coffee-berry (*Rhamnus californica*), poison oak (*Toxicodendron diversilobum*), and California blackberry (*Rubus ursinus*). As indicated above, this community is prevalent in undisturbed sites throughout the project area.
- **Riparian Woodland (RW).** This community is dominated by shrub-sized (<20 feet high) Arroyo (*Salix lasiolepis*) and yellow willows (*Salix lucida* ssp. *lasiandra*), and occurs along the banks of Pismo Creek and associated drainages, as well as the perimeter of the proposed tempering pond and existing stock pond. Scattered stands of riparian trees, principally western sycamore (*Platanus racemosa*) and black cottonwood (*Populus balsamifera*) are also present along the stream channel of Pismo Creek and surrounding areas. Additionally, coast live oaks are present in some portions of the Pismo Creek riparian corridor and surrounding tributaries. This community corresponds to the Riparian Shrub-Scrub wetland community described by Cowardin et al. (1979). Pismo Creek is perennial coastal stream that flows into the Pacific Ocean at a point approximately 3 miles south of the project area. It is characteristic of a Central coast steelhead/speckled dace stream (A2635) under the inland waters classification system developed by Moyle and Ellison (1991). Species abundance can be high, diversity low and structural heterogeneity moderate to high, particularly in areas with tree, shrubs, and herbaceous layers.
- **Streambed/Bank (SB).** This community occurs on the creek banks immediately within the wetted perimeter of the active stream channel of Pismo Creek, and on accreted sand and gravel bars in the channel where stream flow decreases and sediments are deposited. The substrate consisted primarily of silts, sands and small gravel with occasional cobbles. Clean gravel only occurred immediately downstream of several existing beaver dams which had concentrated the water flow and subsequently kept small portions of gravel and small cobble clean. When surface flow is present, this community represents a transition between open water and the riparian scrub. Vegetation on the banks and bars varied by elevation, and was moderately dense or non-existent. Hydrophytes within the streambed included some portions of emergent wetland habitat composed of rooted emergent herbaceous plants which were located in mud or on sandbars dominated by giant horsetail (*Equisetum telmateia* ssp. *braunii*) and panicked bulrush (*Scirpus microcarpus*)

**Figure 5.3-1 - Plant Community Map, Color 11X17**

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These species were primarily found at elevations below the level of the ordinary high water mark (OHW).

- **Seasonal Freshwater Wetland (SFW)**. This habitat type occurs in seasonally saturated areas and is present within the gradual swale located adjacent to the existing roadway and man-made storm water conveyance structures southeast of Tank 202. Dominant species observed within this habitat area include western ragweed (*Ambrosia psilostachya*), brown-headed rush (*Juncus phaeocephalus*), cattail (*Typha latifolia*), and Italian ryegrass (*Lolium multiflorum*). Other species present included slender wild oats and common rush (*Juncus effusus*). This habitat area is highly disturbed due to ongoing oil field and grazing activities. This seasonal freshwater habitat area does not qualify as a federal wetland due to the lack of hydric soil and wetland hydrology indicators; however, it is considered a CDFG-defined State wetland due to the dominance of hydrophytic vegetation.
- **Bulrush-Cattail Series (BCS)**. This freshwater wetland community is dominated by California bulrush (*Scirpus californicus*) and cattail and occurs in permanently flooded habitat as well as seasonally/irregularly flooded habitat areas. This community is present within the proposed tempering pond, roadside drainage, and storm water conveyance structures/ponds located within the proposed project impact area. Other species present within the bulrush-cattail series include umbrella flatsedge (*Cyperus eragrostis*), curly dock (*Rumex crispus*), common rush (*Juncus effusus* var. *brunneus*), brown-headed rush (*Juncus phaeocephalus* var. *phaeocephalus*), and rabbitsfoot grass (*Polypogon monspeliensis*). Areas containing this community within the project site meet the CDFG-definition of State wetlands due to the dominance of hydrophytic vegetation.
- **Ruderal (RU)**. It should be noted that the species composition of plant communities within the existing facility is highly variable due to the frequency and magnitude of past disturbance. Specifically, the site proposed for the water reclamation facility and associated pipeline routes are located within the existing oil field which have been heavily influenced by past and current activities. As such, the majority of the native plant communities within these areas have been replaced by facility equipment, piping, and non-native plant species. The term "ruderal" is used to describe those areas that have been disturbed by past land-use practices and/or recent ground disturbance, and are confined to the weedy areas located within existing well pads and bordering access roadways. Typical species are disturbance-adapted plants such as poison hemlock (*Conium maculatum*), cheeseweed (*Malva parviflora*), prickly wild sowthistle (*Sonchus asper*), prickly lettuce (*Lactuca serriola*), white sweetclover (*Melilotus alba*), telegraph weed (*Heterotheca grandiflora*), and summer mustard (*Hirschfeldia incana*).

**Wildlife.** Wildlife surveys were conducted at the project site in April and May of 2007. Detection methods included direct observation with binocular, examination and identification of tracks, scats, burrows/diggings, and carcasses/skeletal remains; and identification of vocalizations (calls and songs). Surveys were supplemented with previously published wildlife

reports, regional and local species distribution references, and consultation with the USFWS and CDFG to determine which species occur or potentially occur on the project site. Appendix E contains a listing of wildlife species observed during field surveys and/or expected to occur within the various vegetative communities. It should be noted that accurate assessment of wildlife populations would require extended periods of site research, trapping, and census taking. It is particularly difficult to detect nocturnal, rare or reclusive species to obtain accurate estimates of population size and geographical distribution. Other complications in the quantitative assessment of vertebrate (and invertebrate) populations include:

1. Many species may occur in the area only for short periods during migrations;
2. Many species of amphibians and reptiles become inactive during one or more seasons; and,
3. Seasonal or annual fluctuations in climate or weather patterns may confound observations.

The principal cover types that would be impacted by proposed project activities are California annual grassland series, California live oak woodland, riparian woodland, streambed/bank, seasonal freshwater wetland, and bulrush-cattail series. Typical wildlife species found in association with each of these cover types are discussed below:

- **California Annual Grassland Series.** The grassland habitat is dominated by low-growing vegetation that provides forage and cover for small mammals, such as voles, deer mice, ground squirrels, and Botta's pocket gopher. These species, in turn, provide the prey base for predators such as red-tailed hawk, red-shouldered hawk, American kestrel, gopher snake, and coyote. Little nesting cover is provided; however, certain species of plants, such as fennel, provide perch sites and forage for birds. Typical bird species include Brewer's blackbird, mourning dove, western kingbird, and western meadowlark. Other species common to this habitat include western fence lizard, house finch, sparrows, wintering raptors, and striped skunk.
- **California Live Oak Woodland.** As stated above, coastal oak woodlands provide habitat for a variety of wildlife species. However, population numbers may fluctuate dependent upon annual acorn production within a given area. Specifically, common ground-dwelling birds such as quail and turkey, and various mammals including squirrels and deer may be so dependent on acorns in fall and early winter that a poor acorn year can result in significant declines in their populations (CDFG, 1988).

Due to the extensive canopy and sub-canopy existing within mature stands of oak woodland, a wide variety of bird species have the potential to frequent oak canopies to utilize them as protective cover and for the purposes of nesting. Typical bird species include acorn woodpecker, Nuttall's woodpecker, downy woodpecker, hairy woodpecker, northern flicker, white-breasted nuthatch, brown creeper, ash-throated flycatcher, Pacific-slope flycatcher, oak titmouse, chestnut-backed chickadee, Bewick's wren, and western scrub-jay. These bird species along with various small mammal species that inhabit the forest floor, in turn, provide the prey base for

predators such as sharp-shinned hawk, Cooper's hawk, western screech owl, and great-horned owl within oak woodland habitat areas. Numerous woodrat houses were also observed in close association with the oak woodland habitat. Further, mature oak woodlands are an important habitat for the survival of several bat species, including the pallid bat, as they provide downed woody debris for roosting.

- **Riparian Woodland.** In general, riparian habitats provide food, water, migration and dispersal corridors, and escape, nesting, and thermal cover for an abundance of wildlife. This includes habitat for a variety of songbirds including but not limited to common yellowthroat, oak titmouse, warbling vireo, black-headed grosbeak and yellow warbler, all of which were observed an/or detected within the riparian woodland habitat area of Pismo Creek during Padre's field surveys on-site. This habitat also provides cover for larger animals using the associated water body, including mule deer, gray fox, and raccoon. Riparian habitats also provide roosting and foraging habitat for several raptorial species such as the red-shouldered hawk.
- **Streambed/Bank.** During the time of the 2007 field surveys, the creek channel contained low to moderate water flows. Several adult American beavers and associated waterside burrows and multiple dams were observed in the creek corridor during the survey(s). The beaver habitation of the streambed has resulted in substantial modification to the existing stream channel morphology (i.e., creation of several large pools), which may create additional habitat for other wildlife such as the southwestern pond turtle which were observed during the survey. Native steelhead trout were also observed within Pismo Creek during field survey(s), including other native fish species, such as three-spine stickleback, speckled dace, prickly sculpin, and introduced species such as mosquito fish, and channel catfish.
- **Seasonal Freshwater Wetland.** Species expected to frequent the seasonal emergent wetland habitats would likely be limited to those wildlife species that typically occupy surrounding grassland habitats as discussed above. However, wetland habitats containing standing water or moist substrates for extended periods would also provide suitable habitat for amphibians including but not limited to Pacific chorus frog and Pacific slender salamander. Reptilian species such as the western aquatic garter snake would also frequent these areas in search of prey, such as Pacific chorus frog adults and larvae. In addition, various shorebirds including killdeer, may frequent seasonal freshwater wetland areas for foraging purposes during various times of the year.
- **Bulrush-Cattail Series.** Wildlife expected to occur within the bulrush-cattail series is similar to the amphibian and reptile species listed above within the seasonal freshwater wetland habitat areas in addition to numerous aquatic macroinvertebrates including but not limited to water boatmen and water striders. Birds such as the red-winged blackbird, and song sparrow are also common in within this habitat type. Lastly, during Padre's field surveys largemouth bass were observed in association with the bulrush-cattail series.

- **Coyote Brush Series.** As stated above, this community primarily occurred along borders of existing well pads in close association with grassland, oak woodland, and chaparral habitat areas (i.e., intermingled). Though vegetative productivity is lower in the coyote brush scrub than in adjacent chaparral/woodland habitats, it appears to support numbers of vertebrate species roughly equivalent to those in surrounding areas. As such, those species expected to occur in adjacent habitats would also be expected to frequent the coyote brush series existing within the project area. A complete listing of the wildlife species observed during field surveys and/or expected to occur within the various plant communities is provided as in Appendix E.

**Special-Status Plant Species.** Special-status plant species are either listed as endangered or threatened under the Federal or California Endangered Special Acts, or rare under the California Native Plant Protection Act, or considered to be rare (but not formally listed) by resource agencies, professional organizations (e.g., Audubon Society, CNPS, The Wildlife Society), and the scientific community. For the purposes of this project, special-status plant species are defined in Table 5.3-2.

Based on data provided by USFWS, coordination with CDFG, a query of the CNDDDB, and a review of pertinent literature, a list of potential special-status species occurring in the general vicinity of the project was compiled. The results of the literature search conducted for this impact analysis indicates that 30 special-status plant species have the potential to occur in the project region. Table 5.3-3 lists these species, their current status, habitat requirements, presence of habitat, and the nearest known location relative to the Plains Exploration and Production Oil facility.

**Table 5.3-2. Definitions of Special-Status Plant Species**

Special-Status Plant Species
<ul style="list-style-type: none"> <li>➤ Plants listed or proposed for listing as threatened or endangered under the Federal Endangered Species Act (50 CFR 17.12 for listed plants and various notices in the Federal Register for proposed species).</li> <li>➤ Plants that are candidates for possible future listing as threatened or endangered under the Federal Endangered Species Act (Federal Register Vol. 71, No. 176, pp. 53756-53835, September 12, 2006).</li> <li>➤ Plants that meet the definitions of rare or endangered species under the CEQA (<i>State CEQA Guidelines</i>, Section 15380).</li> <li>➤ Plants considered by the CNPS to be "rare, threatened, or endangered" in California (Lists 1B and 2 in California Native Plant Society, 2001).</li> <li>➤ Plants listed by CNPS as plants about which we need more information and plants of limited distribution (Lists 3 and 4 in California Native Plant Society, 2001).</li> <li>➤ Plants listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (14 CCR 670.5).</li> <li>➤ Plants listed under the California Native Plant Protection Act (California Fish and Game Code 1900 et seq.).</li> <li>➤ Plants considered sensitive by other Federal agencies (i.e., U.S. Forest Service, Bureau of Land Management), state and local agencies or jurisdictions.</li> <li>➤ Plants considered sensitive or unique by the scientific community or occurring at the limits of its natural range (<i>State CEQA Guidelines</i>, Appendix G).</li> </ul>

**Table 5.3-3. Special-Status Plant Species Potentially Occurring in the Project Area**

Common Name Scientific Name	Status	Habitat	Habitat Present/ Absent	Nearest Known Location
Beach spectaclepod <i>Dithyrea maritima</i>	-- / ST / List 1B	Coastal dunes, coastal scrub	A	Pismo State Beach, 1.5 miles south of Pismo Beach, 3 miles west of Arroyo Grande (CNDDDB, 2007)
Black-flowered figwort * <i>Scrophularia atrata</i>	-- / -- / List 1B	Closed-cone coniferous forest, chaparral, coastal dunes, coastal scrub, riparian scrub	P	Species observed on-site during botanical surveys (Padre, 2003)
Blochman's dudleya <i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i>	-- / -- / List 1B	Coastal scrub, coastal bluff scrub, valley and foothill grassland	P	Froom Ranch, west of intersection of Los Osos Valley Road and U.S. 101, just outside city limits of San Luis Obispo (CNDDDB, 2007)
Blochman's leafy daisy <i>Erigeron blochmaniae</i> ssp. <i>blochmaniae</i>	-- / -- / List 1B	Coastal dunes	A	Pismo Beach State Park (CNDDDB, 2007)
Brewer's spineflower <i>Chorizanthe breweri</i>	-- / -- / List 1B	Chaparral, cismontane woodland, coastal scrub, closed-cone coniferous forest	P	Price Canyon Road about 1 mile southwest of Highway 227, south of San Luis Obispo (CNDDDB, 2007)
Cambria morning-glory <i>Calystegia subacaulis</i> ssp. <i>episcopalis</i>	-- / -- / List 1B	Chaparral, cismontane woodland	P	Northwest of SLO County Airport, Tank Farm Road vicinity (CNDDDB, 2007)
Chorro creek bog thistle <i>Cirsium fontinale</i> var. <i>obispoense</i>	FE/ SE / List 1B	Chaparral, cismontane woodland, and serpentine seeps	P	Froom Ranch, west of Los Osos Valley Road, South of San Luis Obispo (CNDDDB, 2007)
Congdon's tarplant <i>Centromadia parryi</i> ssp. <i>congdonii</i>	-- / -- / List 1B	Valley and foothill grassland	P	Northwest of SLO County Airport, Tank Farm Road vicinity (CNDDDB, 2007)
Fuzzy prickly phlox* <i>Leptodactylon californicum</i> ssp. <i>tomentosum</i>	-- / -- / List 4	Chaparral, coastal dunes and scrub	P	Species observed during botanical surveys conducted on-site (Levine Fricke, 2002)
Hoover's bent grass * <i>Agrostis hooveri</i>	-- / -- / List 1B	Chaparral and grassland	P	Species observed during botanical surveys conducted on-site (Levine Fricke, 2002)
Hoover's button-celery <i>Eryngium aristulatum</i> var. <i>hooveri</i>	-- / -- / List 1B	Vernal pools	A	Northwest of SLO County Airport, Tank Farm Road vicinity (CNDDDB, 2007)
Indian knob mountainbalm <i>Eriodictyon altissimum</i>	FE / SE / List 1B	Chaparral, cismontane woodland	P	Indian knob, about 4 miles north of Pismo and 3 miles south of San Luis Obispo (CNDDDB, 2007)
Jones's layia <i>Layia jonesii</i>	-- / -- / List 1B	Chaparral, valley foothill grassland	P	1.75 mile southwest of San Luis Obispo (CNDDDB, 2007)

**Table 5.3-3. (Continued)**

Common Name Scientific Name	Status	Habitat	Habitat Present/ Absent	Nearest Known Location
Leafy tarplant <i>Deinandra increscens</i> ssp. <i>foliosa</i>	-- / -- / List 1B	Valley and foothill grassland	P	Immediately NE of Lopez Reservoir (CNDDDB, 2007)
Marsh sandwort <i>Arenaria paludicola</i>	FE / SE / List 1B	Marshes and swamps	A	Pismo Beach, San Luis Obispo County (CNDDDB, 2007)
Mesa horkelia <i>Horkelia cuneata</i> ssp. <i>puberula</i>	-- / -- / List 1B	Chaparral, cismontane woodland, coastal scrub	P	Approx. 1 mile NE of Pismo Beach (CNDDDB, 2007)
Morro manzanita <i>Arctostaphylos morroensis</i>	FT / -- / List 1B	Chaparral, cismontane woodland, coastal dunes, coastal scrub	P	Edge of Prefumo Canyon Road in Prefumo Canyon, Southwest of San Luis Obispo (CNDDDB, 2007)
Obispo Indian paintbrush <i>Castilleja densiflora</i> ssp. <i>obispoensis</i>	-- / -- / List 1B	Valley and foothill grassland	P	East of Pismo Creek, near eastern boundary of Pismo Beach (CNDDDB, 2007)
Pecho manzanita <i>Arctostaphylos pechoensis</i>	-- / -- / List 1B	Closed cone coniferous forest, chaparral, and coastal scrub	P	Davis Canyon, Irish Hills (CNDDDB, 2007)
Pismo clarkia * <i>Clarkia speciosa</i> ssp. <i>immaculata</i>	FE / SR / List 1B	Chaparral, cismontane woodland, valley and foothill grassland	P	Species observed on-site during botanical surveys (Padre, 2003 & 2007; Levine Fricke, 2001 & 2006)
Saint's Daisy* <i>Erigeron sanctarum</i>	-- / -- / List 4	Chaparral, cismontane woodland and coastal scrub	P	Species observed during botanical surveys conducted on-site (Levine Fricke, 2002)
San Luis mariposa lily <i>Calochortus obispoensis</i>	-- / -- / List 1B	Chaparral, coastal scrub, valley and foothill grassland	P	Western ridge of Indian Knob, about 4 miles north of Pismo Beach (CNDDDB, 2007)
San Luis Obispo County lupine <i>Lupinus ludovicianus</i>	-- / -- / List 1B	Chaparral, cismontane woodland	P	Hills north of Price Canyon, north of Pismo Creek, NNE of Pismo Beach (CNDDDB, 2007)
San Luis Obispo dudleya <i>Dudleya abramsii</i> ssp. <i>murina</i>	-- / -- / List 1B	Chaparral, cismontane woodlands, associated with serpentine outcrops	A	Approx. 4 miles north of Avila Beach, north slope of See Canyon, (CNDDDB, 2007)
San Luis Obispo mariposa lily <i>Calchortus simulans</i>	-- / -- / List 1B	Valley and foothill grassland, cismontane woodland, chaparral	P	Approx. 4 miles north of Avila Beach, on La Quinta de Avila Ranch (CNDDDB, 2007)
Santa Lucia manzanita <i>Arctostaphylos luciana</i>	-- / -- / List 1B	Chaparral	P	1.75 miles NNE of Slide Hill, East of San Luis Obispo (CNDDDB, 2007)
Santa Margarita manzanita <i>Arctostaphylos pilosula</i>	-- / -- / List 1B	Closed-cone coniferous forest, and chaparral.	P	Vicinity of Indian Knob, about 3.5 miles NNW of Pismo Beach, South of San Luis Obispo (CNDDDB, 2007)
Straight-awned spineflower <i>Chorizanthe rectispina</i>	-- / -- / List 1B	Chaparral, cismontane woodland, coastal scrub	P	Just west of Carpenter Canyon Road, about 0.5 north of Printz Road (CNDDDB, 2007)

**Table 5.3-3. (Continued)**

Common Name Scientific Name	Status	Habitat	Habitat Present/ Absent	Nearest Known Location
Surf thistle <i>Cirsium rhotophilum</i>	-- / ST / List 1B	Coastal dunes, costal bluff scrub	A	Pismo Beach (CNDDDB, 2007)
Well's manzanita * <i>Arctostaphylos wellsii</i>	-- / -- / List 1B	Chaparral, closed-cone coniferous forest	P	Species observed during botanical surveys conducted on site (Padre, 2003 & 2007)

Status Codes:

- FE Federal Endangered (U.S. Fish and Wildlife Service [USFWS])
- FT Federal Threatened (USFWS)
- List 1B Plants rare, threatened, or endangered in California and elsewhere (CNPS)
- List 4 "Watch list" for plants of limited distribution (CNPS)
- SE State Endangered (CDFG)
- ST State Threatened (CDFG)
- SR State Rare (CDFG)
- \* Species observed during recent surveys (Padre 2003, 2007 Levine Fricke 2002)

To determine the presence and/or absence of the special-status plant species listed in Table 5.3-3 above, a focused botanical survey of the project site and proposed pipeline routes was conducted on May 24 and 30, 2007, during the typical flowering period for the majority of the species listed. For a complete listing of vascular flora observed within the project site, please refer to Appendix E.

Special-status plant species that could potentially occur within the project site based on known occurrences within the vicinity of Price Canyon or adjacent portions of San Luis Obispo County included Blochman's dudleya, Brewer's spineflower, Jones' layia, San Luis mariposa lily, Chorro creek bog thistle, Congdon's tarplant, and leafy tarplant. However, none of these species were observed during the 2007 botanical surveys conducted within the project area or during past botanical surveys conducted by Padre in 2003, Levine Fricke in 2000, 2002 and SAIC in 1994.

In addition, Well's manzanita was the only species of *Arctostaphylos* identified in the project area and represents the dominant component of the Central maritime chaparral habitat occurring within the site. Therefore, Morro manzanita, Santa Margarita manzanita, Pecho manzanita, and Santa Lucia manzanita are not expected to occur within the project site. Moreover, special-status plant species associated with specific habitats types such as surf thistle, beach spectaclepod, La Graciosa thistle, and marsh sandwort were not observed during surveys and are not expected to occur within the site due to the lack of suitable habitat (i.e., require coastal foredune and marsh habitat, which is not present within the project site).

Two special-status plant species were observed on the project site during the 2007 botanical surveys including Pismo clarkia and Well's manzanita. Additionally, Hoover's bent grass and Saint's daisy were previously identified and mapped within the project area by Levine Fricke (2002). The locations of these plant species are illustrated on the following Figure 5.3-2.

It should be noted that the location of the Well's manzanita has not been identified on Figure 5.3-2 because of its dominance in the Central maritime chaparral habitat.

In addition, fuzzy prickly phlox was identified within the vicinity of the project site by Levine Fricke (2002); however, outside the proposed impact areas of the project. Further, the manzanita-dominated chaparral occurring along the proposed pipeline route in the southern portion of the site is potentially suitable habitat for Indian Knob mountainbalm, which is known to occur just northwest of the site. San Luis Obispo County lupine would also be expected on thin, sandy soils of the chaparral and is known to occur approximately one mile north of Price Canyon (Levine Fricke, 2002). However, none of these three sensitive plant species were observed during the 2003 or 2007 botanical field surveys.

For the purposes of impact analysis, the following briefly presents the legal status and applicable ecological and range information for those special-status plant species identified within the proposed impact areas and for those that have a high likelihood of occurrence:

- **Pismo Clarkia (*Clarkia speciosa* spp. *immaculata*).** The Pismo clarkia is an annual herb that typically blooms from May to June, and is only known from four extant occurrences (CNPS, 2001). It is Federally listed as endangered, California listed as rare, and is on the CNPS List 1B for plants rare, threatened or endangered in California and elsewhere. Pismo clarkia typically occurs within chaparral, cismontane, and grassland habitats and is generally closely associated with oak woodland habitat. Many occurrences of Pismo clarkia were noted within the project site, most commonly within areas of annual grassland located along the perimeter of oak trees road cuts and within the proposed water reclamation facility building site and tempering pond location (see Figure 5.3-2).
- **Black-flowered figwort (*Scrophularia atrata*).** Black-flowered figwort is a Federal species of concern and is a CNPS list 1B species. This species typically occurs in chaparral, coastal dunes, and riparian scrub habitat and is most commonly associated with rock outcroppings. Black-flowered figwort is a tall, perennial herb that blooms from April through June. Suitable habitat to support this species exists in several locations within the project area. In addition, black-flowered figwort was identified on-site during previous botanical surveys (Padre, 2003). However, this species was not observed within the proposed project impact areas during the 2007 botanical surveys.
- **Well's manzanita (*Arctostaphylos wellsii*).** Well's manzanita is a CNPS list 1B species and is endemic to San Luis Obispo County. This chaparral shrub species blooms from December to April and occurs primarily on the Pismo sandstone formation in southern San Luis Obispo County (SAIC, 1994). As stated above, this species represents the dominant shrub within the maritime chaparral habitat of the project area and occurs around the proposed construction staging area, north of the proposed water reclamation facility and along the proposed pipeline route that traverses the southern portion of the project site.

- **Hoover's bent grass (*Agrostis hooveri*).** Hoover's bent grass is a CNPS List 1B species. This species occurs in chaparral, cismontane woodland, valley foothill grassland communities with sandy substrate. Hoover's bent grass is a tufted perennial that typically flowers during the month of June (Skinner and Pavlik, 1994). Hoover's bent grass was identified by Levine Fricke (2002) on road cuts on the western portion of the site, on thin soil at the margins of oak canopies (see Figure 5.3-2). However, this species was not observed within the proposed project impact areas during the 2007 botanical surveys.
- **Saint's daisy (*Erigeron sanctarum*).** Saint's daisy is a CNPS List 4 species. This species is a small herbaceous perennial in the sunflower family (Asteraceae), which occurs in chaparral, cismontane woodland and coastal scrub communities at elevations below 300 meters. The blooming period for this species is typically from March to July. Saint's daisy was identified by Levine Fricke (2002) adjacent to a road cut within the eastern portion of the site (see Figure 5.3-2). However, this species was not observed within proposed project impact areas during the 2007 botanical surveys.
- **Fuzzy prickly phlox (*Leptodactylon californicum* ssp. *tomentosum*).** Fuzzy prickly phlox is a CNPS List 4 species. This species is a small herbaceous perennial in the phlox family (Polemoniaceae), which typically occurs in openings within chaparral habitat on dry hillsides at elevations up to 1500 meters. The blooming period for this species is typically from February to May. Fuzzy prickly phlox was identified outside the proposed impact areas by Levine Fricke (2002).
- **Indian Knob mountainbalm (*Eriodictyon altissimum*).** Indian knob mountain balm is a Federal and State endangered plant species, and a CNPS List 1B species. This species is a woody shrub in the waterleaf family (Hydrophyllaceae), which typically occurs along sandstone ridges and chaparral habitat in southwest San Luis Obispo County at elevations at approximately 250 meters. The blooming period for this species is typically from March to June and it has the potential to occur within chaparral habitat areas along the proposed pipeline route in the southern portion of the site.
- **San Luis Obispo County lupine (*Lupinus ludovicianus*).** San Luis Obispo County lupine is a Federal species of concern and a CNPS List 1B species. This species is a small herbaceous perennial in the pea family (Fabaceae) and is endemic to San Luis Obispo County. It typically occurs in open grasslands and oak woodland habitat up to 500 meters. The blooming period for this species is typically from April to June and it has the potential to occur the within adjacent oak woodland habitat areas of the site.

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**Figure 5.3-2. Distribution of Special-Status Plant Species**

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- **Special Status Wildlife Species.** For the purposes of this project, special-status wildlife species are defined in Table 5.3-4. Literature research and field surveys conducted for this impact analysis indicates that 22 special-status wildlife species have the potential to occur in the vicinity of project components. Information regarding regulatory status and known location of these species relative to project components is provided in Table 5.3-5. Additional discussion of special-status wildlife species is provided below.

**Table 5.3-4. Definitions of Special-Status Wildlife Species**

Special-Status Animal Species
➤ Animals listed or proposed for listing as threatened or endangered under the Federal Endangered Species Act (50 CFR 17.11 for listed animals and various notices in the Federal Register for proposed species).
➤ Animals that are candidates for possible future listing as threatened or endangered under the Federal Endangered Species Act (Federal Register Vol. 71, No. 176, pp. 53756-53835, September 12, 2006).
➤ Animals that meet the definitions of rare or endangered species under the CEQA ( <i>State CEQA Guidelines</i> , Section 15380).
➤ Animals listed or proposed for listing by the State of California as threatened and endangered under the California Endangered Species Act (14 CCR 670.5).
➤ Animal species of special concern to the CDFG (Remsen, 1978 for birds; Williams, 1986 for mammals).
➤ Animal species that are fully protected in California (California Fish and Game Code, Section 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).

**Table 5.3-5. Special-Status Wildlife Species Potentially Occurring within the Project Area**

Common Name Scientific Name	Status	Nearest Known Occurrence(s)
<b>Invertebrates</b>		
Monarch butterfly <i>Danaus plexippus</i>	SA	Pismo Dunes State Vehicular Recreation Area District Office, Grover Beach (CNDDDB, 2007)
Sandy beach tiger beetle <i>Cicindela hirticollis gravida</i>	SA	Pismo Beach (CNDDDB, 2007)
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT	Northwest of SLO County Airport, Tank Farm Road vicinity (CNDDDB, 2007)
<b>Fish</b>		
South-central California coast steelhead* <i>Oncorhynchus mykiss irideus</i>	FT, CSC	Pismo Creek and West Corral de Piedra Creek, Price Canyon (CNDDDB, 2007)
Tidewater goby <i>Eucyclogobius newberryi</i>	FE, CSC	Pismo Creek (from mouth to 1.0 mile upstream), Pismo Beach (CNDDDB, 2007)
<b>Reptiles</b>		
California horned lizard <i>Phrynosoma coronatum frontale</i>	CSC	El Chorro Regional Park, San Luis Obispo County (CNDDDB, 2007); Guadalupe Dunes, San Luis Obispo County (Unocal, 2000)
Southwestern pond turtle* <i>Clemmys marmorata pallida</i>	CSC	Species observed in Pismo Creek during field surveys (Padre, 2007)
Two striped garter snake <i>Thamnophis hammondi</i>	CSC	Cuyama River, Los Padres National Forest (CNDDDB, 2003)

**Table 5.3-5. (Continued)**

Common Name Scientific Name	Status	Nearest Known Occurrence(s)
<b>Amphibians</b>		
California red-legged frog <i>Rana aurora draytonii</i>	FT, CSC	Unnamed tributary to Pismo Creek, 1.5 miles north of Pismo Beach (CNDDDB, 2007)
<b>Birds</b>		
Western snowy plover <i>Charadrius alexandrinus nivosus</i>	FT (nesting), CSC (nesting), M	Pismo State Beach (CNDDDB, 2007)
California least tern <i>Sterna antillarum browni</i>	FE (nesting colony), SE (nesting colony), M	Pismo State Beach (Padre, 2003)
Brown pelican <i>Pelecanus occidentalis</i>	FE (nesting colony), SE (nesting colony), M	Pismo State Beach (Padre, 2003)
Golden eagle* <i>Aquila chrysaetos</i>	CSC (nesting), FP, M	Observed during 2007 surveys conducted on-site.
Cooper's hawk * <i>Accipiter cooperii</i>	CSC (nesting), M	Observed during 2003 surveys conducted on-site.
American peregrine falcon * <i>Falco peregrinus anatum</i>	SE (nesting), FP, M	Observed during 2003 surveys conducted on-site.
Loggerhead shrike <i>Lanius ludovicianus</i>	CSC (nesting), M	Observed on site during previous survey (ERCO, 1981)
Northern harrier <i>Circus cyaneus</i>	CSC (wintering), M	Known from region; nearest occurrence unknown
Sharp-shinned hawk <i>Accipiter striatus</i>	CSC (nesting), M	Known from region; nearest occurrence unknown
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	SE (nesting), M	Known from region; nearest occurrence unknown
Yellow warbler* <i>Dendroica petechia</i>	CSC (nesting), M	Recorded at Pismo Beach and Oceano (SAIC, 1994)
<b>Mammals</b>		
San Diego desert woodrat <i>Neotoma lepida intermedia</i>	CSC	Green Peak, approximately 1.5 miles southeast of Diablo Canyon (CNDDDB, 2003)
Southern sea otter <i>Enhydra lutris nereis</i>	FT, FP	Pismo State Beach (Padre, 2003)
American badger <i>Taxidea taxus</i>	CSC	Price Canyon Road, 3 miles north of Pismo Beach (CNDDDB, 2007)

Status Codes: FE Federal Endangered (USFWS)  
 FT Federal Threatened (USFWS)  
 FC Federal Candidate Species (USFWS)  
 SE State Endangered (CDFG)  
 ST State Threatened (CDFG)  
 CSC California Species of Special Concern (CDFG)  
 FP Fully Protected under California Fish and Game Code  
 SA Special animal (CDFG)  
 M Protected under the Migratory Bird Treaty Act of 1918  
 \* Species observed during recent surveys (Padre 2003 & 2007)

For the purposes of impact analysis, the following briefly presents the legal status and applicable ecological and range information for those special-status wildlife species identified within the proposed impact areas and/or for those that have a high likelihood of occurrence based on the presence of suitable habitat. Special-status wildlife species associated with coastal and/or marine habitats located west of the project area such as the southern sea otter, least tern, western snowy plover, brown pelican, and sandy beach tiger beetle were not observed during surveys and are not expected to occur within the site due to the lack of suitable habitat. In addition, no vernal pools are present within the project site; therefore, vernal pool fairy shrimp are not expected to occur within the site due to lack of suitable habitat.

#### Invertebrates

- **Monarch butterfly (*Danaus plexippus*).** The overwintering habitats for the monarch butterfly are considered to be of special concern by CDFG. This species is known to roost in winter (usually in dense concentrations) within groves of eucalyptus or pine trees. Autumnal roosts are abandoned early (November or December) by individuals seeking more favorable conditions, while permanent roosts begin forming in October and persist into February. There are several known eucalyptus woodland monarch butterfly roosting areas located within coastal San Luis Obispo County. The nearest known overwintering location to the project area is in Pismo Beach. Several groves of eucalyptus occur within the site however no monarch congregations were observed during the numerous field surveys conducted by Padre and Levine Fricke.

#### Fish

- **South-central California coast steelhead (*Oncorhynchus mykiss irideus*).** Steelhead trout are the anadromous form of rainbow trout (McEwan and Jackson 1996). Steelhead historically ranged from Alaska southward to the California-Mexico border, though current data suggests that the Ventura River is presently the southernmost drainage supporting substantial steelhead runs. Periodically, steelhead are reported within the Santa Clara River and Malibu Creek. Southern steelhead are important in that they represent the southernmost portion of the native steelhead range in North America, having ecologically and physiologically adapted to seasonally intermittent coastal California streams. Optimal habitat for steelhead throughout its entire range on the Pacific Coast can generally be characterized by clear, cool water with abundant instream cover (e.g., submerged branches, rocks, logs), well-vegetated stream margins, relatively stable water flow, and a 1:1 pool-to-riffle ratio (Raleigh *et al.* 1984). However, steelhead are occasionally found in reaches of streams containing habitat which would be considered less than optimal. Steelhead within the central coast region begin moving up coastal drainages (including Pismo Creek) following the first substantial rainfall of the fall season typically entering freshwater from December to March. It is for this reason that the south-central California coastal steelhead trout are considered winter run fish. Spawning typically occurs in the spring in pool tail or riffle areas that consist of clean coarse gravels. Deposited eggs incubate for approximately 3 to 4 weeks, with

hatched fry rearing within the gravel interstices for an additional 2 to 3 weeks. Emergent fry rear at the stream margins near overhanging vegetation. Juveniles (smolts) after rearing for 1 to 3 years within freshwater, and post-spawning adults out-migrate to the ocean from March to July, depending on stream flows. Therefore, juvenile steelhead can be found within Pismo Creek at all times of the year, while adults are more likely to be found from February to July.

All populations of steelhead occurring within the south-central California coast Distinct Population Segment (DPS) Region - which is defined as that geographic region north of the Santa Maria River, northward to (and including) the Pajaro River (and its tributaries), Santa Cruz County, were listed as Federally Threatened by the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) in August 1997 (62 FR 43937, August 18, 1997; 71 FR 834, January 5, 2006). The NMFS (a.k.a. NOAA Fisheries) lists habitat deterioration due to sedimentation and flooding related to land management practices, and potential genetic interaction with hatchery rainbow trout, as risk factors to steelhead within the south-central California coast DPS. As such, this species is protected under the FESA.

Critical habitat designations have been established to protect steelhead in Pismo Creek. Critical habitat as defined by NOAA Fisheries is any physical or biological feature that is essential to the conservation of the species including space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover for shelter; sites for breeding, reproduction, and habitats that are protected from disturbance or are representative of the historical geographical and ecological distribution of a species (50 FR No. 226 / September 2, 2005).

Steelhead typically require cool, clear flowing water with clean gravel in which to spawn. Their primary food source, benthic macroinvertebrates (BMI) also require these general habitat conditions. During 2007 field visit(s), clean gravel within the stream channel only occurred immediately downstream of several existing beaver dams which had concentrated the water flow and subsequently kept small portions of gravel and small cobble clean. It is unknown how many beavers reside in the vicinity of the project site; however, beavers can be both beneficial and detrimental to steelhead. Specifically, they have the tendency to create large ponds which provide good over-summering rearing habitat for steelhead smolts, however these ponds also allow for fine sediments to deposit in the creek bed further decreasing the localized BMI productivity available to steelhead for consumption. BMI samples collected by Entrix in 2006 indicated a lack of Plecoptera (pollution intolerant species) within project area, and a dominance of BMI species within the mid-range for pollution tolerance. Snorkel surveys identified a thick layer of silt and algae within the vicinity of the existing beaver dams. Due to the poor visibility, accurate in-depth steelhead counts were unattainable, however several steelhead fry (~1-inch total length) were observed in the vicinity of the project site indicating spawning of steelhead had obviously been successful in 2007 despite the existing marginal

conditions. Additionally, one juvenile steelhead was observed beneath an undercut bank within the immediate vicinity of the proposed facility outfall location.

The adjoining landowner immediately downstream of the PXP property has a cattle operation and there is no riparian fencing increasing current sediment and nutrient loading of this portion of the creek. No beavers or signs of beavers were observed during field surveys at this location and the habitat was of better quality. The existing pools were not completely silted-in and riffle habitat was present increasing the potential available BMI productivity. Further downstream, Pismo Creek becomes more entrenched and flows through a bedrock section. Land use practices adjacent to the lower 1-mile of Pismo Creek that may impact water quality or quantity are recreation (Price House Historic Property), a sewage treatment facility, residential developments. Ultimately, the creek enters Pismo Estuary which transects the City of Pismo Beach. Current upstream land uses coupled with impacts from the urban setting of the City of Pismo have resulted in substantially decreased water quality conditions in the estuary. The estuary is an important feature for both listed steelhead and tidewater goby (see discussion below) in the watershed. It is the location where smoltification of salmonids begins to allow the next phase of the lifecycle to be completed and also contains most of the spawning and rearing habitat for the tidewater goby. Current low flow conditions through the estuary increases temperature, decreases water quality, and has the potential to prevent migration of anadromous fish to the ocean due to build-up of large sand bars which close the mouth of the estuary.

In summary, south-central California coast steelhead are known to occur throughout the Pismo Creek watershed and were observed during the 2007 field surveys within 500 feet of the proposed outfall (Padre, 2007).

- **Tidewater goby (*Eucyclogobius newberryi*).** The tidewater goby, is a small fish, rarely exceeding 2-inches in length, and is characterized by large pectoral fins, a blunt elongate tail, and a ventral “sucker-like” disk formed by the complete fusion of the pelvic fins. The tidewater goby is a mottled dark olive color and is nearly translucent. The best field mark for identifying tidewater goby is the transparent, whitish or yellowish triangular area on the upper 1/4 to 1/3 of the first, spinous dorsal fin (USFWS, 2005). The tidewater goby, found only in California, is almost unique among fish along the Pacific coast in its restriction to brackish waters of coastal wetlands. It historically occurred in at least 87 California coastal lagoons from San Diego County to Humboldt County; however has disappeared from most of these sites.

Tidewater goby habitat consists of brackish shallow lagoons and lower stream reaches where the water is fairly still, but not stagnant. The Pismo Creek estuary is a location identified to currently support tidewater goby, which have been documented in water with salinity levels typically less than 12 parts per thousand (ppt), temperature levels from 35 to 73 degrees Fahrenheit (F°), and water depths typically less than four feet. The tidewater goby apparently spends all life stages in lagoons. It may enter the marine environment only when forced out of the lagoon by

strong storms and migrate up tributaries in close proximity to the estuary for spawning purposes. Reproduction occurs year-round although distinct peaks in spawning, often in April and May, do occur. Female tidewater goby lay 6 to 12 clutches of eggs per year (Swenson, 1999). When breeding, males dig vertical burrows for females to deposit eggs. Within nine to ten days larvae emerge and are approximately ¼-inch in length. The larvae inhabit vegetated areas within the lagoon until they are about ¾-inch in length.

The tidewater goby is regulated by the USFWS and was proposed for listing under the ESA as endangered in March 1994 (59 FR 5494, March 7, 1994). Tidewater goby populations within the Central Coast Unit (CC) are those located from the Big Sur Coast south through San Luis Obispo County. The Sub-Unit CC3 completes coverage of San Luis Obispo county from Estero Point north of Morro Bay to the southern county line (Santa Maria River begins Santa Barbara County) which contains Pismo Creek.

Critical habitat designations have been established to protect tidewater goby populations. Critical habitat includes the stream channels and their associated wetlands, flood plains and estuaries. These habitat areas provide the primary biological needs of foraging, shelter, reproduction, and dispersal which are essential for the conservation of the tidewater goby (USFWS, 2005). Initially critical habitat was designated only for San Diego and Orange counties (65 FR 69693, November 20, 2000). Subsequently critical habitat has been proposed for other coastal California counties including San Luis Obispo County (71 FR68913, November 28, 2006). Although no tidewater goby were observed during surveys of the site, they are known to occur within the Pismo Creek estuary.

### Reptiles

- **California horned lizard (*Phrynosoma coronatum frontale*).** The California horned lizard is a Federal species of concern and a California species of special concern that occurs in a variety of open habitats that provide sites for basking, sandy or sandy-loam substrates in which night-time burial can occur, and have a suitable prey base (the species feeds almost exclusively on native ants). It was historically distributed throughout the Central and Coast Range, but now occurs at scattered, disjunct locations within this range. The California coast horned lizard produces clutches of 6 to 21 eggs from May to June and hatching typically occurs in August and September. The chaparral habitat areas of the project site may provide suitable habitat for this species, thus vegetation clearing activities during construction of the proposed facility and associated pipeline routes has the potential to result in impacts to this species.
- **Southwestern pond turtle (*Clemmys marmorata pallida*).** The southwestern pond turtle is a Federal species of concern and a California species of special concern. It is an aquatic turtle inhabiting streams, marshes, ponds, and irrigation ditches within woodland, grassland, and open forest communities. However, it requires upland sites for nesting and over-wintering. Stream habitat must contain large, deep pool

areas (six feet) with moderate-to-good plant and debris cover, and rock and cobble substrates for escape retreats. The southwestern pond turtle is known to occur within the Pismo Creek watershed and was observed approximately 500 feet downstream of the proposed facility outfall location during field surveys (Padre, 2007). As such, the proposed project has the potential to result in direct impacts to this species during project implementation, as well as potential long-term impacts due to operation of the facility.

- **Two-striped garter snake (*Thamnophis hammondi*).** The two-striped garter snake is a California species of special concern which is highly aquatic and is typically found near permanent fresh water streams associated with willow habitat. Small mammal burrows are used as over-wintering sites for the snake (Jennings, 1994). This species occurs historically and currently throughout southern California streams, including the central coast. Existing habitat throughout the Pismo Creek watershed is suitable for this species to occur. Due to the mobility of this species and tendency to inhabit upper banks of riparian corridors, direct impacts to this species may occur during vegetation clearing within the vicinity of Pismo Creek or nearby habitats. Additionally, the proposed project has the potential to result in long-term impacts to this species due to operation of the facility.

#### **Amphibians**

- **California red-legged frog (*Rana aurora draytonii*)** is a Federally listed threatened species and a California species of special concern. It formerly ranged from northern California south along the Pacific Coast, west of the Cascade Mountains and the Sierra Nevada, to northern Baja California at elevations from near sea level to 8,000 feet. Populations remain in the San Francisco Bay Area, along the California coast, and the western edge of the Central Valley.

The California red-legged frog (CRLF) occurs in different habitats depending on their life stage and season. All stages are most likely to be encountered in and around breeding sites, which include coast lagoons, marshes, springs, permanent and semi-permanent natural ponds, ponded and backwater portions of streams, as well as artificial impoundments such as stock ponds, irrigation ponds, and siltation ponds. They require dense and extensive vegetative cover of emergent and bank vegetation including willow (*Salix* sp.), cattail (*Typha* sp.), and bulrush (*Scirpus* sp.), as occurs within the project site. The presence of one or all of these plants is an important indicator that the site may provide foraging or breeding habitat (USFWS, 1997). The largest CRLF densities are associated with deep-water pools with dense stands of overhanging willows and an intermixed fringe of cattails (Jennings and Hayes, 1994).

CRLFs breed from November through March. The female lays between 2,000 to 5,000 eggs in clusters attached to emergent and submergent vegetation in ponds and backwater pools in creeks. The tadpoles remain in this habitat until they metamorphose in the summer between 11 and 20 weeks after hatching. Young frogs can occur in slow moving, shallow riffle zones in creeks or along the margins of ponds.

Based upon the presence of suitable habitat within the proposed tempering pond and Pismo Creek, protocol-level CRLF surveys were performed within the project site by Padre in 2007 using the *Revised Guidance on site Assessments and Fields Surveys for California Red-legged Frog* (USFWS, 2005). As required, this included four night surveys and two day surveys in the breeding season (Jan. 1 through June 30) and one night survey and one day survey within the non-breeding season (July 1 through Sept. 30). Although no CRLFs were identified on-site during protocol-level surveys (see Appendix E), the CRLF is known to occur downstream of the project site in an unnamed tributary to Pismo Creek approximately 0.2-mile upstream from the Pismo Creek confluence, 1.5 miles north of Pismo Beach, and suitable habitat exists within those portions of Pismo Creek bordering the project site. Thus, direct impacts to this species may occur during project implementation due to vegetation clearing within the vicinity of Pismo Creek or nearby habitats. Additionally, the proposed project has the potential to result in long-term impacts to CRLF due to operation of the facility. .

#### Birds

- **Golden Eagle (*Aquila chrysaetos*).** Golden eagle occurs as an uncommon breeding resident throughout the state including San Luis Obispo County with the exception of the valley floor of the Central Valley. The species is a fully protected species within California (under §3511 of the California Fish and Game Code). As such the species cannot be taken at anytime and permits authorizing take cannot be issued. Nest sites are generally located on secluded cliffs or in large trees in rugged, open canyons or on escarpments. Nesting occurs from January through August with peak activity occurring during March through July. Nest territories have been documented ranging in size from 22 to 74 square miles where size is probably a function of prey density and the openness of the habitat surrounding the nest site (which affects prey availability during hunting). An active golden eagle nesting site was observed along the southern boundary project site during the 2007 survey (i.e., rocky outcrop located immediately southeast of Ormonde Road); therefore the proposed project has the potential to result in short-term impacts this species during implementation.
- **Cooper's hawk (*Accipiter cooperii*).** Cooper's hawk is considered a California species of special concern during nesting periods, primarily due to the loss of riparian nesting habitat. Preferred nesting habitat consists of dense stands of coast live oak, riparian or other forest habitat located near water. This species is an uncommon permanent resident and fairly common fall transient along the coast. Cooper's hawk was identified within the oak woodland habitat area during the Padre 2003 field surveys conducted within the project area.
- **American peregrine falcon (*Falco peregrinus anatum*).** American peregrine falcon is considered a State endangered species and a Federal species of concern during nesting periods. Peregrine falcons nest on rugged cliffs and human-made structures in the interior and along the coast of California, and it is an uncommon migrant and breeder in the state. Peregrine falcons may forage for medium-sized

birds in almost any habitat except for dense forest. Although the peregrine falcon may rarely fly over the area, potential nesting habitat exists on nearby cliffs within the project area, and one was observed foraging during field surveys of the site.

- **Loggerhead shrike (*Lanius ludovicianus*).** Loggerhead shrike is considered a Federal species of concern and a California species of special concern, during nesting periods. The species generally occurs in a variety of open grassland, oak savannah, shrub-land, and other similar habitats where it feeds primarily on large insects (e.g., grasshoppers). However, the species may also occasionally take small reptiles, birds, and mammals. Loggerhead shrikes nest during March to June with young becoming independent during July or August. The nest is generally well-concealed on a stable branch in a densely-foliaged shrub or tree. This species was identified on-site during previous surveys (SAIC, 1994).
- **Northern harrier (*Circus cyaneus*).** Northern harrier is a California species of special concern during nesting periods. Nesting sites are typically located within a mound of dead reeds and grass within a marsh or shrubby meadow. Northern harrier typically forages in grassland or wetland habitats where it feeds on mice, rats and frogs. The northern harrier is a fairly common winter visitor and occasional breeder within the coastal region (i.e., breeds within Vandenberg AFB), often foraging in open marshes and fields (SAIC, 1994). This species may occasionally utilize the site for the purposes of foraging and as such may be impacted by project implementation.
- **Sharp-shinned hawk (*Accipiter striatus*).** The sharp-shinned hawk is a California species of concern during nesting periods. This species typically builds nests within woodland habitat where they forage on small birds. Sharp-shinned hawks will also occasionally eat small mammals and insects. This species is a fairly common winter visitor and resident along coastal ridges foraging in woodland and semi-open habitats (SAIC, 1994). This species has the potential to occur within the project area during its winter migration.
- **Southwestern willow flycatcher (*Empidonax traillii extimus*).** The southwestern willow flycatcher is a State and Federally listed endangered species during nesting periods. Dense thickets of riparian vegetation provide nesting and foraging habitat for this species. This vegetation typically includes plant species such as willows (*Salix* sp.) and/or seepwillow (*Baccharis* sp.). Southwestern willow flycatcher is an occasional spring and fall transient along riparian woodland in coastal regions. There are no nesting records of this species within the Pismo Creek drainage, though the creek corridor could provide migratory habitat (resting/feeding).
- **Yellow warbler (*Dendroica petechia brewsteri*).** The yellow warbler is a California species of special concern during nesting periods. This species typically nests within riparian woodland habitat of the coastal foothills from mid-April to early August. Yellow warbler forages within riparian woodland habitats by gleaning the bark of riparian vegetation for insects; however, the species will occasionally eat berries. Within San Luis Obispo County, this species is a fairly common summer transient of

deciduous riparian habitats and was observed within Pismo Creek by Padre during the 2007 surveys.

### Mammals

- **San Diego desert woodrat (*Neotoma lepida intermedia*).** San Diego desert woodrat is a California species of special concern. This species typically constructs a nest structure with twigs, sticks, cactus parts, and various other materials. San Diego desert woodrat houses are generally built against rock outcrops or at the base of cactus (Whitaker, 1998). Nests are used for nesting, food caching, and predator escape. Numerous woodrat nests were observed throughout the oak woodland and chaparral habitats of the project site during field surveys. The project site is located near the extreme northern boundary of the desert woodrat's range, it is normally found in more arid habitats commonly associated with cactus scrub and rocky outcrops. Observed woodrat nests were constructed at the base of oak trees and various shrubs including Well's manzanitas and were characteristic of the dusky-footed woodrat, which is a common species throughout San Luis Obispo County. Therefore, San Diego desert woodrat is unlikely to occur at the project site.
- **American badger (*Taxidea taxus*).** The American badger is a California species of special concern. This species typically occurs in drier open stages of most shrub, forest, and herbaceous habitats with friable soils and open, uncultivated ground. The American badger preys on burrowing rodents by digging large, elliptical burrows at the base of rodent dens and waiting for its prey. This species is known to occur along Price Canyon Road, 3 miles north of Pismo Beach, in the vicinity of the project site. Although, no American badgers or evidence of badger activity was observed during the field surveys; this species is expected to occur within the project area.

**Regulated Habitats.** According to the Significant Natural Areas of California (Hoshevsky, 2002), the project site occurs within the 55,165-acre Significant Natural Area (SNA) SLO No. 54 within the Pismo Beach, Arroyo Grande NE, Guadalupe, Nipomo, Oceano, Pismo Beach, Point Sal, and Tar Spring Ridge quadrangles. The SNA contains lands managed by the CDFG, Calif. Dept. of Parks and Recreation, the Nature Conservancy, Air Force, County and City Regional Parks and Reserves, State Lands Commission, and privately owned lands. The SNA contains thirty special-status plant and animal species, and five sensitive plant communities as discussed below in further detail.

The CNDDDB has inventoried natural communities and ranked them according to their rarity and potential for loss. Based on a CNDDDB query for the project area, central foredune, central maritime chaparral, and coastal and valley freshwater marsh are considered sensitive natural communities that have the potential to occur within the project area. However, based on past and recent field surveys, central maritime chaparral and coastal and valley freshwater marsh are the only sensitive habitats existing within the project area. Specifically, central maritime chaparral has been ranked by the CNDDDB globally as G2, and at the State level as S2.2 and coastal and valley freshwater marsh has been ranked by the CNDDDB globally as G3, and at the State level as S2.1. A global sensitivity level of G2 means only 2,000 to 10,000 acres of this habitat exist worldwide and G3 means only 10,000 to 50,000 acres worldwide,

respectively. A State sensitivity of S2 means only 2,000 to 10,000 acres of this habitat exist Statewide and is considered very threatened.

As stated above, Pismo Creek and adjacent riparian habitat areas are known steelhead habitat and are considered an integral component of the south central coast steelhead ESU. On April 30, 2002 the U.S. District Court for the District of Columbia approved a NMFS consent decree withdrawing critical habitat designations for 19 salmon and steelhead populations on the west coast, including those contained in the south central coast steelhead ESU (NOAA, 2003). However, a more thorough analysis of steelhead critical habitat ~~is~~ was conducted by NMFS, which will result in the re-issuance of critical habitat designations for the south central coast steelhead ESU in 2005, including Pismo Creek.

Further, the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 USC 1801 et seq.) requires Federal agencies to identify Essential Fish Habitat (EFH) for any fish species included under a Federal Fishery Management Plan (FMP). EFH is defined as "...those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (NOAA, 1997). Further, "waters" are defined to include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat elements required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" cover a species' full life cycle (NMFS, 1998b). For anadromous species such as steelhead, EFH includes freshwater streams used for spawning and rearing (i.e., Pismo Creek and tributaries).

Prior to any Federal action that would fund, permit, or implement activities that may adversely affect EFH, the Federal action agency is required to consult with the NMFS regarding potential adverse effects of the action on EFH, and respond in writing to NMFS recommendations.

A number of FMPs developed by the Pacific Fishery Management Council exist for the coastal zone of central California including the Coast Pelagics Fishery Management Plan, Pacific Salmon Management Plan, and Pacific Groundfish Fishery Management Plan (NMFS, 1999).

**Wildlife Movement Corridors.** Wildlife migration corridors are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Migration corridors may be local such as between foraging and nesting or denning areas, or they may be regional in nature. Migration corridors are not unidirectional access routes; however, reference is usually made to source and receiver areas in discussions of wildlife movement networks. "Habitat linkages" are migration corridors that contain contiguous strips of native vegetation between source and receiver areas. Habitat linkages provide cover and forage sufficient for temporary habitation by a variety of ground-dwelling animal species. Wildlife migration corridors are essential to the regional ecology of an

area as they provide avenues of genetic exchange and allow animals to access alternative territories as fluctuating dispersal pressures dictate.

Pismo Creek and associated tributaries may play an important role as migration corridors for wildlife species moving within the region and coastal habitat to the west. These migration corridors are especially critical through areas where human activities would otherwise prohibit or impair the movement of species between habitat areas.

### **5.3.3 Impact Analysis**

When development occurs in natural or semi-natural areas, the biological resources of the site and the surrounding area are affected. These effects may take the form of direct impacts, which include habitat loss and fragmentation, introduction of barriers to movement and dispersion, and conversion of native communities to developed conditions. Development may also result in indirect impacts that affect the quality of habitats on and surrounding the project site. These impacts may include the invasion of weedy or landscape plants into natural areas, noise disturbances, and declines in air and water quality. The project sites in and around the Plains Exploration and Production oil facility include areas that have experienced a range of past disturbance from low to high. Consequently, the character of the native communities varies considerably by project element.

#### **5.3.3.1 Thresholds of Significance**

Based on the mandatory findings of significance criteria at Section 15065 and Appendix G of the State CEQA Guidelines (Governor's Office of Planning and Research, 1999), an impact would be significant if any of the following conditions, or potential thereof, would result with implementation of the Proposed Project:

1. A substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game, the U.S. Fish and Wildlife Service, or the National Marine Fisheries Service;
2. A substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulation, or by the California Coastal Commission, California Department of Fish and Game, U.S. Fish and Wildlife Service, or National Marine Fisheries Service;
3. A substantial adverse effect on Federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
4. A substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery site;

5. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan;
6. A substantial reduction of habitat of a fish and wildlife species;
7. Cause the population of a fish or wildlife population to drop below self-sustaining levels;
8. Threaten to eliminate a plant or animal community; and/or,
9. Conflict with any local polices or ordinances protecting biological resources. For the purpose of this report, relevant goals and policies regarding sensitive resources from the San Luis Obispo County Land Use Ordinance (Title 23), San Luis Bay Inland Planning Area Land Use Element, and Agriculture and Open Space Element were used to assess conflicts with local policies. See Chapter 4.0 for detailed discussion of applicable policies and ordinances.

#### 5.3.3.2 Project Impacts

**Short-Term Impacts.** The following are the potential impacts of project implementation occurring during the short-term installation phase of the project (i.e., modification of existing facility and construction of new water treatment facility and associated structures including several pipeline corridors).

**Impact BIO-1:** Construction activities could result in the disturbance of wildlife occupying adjacent habitats.

**Discussion:** Construction will entail the use of heavy equipment and increased human presence throughout the project area. This could potentially disturb wildlife at the construction sites and result in mortality of less mobile species, particularly ground-dwelling (fossorial) species such as California ground squirrel, Botta's pocket gopher, broad-footed mole, and dusky-footed woodrat. More mobile species are likely to be temporarily displaced to alternative habitats until the completion of construction. These short-term construction impacts are considered temporary and less than significant.

**Impact Category:** Class 3

**Thresholds of Significance:** 6, 7, and 8.

**Mitigation Measure:** None required.

**Impact BIO-2:** Construction activities could adversely affect nesting activities of protected migratory birds.

**Discussion:** A number of migratory bird species could potentially nest in the California annual grassland, chaparral (Well's manzanita and Chamise series), coyote brush scrub, California live oak woodland, seasonal and perennial wetlands ([proposed tempering](#)

[pond](#)), riparian woodland ~~-~~habitat areas of the site (Pismo Creek and tributaries). These include ground nesters (northern harrier, horned lark, western meadowlark, and lark sparrow), small tree/shrub nesters (bushtit, American robin, northern mockingbird, house finch, and lesser goldfinch) and several raptors which require large trees for nesting (red-tailed hawk, red-shouldered hawk, etc.). Additionally, an active golden eagle nest was identified within the southern boundary of the project site along an existing cliff face during 2007 surveys. Construction activities resulting in the removal of shrubs and trees and/or ground-clearing activities with heavy equipment could disturb and/or destroy nests, nestlings, or hatchlings, and result in a violation of the Migratory Bird Treaty Act (MBTA) (16 USC 703-712). The Act prohibits, by any means or in any manner, the intentional or unintentional capture, possession, or destruction of any migratory bird, its nest, eggs, young, or parts thereof without a permit issued by the USFWS.

Further, the proposed tempering pond may attract waterfowl and other bird species which could be impacted ~~due to contact with untreated water and/or~~ during periodic maintenance activities resulting in further violations of the MBTA.

**Impact Category:** Class 2

**Thresholds of Significance:** 1 and 4

**Mitigation Measure:** BIO-2: Construction operations shall be conducted prior to the initiation of nesting, or after the completion of nesting to avoid any potential impact to migratory birds. Specifically, the following measures shall be implemented:

- A. Construction operations shall be conducted prior to the initiation of nesting, or after the completion of nesting to avoid any potential impact to migratory birds. Therefore, all clearing, grading, and general construction operations should be conducted between the months of August and March.
- B. If Measure A is infeasible, pre-construction surveys shall be conducted between February 15 and August 15 to identify potential bird and raptor nesting sites:
  - If active nest sites of common bird species protected under the Migratory Bird Treaty Act (e.g., northern mockingbird, house finch, etc.) are observed within the vicinity of the project site, then the project shall be modified and/or delayed as necessary to avoid direct take of the identified nests, eggs, and/or young; and,
  - If active nest sites of raptors and/or species of special concern (e.g., golden eagle, northern harrier, horned lark, etc.) are observed within the vicinity of proposed construction operations, then CDFG shall be contacted to establish the appropriate buffer around the nest site. Construction activities in the buffer zone shall be prohibited until the young have fledged the nest.
- C. The proposed tempering pond shall be designed and constructed with [a low permeability material protective netting](#) ~~to~~ [prevent the growth of vegetation and](#)

discourage the use and potential nesting by waterfowl and other bird species protected under the MBTA. This shall include construction of permanent fencing (i.e., chain-link) around the pond perimeter to prevent debris accumulation and general wildlife use of the structure. In addition, a Tempering Pond Maintenance and Monitoring Plan shall be prepared to ensure that the ~~netted area pond~~ is inspected and maintained for the life of the Produced Water Reclamation Facility in perpetuity with the facility. This shall include provisions for ~~monthly~~ periodic maintenance and monitoring of the ~~netted~~-structure by ~~a qualified biologist~~ facility staff to ensure that the pond is free of vegetation and miscellaneous debris that may attract birds and wildlife ~~no birds are trapped and to capture and release any entangled birds~~ as necessary through the life of the project.

### Residual Impacts

Impact Category = Class 3. Implementation of this mitigation measure will reduce potential impacts to less than significant levels.

**Impact BIO-3:** Construction activities could adversely affect special-status plant and terrestrial animal species potentially occurring in the project area.

**Discussion:** Development of the proposed Produced Water Reclamation Facility will include construction of a water treatment plant and various associated structures. This will include construction of water transmission pipelines for re-use on/off-site, placement of an outfall structure along Pismo Creek, and creation of a smooth-bottom tempering pond within an existing stormwater collection basin. New facilities would be constructed within the existing disturbed plant area, in addition to a two- to three-acre area of oak woodland habitat located west of the existing plant. In addition, water transmission pipelines will be placed subsurface along existing facility roadways or, where feasible, atop existing pipe racks located along facility roadways.

Special-status species occurring in the project area have the potential to be adversely affected by proposed short-term construction activities throughout the project area. Specifically, special-status plant species, including Pismo clarkia and Well's manzanita, have been documented within and/or adjacent to the proposed impact areas (i.e., adjacent to oak woodland habitat and along proposed pipeline routes) and have the potential to be impacted by project operations. Pismo clarkia is widespread within project area and occurs primarily along slopes, road cuts, and within grassland areas bordering oak woodlands. Specifically, approximately 1,500-square feet of Pismo clarkia has been recorded within and/or directly adjacent to the proposed building envelope for the water reclamation facility and numerous individuals were observed along the proposed tempering pond location and water transmission pipeline routes as illustrated on Figures 5.3-2 and 5.3-3. In addition, potential impacts to Well's manzanita located within the vicinity of proposed pipeline routes and within a small area directly west of the proposed equipment staging area (see Figure 5.3-3) could occur during construction activities. However, construction of the proposed water transmission pipelines would remain within previously disturbed facility roadways and pipeline routes. Therefore,

impacts to special-status plant species within these areas should be avoided through project design.

The California horned lizard inhabits the drier and more open areas within the chaparral and scrub vegetation and, as such has the potential to occur within portions of the project site. Specifically, clearing of vegetation including coyote brush scrub and staging of heavy equipment within the vicinity of dense chaparral habitat (i.e., Well's manzanita) during construction of the water reclamation facility and construction of proposed pipeline routes has the potential to result in significant impacts to this sensitive species.

Special-status bird species such as the loggerhead shrike, horned lark, and sharp-shinned hawk could be potentially impacted during construction through the short-term loss of foraging opportunities within areas of construction. The American peregrine falcon and northern harrier could also be affected during breeding season by the short-term disturbance of the open grassland and adjacent woodland habitat areas. The golden eagle and Cooper's hawk are likely to be affected by the short-term disturbance of both foraging habitat and potential and/or known nest sites. Historically, the nesting site for the American peregrine falcon within the vicinity of the project area has been at Shell Beach (SAIC, 1994), however the numerous rocky outcrops and cliff faces occurring within the eastern portion of the site may provide suitable nesting sites for falcons. Further, an active golden eagle nest was observed along a rocky outcrop within the eastern portion of the site during the 2007 survey(s). Due to the small area of disturbance and short-term construction period, impacts to foraging raptors are expected to be minimal. However, potential nesting habitat for all bird species should be carefully surveyed prior to construction as discussed in BIO-2.

**Impact Category:** Potential impacts to special-status plant species (Pismo clarkia and Well's manzanita) and resident special-status animal species (California horned lizard, golden eagle [nesting], American peregrine falcon [nesting], horned lark [nesting], northern harrier [nesting], and Cooper's hawk [nesting]) are considered significant and mitigable = Class 2; and impacts to migratory special-status species (loggerhead shrike, and sharp-shinned hawk) that have the potential to periodically frequent the project area for the purpose of foraging are considered short-term and less than significant = Class 3.

**Threshold of Significance:** 1

**Mitigation Measure: BIO-3:** The following mitigation measures are required to avoid and/or minimize impacts to special-status species known to occur or with the potential to occur within the proposed building envelope for the water reclamation facility, tempering pond, and associated pipeline routes during construction. This includes protective measures to avoid and/or minimize impacts to Pismo clarkia and Well's manzanita during the construction phase of the project:

**Figure 5.3-3 – Focused Impact Map, Color 11X17**

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**General Measures:**

- A. All equipment staging areas and construction-crew parking areas shall be established within the two proposed construction staging areas identified on Figure 3-4. Additionally, all construction access routes shall be established in previously disturbed areas and/or existing roadways;
- B. Exclusionary fencing will be erected at the boundaries of construction areas to avoid equipment and human intrusion into adjacent habitats with emphasis on protection of areas containing special-status species. The exact location of exclusionary fencing for each construction area shall be determined by a County-approved biological monitor. The fencing shall remain in place throughout the construction phase for each individual project component;
- C. A County-approved biological monitor shall conduct a worker orientation for all construction contractors (site supervisors, equipment operators and laborers) which emphasizes the presence of special-status species within the project site, identification, their habitat requirements, and applicable regulatory policies and provisions regarding their protection, and measures being implemented to avoid and/or minimize impacts;
- D. If nighttime construction activities are warranted, all equipment lighting shall be shielded away from adjacent wildlife habitat areas and sky, to the extent feasible while still providing safe working conditions for construction personnel, -to minimize lighting/glare impacts of wildlife; and,
- E. Mitigation Measure AQ-1 (a dust control program during the construction phase of the project shall be implemented to minimize dust impacts to adjacent vegetation communities and special-status plant species).

**Protective Measures for Special-Status Plants:**

- F. Due to the fluctuation in annual plant populations (i.e., Pismo clarkia), spring botanical surveys shall be conducted annually by a County-approved biologist to update the location of special-status plant species populations on project plans until project construction is complete (as illustrated on Figure 5.3-2 and 5.3-3). Annual botanical survey results and documented fluctuations in populations shall be added cumulatively to the project plans (i.e., all newly discovered populations shall be added to existing populations documented in previous years). All mapped populations shall be clearly fenced off with exclusionary fencing prior to construction in those areas. If areas supporting Pismo clarkia and/or other sensitive plant species are determined by the County to be unavoidable then seed shall be collected from selected plants in impact areas and utilized to restore habitat within the pre-designated PXP Open Space Easement located directly south of the proposed RO facility within the PXP oil field (see Figure 5.3-4). The designated Open Space

Easement was required as Mitigation Measure BIO-6 in the original Phase IV EIR and is currently being utilized as a receiver site for mitigation plantings from Phase IV expansion operations (i.e., oak tree, Well's manzanita, and Pismo clarkia restoration efforts). The Open Space Easement includes approximately 4.5 acres of oak woodland and grassland habitat areas and should be sufficiently sized to handle the additional Pismo clarkia restoration efforts outlined above. However, in the event the existing easement is determined to be insufficiently sized to handle the additional restoration plantings, then an additional Open Space Easement shall be dedicated by PXP for these purposes:—and,

- G. No Well's Manzanita shall be removed and/or impacted as part of the proposed project. The final project plans shall clearly illustrate the location of all Well's manzanita existing within 25 feet of construction activities. Prior to any construction, grubbing or tree removal, each manzanita within the vicinity of the work areas shall be clearly marked for protection. To further avoid impacts to Well's manzanita located adjacent to proposed pipeline routes and the proposed construction staging area(s), boundaries of all work areas shall be clearly defined and marked with visible flagging and/or orange protective fencing. All construction activities shall remain in existing roadways and pipeline routes. If Well's manzanita is deemed unavoidable during project implementation, then the same measures outlined in BIO-6B of the Phase IV EIR (incorporated here by reference), would be implemented within the designated Open Space Easement to offset manzanita impacts.

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**Protective Measures for Special-Status Wildlife:**

- H. A County-approved biologist shall conduct pre-construction surveys to determine presence/absence of California horned lizard within and adjacent to project components containing suitable chaparral and/or scrub habitat (i.e., proposed equipment staging area and pipeline routes). Surveys shall only be conducted during the active period of California horned lizards (generally April through September). If California horned lizards are identified adjacent to and/or within work areas, then hand rakes or an equivalent shall be utilized by biological monitors to scarify the ground surface and encourage the horned lizards (and other wildlife) to vacate the immediate area prior to construction. Alternatively, sampling composed of drift fences shall be used to capture horned lizards. As necessary, the County-approved biological monitor shall physically relocate California horned lizards to suitable habitat located outside the construction zone. Exact procedures and protocols for relocation shall be based upon pre-project consultation with CDFG;
- I. A County-approved biological monitor shall be on-site during all vegetation clearing and shall periodically monitor the project site during construction activities to inspect protective fencing, equipment staging areas, and physically relocate/remove any special-status wildlife species entering the construction zone (i.e., California horned lizard, etc.). All special-status species shall be relocated to suitable habitat located outside the construction zone by a qualified biologist. Exact procedures and

**Figure 5.3-4. Phase IV Open Space Easement**

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protocols for relocation shall be based upon pre-project consultation with CDFG; and,

- J. Mitigation Measure BIO-2 (nesting bird surveys shall be conducted between February 15 and August 15 to identify nest sites of special-status bird species including golden eagle, American peregrine falcon, horned lark, northern harrier, and Cooper's hawk).

### Residual Impacts

Impact Category = Class 3. Implementation of this mitigation measure will reduce potential impacts to special-status species to less than significant levels.

**Impact BIO-4:** Construction activities could result in direct and indirect impacts to special-status species potentially occurring within [the proposed tempering pond and](#) Pismo Creek and associated tributaries.

**Discussion:** Special-status aquatic and semi-aquatic species including the two-striped garter snake, [southwestern pond turtle](#), south-central California coast steelhead and California red-legged frog are either known to occur and/or have the potential to occur within the Pismo Creek watershed. [Southwestern pond turtle also have the potential to occupy the proposed location of the tempering pond during wet years.](#) Further, tidewater goby is known to inhabit the lower reaches of Pismo Creek. Although some of these species are strictly aquatic, such as steelhead and tidewater goby, several of these species use upland habitat for forage and cover, as well as the aquatic habitat present within Pismo Creek. Examples of these species include the southwestern pond turtle, two-striped garter snake, and the California red-legged frog, as well as several bird species (e.g. yellow warbler, southern willow flycatcher, etc.).

Construction activities within close vicinity of the creek could result in direct impacts to semi-aquatic species that utilize the upland areas of the watershed, disrupt the natural behavior patterns of special-status species (i.e., breeding activity) and/or result in indirect impacts to aquatic species, such as steelhead, due to inadvertent spills of deleterious materials during construction of the proposed outfall structure. However, with implementation of Mitigation Measures BIO-3A-E and BIO-4, a qualified biologist shall conduct a worker orientation which emphasizes the special-status species of [the proposed tempering pond](#), Pismo Creek [and adjacent areas](#). In addition, the qualified biologist shall complete pre-construction surveys for special-status wildlife species and conduct monitoring on a full-time basis for all activities within a 100-foot buffer of Pismo Creek. Per Mitigation Measure BIO-2, nesting bird surveys shall also be conducted prior to construction activities within or adjacent to the [tempering pond and](#) riparian corridor of Pismo Creek. Therefore, impacts to nesting birds (e.g. yellow warbler, southern willow flycatcher, etc.) shall be avoided and/or minimized to the extent feasible. However, impacts to southwestern pond turtle, two-striped garter snake, and potentially the California red-legged frog occurring in upland habitat areas is still considered likely.

The expected increased sediment load during short-term construction activities has the potential to impact existing habitat and water quality of Pismo Creek. However, as discussed in Section 5.5 - Hydrology and Water Quality, implementation of a site-specific erosion control plan during and subsequent to construction activities would minimize the potential for short-term sedimentation impacts to Pismo Creek. Further, an inadvertent spill into Pismo Creek during construction of the outfall concrete supports and placement of gunite surfacing on the existing rip-rap slope is considered likely. However, with implementation of the mitigation measures outlined below, impacts to Pismo Creek due to sedimentation and inadvertent spills would be considered less than significant.

**Impact Category:** South-central California coast steelhead, Southwestern pond turtle, two-striped garter snake, and California red-legged frog = Class 2.

**Thresholds of Significance:** 1, 2, and 6

**Mitigation Measure: BIO-4:** The following mitigation measures are recommended to avoid and/or minimize impacts to special-status species known to occur or with the potential to occur within the [proposed tempering pond and the](#) Pismo Creek watershed:

- A. Construction of the proposed [tempering pond and](#) outfall at Pismo Creek including clearing and grubbing of vegetation shall be limited to the dry season (i.e., April 15 to Oct. 15);
- B. The proposed outfall structure shall be designed to minimize impacts to the existing willow scrub habitat of Pismo Creek to the greatest extent feasible. Specifically, this shall include placement of the structure within a pre-disturbed area (i.e., existing rip-rap bank) located downstream of the "Hyla Crossing" near an existing pipe bridge. Additionally, the final design of the outfall shall include a series of 20- to 30-foot long discharge pipes positioned at appropriate intervals along the creek bank to further minimize the footprint of impact to habitat along the creek bank;
- C. All existing downed woody debris and willow cuttings removed during construction of the outfall shall be placed and/or stockpiled in natural clumps on nearby creek banks to ensure no net loss of habitat for wildlife including special-status species;
- D. PXP shall prepare and implement a Spill Contingency Plan that includes provisions for avoiding and/or minimizing impacts to Pismo Creek due to spills during construction of the proposed outfall. Specifically, the plan shall include an overview of the secondary containment structures to be installed along the toe of the creek bank to prevent discharge of concrete and gunite into the stream channel during construction operations. Further, the plan shall outline the response equipment that will be on-site during construction and procedures for responding to any inadvertent spills within the creek or surrounding areas including miscellaneous fuel and/or lubricant spills from construction equipment and vehicles during operations. Final specifications of the Spill Contingency Plan shall be reviewed and approved by the County and CDFG prior to project implementation;

- E. All construction activities within a 100-foot buffer of Pismo Creek shall be monitored by a qualified biologist on a full-time basis [or at a frequency deemed necessary by a qualified biologist in consultation with the appropriate regulatory agencies](#). The biological monitor shall conduct pre-construction surveys for special-status wildlife species (e.g., southwestern pond turtle, two-striped garter snake, Calif. red-legged frog, etc.), maintain protective fencing, inspect equipment staging areas, and, as necessary, physically relocate/remove any special-status wildlife species entering the construction zone; and,
- F. Mitigation Measures BIO-3A-E (General Protective Measures for Biological Resources); and,
- G. Mitigation Measure BIO-2 (nesting bird surveys shall be conducted between February 15 and August 15 to identify nest sites of special-status bird species including yellow warbler, southern willow flycatcher, and Cooper's hawk).

#### **Residual Impacts**

Impact Category = Class 3. Implementation of this mitigation measure will reduce potential impacts to special-status wildlife species occurring within Pismo Creek to less than significant levels.

**Impact BIO-5:** Development of the produced water reclamation facility will result in the removal of up to 26 coast live oak trees and an additional six oak trees could be impacted by proposed activities.

**Discussion:** An estimated 26 coast live oak trees, located within the proposed impact area, would be removed to accommodate construction of the proposed Produced Water Reclamation Facility. An estimated 6 oak trees, located around the perimeter of the impact area, have the potential to be impacted by proposed activities, which may include rough grading within the drip line of the trees, and/or pruning of major limbs to facilitate equipment access. All tree specimens considered in this analysis have diameters at breast height (DBH, 4.5-feet above grade) exceeding 5 inches. Potential impacts were quantified as part of the oak tree survey conducted on-site. All oak trees to be removed or impacted by project activities were numbered in the field (see Appendix E - Oak Tree Survey Data) and displayed on Figure 5.3-3 as oak woodland habitat areas.

Oak woodland is considered to be a sensitive habitat and is already fragmented in much of the proposed project area. Further, oak trees provide food, cover, nest, and roost habitat for a number of species, particularly birds. It is a violation of Section 3503 of the California Fish and Game Code to take, possess, or destroy the nests and/or eggs of birds-of-prey, such as red-tailed hawk, red-shouldered hawk. The MBTA provides similar protection for nesting migratory bird species. Consequently, removal of any tree while migratory or other protected bird species are nesting would be a Class 2 impact.

**Impact Category:** Class 2

**Thresholds of Significance:** 2, 9

**Mitigation Measure: BIO-5:** The following mitigation measures are recommended to mitigate impacts to oak trees due to project implementation. This includes protective measures to avoid and/or minimize impacts to oak trees designated for long-term preservation:

- A. Mitigation Measures BIO-3A-E (General Protective Measures for Biological Resources);
- B. Prior to construction, a Supplemental Habitat Enhancement Plan containing site-specific oak tree protection and replacement procedures shall be prepared for the project. The Supplemental Habitat Enhancement Plan shall tier off of the previously developed Habitat Enhancement Plan established per mitigation measure BIO-5 of the original Phase IV EIR and clearly outline the procedures for protecting oak trees to remain in place during construction and provide details for replacing oak trees that are removed at a 4:1 ratio and those impacted at a 2:1 ratio. Final specifications of the Supplemental Habitat Enhancement Plan shall be approved by the County and CDFG prior to construction. At a minimum, the plan shall contain the following provisions:
  - Utilizing the oak tree survey data collected in 2007, final project plans shall clearly illustrate the size and location of all oak trees to be removed as part of the project and all oak trees to remain within 25 feet of construction activities. Prior to any construction, grubbing or tree removal, each mature coast live oak tree within the vicinity of the proposed impact area shall be clearly marked for removal or protection;
  - Protective fencing shall be installed around each oak tree to remain in place with emphasis on the six mature oak trees located along the perimeter of the proposed Produced Water Reclamation Facility. The fencing shall be installed prior to grubbing/construction and provide protection of the root zone of oak trees (the outer edge of the tree root zone is 1-1/2 times the distance from the trunk to the drip line of the tree);
  - To further protect oak trees to remain in place, a certified arborist shall be retained by the applicant to perform any necessary trimming of oak tree limbs overhanging equipment access routes. This shall be conducted prior to allowing construction equipment to enter the proposed impact area to avoid and/or minimize the potential for inadvertent damage to oak trees limbs (i.e., equipment, vehicles, etc.);
  - Replacement oak trees shall be from vertical tubes or deep, one-gallon container stock;
  - Replanting shall be completed in the fall season upon completion of grading within a given area and by a qualified individual familiar with native vegetation;

- Location of newly planted oak trees shall adhere to the following whenever possible: on the north side of and at the canopy/dripline edge of existing mature native trees; north-facing slopes; within drainages swales; where topsoil is present; and if clustered, at least 10' "on-center" separation between each tree. Tree spacing will average approximately 15 feet on-center. Some clustering is acceptable to maintain a more natural appearance; and,
- Newly planted trees shall be maintained until successfully established. This shall include protection (e.g., caging, tree shelters) from burrowing and browsing animals (e.g., deer, rodents), regular weeding (minimum of once early fall and once early spring) of at least a 3-foot radius around the plant base and adequate watering (i.e., drip irrigation system). Heavy mulching consisting of local oak leaf litter/mulch so seedlings are exposed to local mycorrhizal fungi to enhance survivability and growth is also recommended. Irrigation shall be slowly terminated over a 3-year period. If possible, planting during the warmest, driest months (June through September) shall be avoided. Replacement oak trees identified as dead and/or diseased during the monitoring period shall be replaced accordingly.

C. Mitigation Measure BIO-2 (the tree removals shall be conducted as to avoid a take of raptors or migratory birds).

#### **Residual Impacts**

Impact Category = Class 3. Implementation of the above listed mitigation measure will reduce project impacts to oak trees to less than significant levels.

Long-Term Impacts. The following are the potential impacts associated with the conversion of natural habitats within project sites and the long-term operation and maintenance of the site on biological resources.

**Impact BIO-6.** The proposed Produced Water Reclamation Facility will result in the permanent loss and/or long-term degradation and fragmentation of natural habitats, which provide forage, cover, and breeding elements for a wide variety of wildlife species, including several special-status species.

**Discussion:** Plant communities existing within and along the perimeters of the existing facility and roadways have been previously disturbed by past oil field operations (e.g., clearing and grading, long-term dust impacts, etc.). Although portions may be intact, the habitat value of these plant communities has been substantially reduced due to fragmentation, introduction of non-native vegetation, and ongoing disturbance. However, the proposed project includes the installation of a water treatment facility, various water tanks and silos, tempering ponds, three air strippers, and two heat exchangers. Ultimate construction of these structures as well as construction/installation of water transmission pipelines and reclaimed water outfall structure would result in the permanent and temporary loss of the plant communities existing within the project area

and result in further degradation of habitat supporting special-status species, including Pismo clarkia. The estimated total loss for each cover type within proposed project area is provided below in following Table 5.3-8:

**Table 5.3-6. Plant Community Impact Summary Table**

Plant Community	Loss (acres)
Calif. live oak woodland series	0.66
Bulrush-cattail series	0.68
Riparian woodland	0.1
Seasonal freshwater wetland	0.09
Coyote brush series	0.07
Calif. annual grassland series	1.75
<b>Total Acreage:</b>	<b>3.35</b>

**Note:** The remaining estimated 3.25 acres of disturbance is expected to occur in pre-disturbed habitat areas (i.e., ruderal).

Loss of non-native annual grassland areas is not considered a significant impact to wildlife because it supports a relatively low density and diversity of species and is considered abundant both locally and statewide. Although coyote brush scrub provides moderate foraging and nesting habitat for wildlife species it is not considered a sensitive plant community. Therefore, loss of 0.07-acre of coyote brush scrub is not considered a significant impact. However, the riparian woodland community, seasonal freshwater wetland, and the bulrush-cattail community meet the CDFG definition of state wetlands; consequently, loss of these habitats is considered significant. In addition, loss of California live oak woodland habitat is considered significant because of their high habitat value and declining abundance of these habitat areas within San Luis Obispo County.

The loss of the 0.66-acre of California live oak woodland habitat would occur as a result of construction of the proposed water treatment facility and associated structures. Implementation of provision A of Mitigation Measures BIO-3 and BIO-5 (listed above) would minimize impacts to oaks through avoidance measures. However, project implementation would ultimately result in the permanent loss of approximately 26 mature oak trees and associated habitat. Moreover, construction of the proposed structures and transmission pipelines would result in further degradation of adjacent habitat areas known to support special-status species (e.g., Pismo clarkia).

A wetland assessment was conducted within the proposed project impact areas on June 18, 2007 (see Appendix E - Wetland Assessment Report). The permanent loss of 0.634-acre of State wetlands would occur as a result of construction of the proposed tempering pond (0.62-acre) and installation of the reclaimed water outfall structure along Pismo Creek (0.01-acre). In addition, 0.19-acre of wetland habitat exists within the proposed location of the water reclamation facility (i.e., three man-made storm water conveyance structures/ponds (0.07-acre), seasonal freshwater wetland (0.09-acre), and roadside drainage (0.03-acre)) (see Figure 5.3-3); however, impacts to these wetland features could be avoided through project design. Temporary impacts to the riparian

corridor of Pismo Creek would include trimming/clearing of vegetation on either side of the proposed outfall structure, primarily willows, during construction activities.

**Impact Category:** Loss of the California live oak woodland series, riparian woodland, seasonal wetlands and bulrush-cattail series = Class 2; Loss of California annual grassland and coyote brush series = Class 3

**Thresholds of Significance:** 1, 2, and 9

**Mitigation Measure: BIO-6:** The following measures shall be implemented to compensate for the actual permanent loss of vegetation resulting from project implementation and potential long-term degradation of adjacent habitat areas from projected long-term utilization of the site:

- A. Prior to construction, an area within the previously dedicated PXP Open Space Easement shall be set aside to accommodate the required oak replacement (estimated at 104 total) and Pismo clarkia plantings (BIO-3 and BIO-5). If the available area within the existing open space easement is not sufficient to accommodate all of the required oak tree and Pismo clarkia plantings additional mitigation areas containing suitable habitat shall be identified by the applicant and dedicated as supplemental open space easement areas. These areas should contain a representative mixture of oak woodland and annual grassland with known populations of Pismo clarkia. Final specifications of any additional dedicated easement areas (size and location) shall be reviewed and approved by the County and CDFG prior to construction. In addition, future equipment staging areas, access routes, and additional well pads shall be prohibited in the dedicated easement areas;
- B. Provision B of Mitigation Measure BIO-5 (Supplemental Habitat Enhancement Plan) shall also contain measures to offset additional impacts to Pismo clarkia and oak woodland within the dedicated easement area. Specifically, the Supplemental Habitat Enhancement Plan shall include species lists, installation and maintenance methods, performance criteria, and monitoring protocols for enhancing existing habitats within the dedicated easement area. At a minimum, the plan shall contain the following additional provisions:
  - Procedures to further mitigate permanent loss of California live oak woodland by augmenting existing oak woodland habitat within the dedicated easement with a portion of the required 4:1 ratio oak tree plantings;
  - Planting of Pismo clarkia as required by Mitigation Measure BIO-3 shall occur within selected areas (if loss is deemed unavoidable by the County) of the dedicated easement to augment existing populations, concentrating the majority of seed dispersal along the northeastern perimeter of the existing oak woodland habitat;
  - Installation of all replacement planting and/or seed dispersal shall be conducted within the appropriate season to promote survivability (i.e., fall/winter). If

- possible, planting during the warmest, driest months (June through September) shall be avoided;
- Shall provide procedures to ensure eradication of exotic plant species (i.e., pampus grass, tree tobacco, etc.) within the dedicated easement. This shall include provisions for controlling the spread of exotic species throughout the project area; and,
  - Shall provide an implementation schedule which emphasizes initiation of the Habitat Enhancement Plan within the 1<sup>st</sup> year of improvements authorized under this approval. The schedule shall outline the sequencing of all mitigation planting and timing for long-term monitoring and maintenance of the dedicated open space easement through the life of the project.
- C. To offset approximately 0.62-acre of state wetland impacts due to construction of the proposed tempering pond, PXP shall either develop a compensatory wetland mitigation plan which outlines procedures for restoring wetland habitat on-site in-kind (i.e., bulrush-cattail series) or pay an in-lieu fee as directed by the County into a designated wetland restoration fund.
- D. To avoid further impacts to state-designated wetland habitat areas, the proposed water reclamation facility and tempering pond shall be modified to avoid impacts to the wetland features mapped on Figure 5.3.-3 and in Appendix E - Wetland Assessment. This shall include the following provisions:
- A 10-foot buffer measured outward from the edge of the seasonal wetland swale and riparian woodland (i.e., willows) shall be preserved in a natural vegetation state. This includes the seasonal freshwater wetland, riparian woodland, and roadside drainage located along the southeastern corner of the currently proposed water reclamation facility site plan as well as the riparian woodland habitat located along the southeastern corner of the proposed tempering pond. This measure shall not apply to the three man-made storm water conveyance structures/ponds (0.07-acre) located along the southeastern corner of the proposed reclamation facility, and;
  - Wetlands and setback areas shall be temporarily fenced with silt fencing and orange protective fencing during construction to minimize and/or avoid inadvertent impacts due to temporary construction related erosion and sedimentation.
- E. To offset approximately 0.01-acre of riparian woodland impacts due to installation of the proposed outfall structure, PXP shall prepare a Compensatory Mitigation Plan which outlines the procedures for restoring willow habitat removed due to project implementation at a 3:1 ratio with emphasis on habitat enhancement. The plan shall clearly identify planting areas within and adjacent to the proposed impact area in addition to the performance criteria for re-establishing willow habitat within Pismo

Creek. The plan shall be approved by the County, CDFG, [RWQCB](#), and Corps prior to project implementation.

- F. Mitigation Measure AQ-1 (a dust control program during the construction phase of the project shall be implemented to minimize dust impacts to adjacent wetland communities);
- G. Mitigation Measure HYD-1 (in compliance with the Land Use Ordinance, the applicant will prepare and implement a Sediment and Erosion Control Plan (SECP) which will outline procedures for stabilizing the site and minimizing sedimentation and erosion impacts to adjacent wetland habitat areas);

#### **Residual Impacts**

Impact Category = Class 3. Implementation of the above listed measures will reduce long-term project impacts to natural habitats supporting special-status species to less than significant levels.

**Impact BIO-7:** Development of the proposed the Produced Water Reclamation Facility could result in the permanent loss of wetlands regulated by the Corps under Section 404 of the Clean Water Act.

**Discussion:** Federal wetlands and designated waters of the U.S. are present within the proposed project area including a roadside drainage, the Pismo Creek channel, and two unnamed tributaries to Pismo Creek. The extent of wetlands and waters of the U.S. within the project site and impacts to wetlands due to proposed project activities were quantified during the wetland assessment conducted on June 18, 2007 (see Appendix E - Wetland Assessment Report).

As a result of the proposed project activities, impacts would occur to a portion of the riparian corridor of Pismo Creek. Specifically, impacts to approximately 0.014-acre of waters of the U.S will result from placement of the permanent reclaimed water outfall structure below the ordinary high water mark (OHWM). Per Mitigation Measure BIO-4, installation of the reclaimed water outfall structure would include placement of a series of three to four, 25 to 30-foot long perforated pipes on the existing rip-rap bank area along Pismo Creek. Construction of the outfall structure would also include clearing of the debris and coating the existing rip-rap slope with gunite to allow sheet flow of discharge water to Pismo Creek. As discussed in BIO-6, the riparian corridor of Pismo Creek is also considered a CDFG-defined state wetland and therefore is considered sensitive. However, with implementation of Mitigation Measure BIO-6E impacts to the riparian corridor of Pismo Creek would be considered less than significant (i.e., Compensatory Mitigation Plan). The four unnamed tributaries to Pismo Creek also qualify as waters of the U.S., however, impacts to the these features during project implementation would be avoided through project design which includes construction of pipelines along existing access roads and overall avoidance of drainages. [In the event that major excavation would be required to install pipelines beneath existing culverts, then a jack-and-bore](#)

[technique would be utilized to avoid impacts to the tributaries.](#) Therefore, impacts to tributaries of Pismo Creek would be considered less than significant.

Federal wetlands within the project site are limited to a small roadside drainage (approximately 1,300 square feet [0.03-acre]), located in the southeast corner of the proposed water reclamation facility (see Appendix E - Wetland Assessment Report). However, impacts to the federal wetland feature can be avoided through implementation of Mitigation Measure BIO-6, including avoidance and minimization measures (BIO-6D) and therefore would be considered less than significant.

**Impact Category:** Permanent loss of waters of the U.S. due to placement of the outfall structure along Pismo Creek = Class 2; Secondary impacts to federal wetland (roadside drainage) due to development of the Water Reclamation Facility = Class 2

**Thresholds of Significance:** 3

**Mitigation Measure: BIO-7:** The following measures shall be implemented to [avoid impacts to Pismo Creek tributaries.](#) compensate for the permanent loss of waters of the U.S. resulting from installation of the proposed outfall structure and potential long-term degradation of adjacent federal wetland habitat areas from projected long-term utilization of the site as required by the Corps (M. Vandersande, Corps, pers. comm., 2007):

A. [In the event that no pipe racks exist along the existing roadways at tributary crossings and excavation of the roadway base material would require removal and/or replacement of existing road culvert\(s\), then a jack-and-bore technique would implemented for pipeline installation to ensure that no impacts occur to the subject drainages.](#)

B. Mitigation Measure BIO-6 (avoidance and minimization measures for protection of wetland habitat features and development of Compensatory Mitigation Plan for Pismo Creek [BIO-6E]); and,

CB. The applicant shall obtain a permit from the U.S. Army Corps of Engineers pursuant to 404 of the Clean Water Act, Water Quality Certification from the Regional Water Quality Control Board pursuant to 401 of Clean Water Act and a Streambed Alteration Agreement or waiver from the California Department of Fish and Game pursuant to Section 1600 et seq. of the California Fish and Game Code for placement of permanent structures along Pismo Creek (i.e., fill activities) including trimming/removal of riparian vegetation. As part of the permitting process, PXP shall be required to provide the Compensatory Mitigation Plan (Mitigation Measure BIO-6E) to the Corps [and RWQCB](#) for review and approval prior to permit issuance. As part of this process, the [Corps-agencies](#) may require a higher mitigation ratio and/or include additional performance criteria in the form of special permit conditions. All agency permits and the Final Compensatory Mitigation Plan shall be submitted to the County prior to [project implementation.](#) ~~issuance of grading permit.~~

### Residual Impacts

Impact Category = Class 3. Implementation of the above listed measures will reduce long-term project impacts to federal wetlands and Waters of the U.S. to less than significant levels.

**Impact BIO-8:** Operation of the proposed Produced Water Reclamation Facility could result in long-term direct and indirect impacts to special-status species potentially occurring within Pismo Creek and the Pismo Creek Estuary.

**Discussion:** Special-status aquatic and semi-aquatic species including the south-central California coast steelhead, two-striped garter snake, California red-legged frog, and southwestern pond turtle are either known to occur and/or have the potential to occur within Pismo Creek. Further, tidewater goby is known to inhabit the lower reaches of Pismo Creek and the Pismo Creek Estuary approximately 4 miles downstream of the proposed facility. For the purposes of this impact analysis, aquatic special-status species such as steelhead which spend the most critical portion of their life cycle within freshwater systems are considered sensitive to perturbations in water quality and as such will be the focus of the following impact discussion on the potential long-term effects of the proposed water reclamation facility on aquatic and semi-aquatic organisms.

Because juvenile steelhead remain in the creeks year-round, adequate flows, suitable water temperatures, and an abundant food supply are necessary throughout the year in order to sustain steelhead populations. Cool, clean water is essential for the survival of steelhead during all portions of their life cycle. Elevated water temperatures (>70°F) can greatly impair growth rates of juvenile steelhead if adequate food is not available. Warmer water also holds less dissolved oxygen (DO) and increases a fish's susceptibility to disease (CDFG, 2002). Specifically, rearing steelhead juveniles prefer water temperatures of 7.2-14.4°C (45-58°F) and have an upper lethal limit of 23.9°C (75°F), however can survive up to 27°C (80.6°F) with saturated dissolved oxygen conditions and a plentiful food supply (NMFS, 2001). The most critical period is in the summer and early fall when these conditions become limiting. As such, the primary potential impact of the proposed project to steelhead is the effect of discharge water on the existing temperature and DO levels of Pismo Creek. Secondly, steelhead residing downstream of the facility and tidewater goby located within the estuary could be affected by long-term discharge of treated water containing potentially toxic chemical constituents (e.g., heavy metals, etc.).

Based upon existing data, the discharge from the facility estimated at 1.3 cubic feet per second (cfs) could be the only flow present downstream of the facility during prolonged drought periods (Entrix, 2006). The continuous discharge would approximately double the average summer flow conditions. However, during storm flows, the discharge would not be discernable in the large volume of stream flow. Based upon water quality measurements obtained in Pismo Creek in 2006 (Entrix), water temperatures ranged from 8.59°C (48.1°F) to 26.89°C (80.4°F) and DO levels ranged from 3.13 to 6.34

micrograms per liter (mg/l), respectively (Entrix, 2006). Average water temperatures during this period were between 13.98 to 14.21°C (57.16 to 57.59°F). Further, 75 compounds were detected in creek water samples including metals, semi-volatile organic compounds, volatile organic compounds, pesticides, and inorganic compounds. One inorganic compound and several metals were detected at limits above established regulatory standards including selenium, iron, and zinc (see Section 5.5 – Hydrology and Water Quality, Table 5.5-1). In summary, the following parameters and/or constituents were determined to be above or below required levels to support a healthy steelhead population: total suspended solids, dissolved oxygen, pH, hardness, manganese, iron, phosphorous, and zinc (Entrix, 2006).

However, despite existing degraded water quality conditions within Pismo Creek including periodic elevated water temperatures and low DO levels, steelhead are still persisting within the creek system as evidenced by the observation of steelhead fry at the proposed discharge location during spring 2007 field surveys (i.e., successful 2007 spawning event) and past reported observations of steelhead within the creek system (Entrix, 2006). Further, as discussed in Section 5.5 – Hydrology and Water Quality, the RWQCB has established thresholds and standards for protection of receiving waters and associated aquatic organisms and habitats. Specifically, the RWQCB Basin Plan Water Quality Objectives contain requirements for receiving waters identified as “Cold Freshwater Habitat” and as “Fish Spawning” areas which corresponds to those conditions existing within Pismo Creek. This includes the following requirements for dissolved oxygen and temperature:

*Dissolved Oxygen. The dissolved oxygen concentration shall not be reduced below 7.0 mg/l at any time.*

*Temperature. At no time or place shall the temperature be increased by more than 5°F above natural receiving water temperature.”*

In addition, per the RWQCB Basin Plan Water Quality Objectives and California Toxic Rule, toxic constituents which may be harmful to aquatic species should be removed from the water prior to discharge. The following Table 5.3-9 provides an overview of the toxic metals known to be deleterious to fish and wildlife when concentrations are present in excess of the limits identified within the Basin Plan Water Quality Objectives. These limits have been compared to those concentrations detected in produced water samples collected by PXP in 2007:

**Table 5.3-7. Toxic Metal Concentrations Not to be Exceeded in Aquatic Life Habitats Compared to PXP Produced Water Metal Concentrations**

Metal	RWQCB Established Concentrations not to be Exceeded (mg/l) <sup>1</sup>	Concentrations in PXP Produced Water (mg/l) <sup>2</sup>
Cadmium	.03	<0.005
Chromium	.05	0.005
Copper	.03	<0.005
Lead	.03	<0.002
Mercury	.0002	<0.002
Nickel	.4	<0.020
Zinc	.2	<0.020

<sup>1</sup> Based upon RWQCB Basin Plan, Table 3-5 - *Toxic Metal Concentrations not to be Exceeded in Aquatic Life Habitats, mg/l* (Freshwater [Cold, Warm] Hard [ $>100$  mg/l CaCO<sub>3</sub>]).

<sup>2</sup> Based upon PXP Produced Water Samples, Sample C taken on 01/25/07; < = indicates less than laboratory detection limit.

Table 5.3-9 illustrates that the toxic metal concentrations within the produced water would not be a concern for discharge to Pismo Creek since existing concentrations are below the established thresholds and would be lowered further after processing through the treatment facility. However, as discussed in Section 5.5 Hydrology and Water Quality, other primary water quality constituents of concern associated with the proposed water treatment facility include the following: pH, turbidity, chlorides, sodium, sulfate, boron, non-ionic ammonia, 2-butanone, acetone, and phenol. In addition, produced water from the facility could potentially be released at temperatures in excess of the receiving water of Pismo Creek which could result in significant impacts including mortality of steelhead residing at or immediately downstream of the discharge location. Long-term effects of increased water temperatures could also include reduced DO levels and an overall decrease in the survival rates of steelhead fry and juveniles in the creek system. Further, Matthew McGoogan of the NMFS conducted a preliminary review of the proposed project and indicated water temperature of discharge flows, spill protection, and steelhead stranding as primary concerns for potential impacts to steelhead associated with the Produced Water Reclamation Facility (Entrix, 2007).

To remove potentially toxic compounds and other constituents to the standards of the RWQCB Basin Plan Water Quality Objectives and California Toxic Rule, the facility will include several water filtration processes that involve both mechanical and chemical filtration of the produced water along with processing through a series of cooling towers. Further, the facility will include a gunite surface at the discharge location which will serve as a “splash pad” to oxygenate the water and increase DO prior to discharge flows reaching the creek channel. A review of PXP’s pilot test data (Table 5.5-1) indicates that the proposed treatment technology would meet the applicable state and federal water quality criteria for most of the key constituents analyzed during the pilot study [except](#)

~~expect~~ phenol, which could result in a significant health threat to steelhead residing in the creek system as well as tidewater goby within the Pismo Estuary. Further, the proposed produced water project has the potential to result in increased water temperature impacts due to fluctuating water temperatures of Pismo Creek throughout the year. This would be most applicable in winter months, when immediate temperature increases could result in significant impacts to steelhead residing in pools within the vicinity of the discharge location including reductions of available DO.

With implementation of mitigation measure BIO-8 including designing the facility to ensure water temperatures are regulated throughout the year to coincide with current stream temperatures of Pismo Creek (i.e., maximum of 5°F above natural receiving water temperature) with a maximum discharge temperature not to exceed 20°C (68°F) and development and implementation of a Stream Monitoring Plan, impacts associated with increased temperature and reduced DO would be reduced to less than significant. This would include mitigation measures HYD-4 and HYD-5 which will ensure that PXP receives a RWQCB/NPDES permit and implements an appropriate monitoring program to ensure all applicable water quality standards are being met, that a granular activate carbon is utilized in association with the facility as a polishing unit to ensure that treated water does not contain phenol or other organic compounds in excess of RWQCB water quality standards, and that the facility includes sufficient holding capacity to contain water that fails to meet water quality standards or other agency permit conditions to ensure that potentially harmful water is not released to Pismo Creek. With implementation of these measures, potential long-term water quality impacts to steelhead, tidewater goby, and other special-status, semi-aquatic species located downstream of the facility (e.g., southwestern pod turtle, two-striped garter, California red-legged frog) would be considered less than significant.

However, based on the above analysis and implementation of appropriate protective measures to ensure water quality in perpetuity with the project, it is presumed that the long-term operation of the facility may provide additional over-summering habitat downstream of the facility in low-flow years. This would be especially critical in drought years where the projected 1.3 cfs from the facility could be the only source of water flow in the channel and in-stream habitat for steelhead. As such, periodic maintenance of the facility when water flows would be discontinued for up to one week could result in significant impacts to steelhead due to receding water flows, potential stranding and high mortalities (i.e., steelhead fry and juveniles). Further, there may be emergency shut-downs where the water flows would be intermittently shut-in to address water quality deficiencies within the treatment system. Lastly, the proposed project includes a re-use option that has the potential to provide undetermined amounts of water to adjacent landowners for the purposes of supplemental irrigation supply in the dry season. Similarly, the transfer of water flows to adjacent landowners within the summer season could result in significant but mitigable impacts to steelhead supported by discharge flows. The potential long-term stranding effects to steelhead residing in Pismo Creek during operations was discussed with the NMFS which indicated the need for additional analysis and development of appropriate strategies including a Steelhead Stranding

Plan to mitigate potential long-term effects to steelhead (M. McGoogan, NMFS, pers. comm., 2007).

**Impact Category:** Impacts to special status aquatic and semi-aquatic species due to perturbations in water quality = Class 2; Direct impacts to steelhead due to annual fluctuations in facility water discharge rates/flows = Class 2

**Thresholds of Significance:** 1 and 4

**Mitigation Measure: BIO-8:** The following measures shall be implemented to offset potential impacts to special-status species potentially occurring within Pismo Creek and the Pismo Creek Estuary due to long-term operation of the proposed Produced Water Reclamation Facility:

- A. PXP shall obtain appropriate approvals and/or authorizations from the NMFS and USFWS to discharge treated water into Pismo Creek per Section 7 of the ESA. If deemed necessary by NMFS, this shall include preparation of an Essential Fish Habitat Analysis per the Magnuson-Stevens Fishery Conservation and Management Act. All conditions and/or specified recommendations from these agencies to afford maximum protection of special-status species known to occur in Pismo Creek including temperature requirements (e.g., steelhead, tidewater goby, California red-legged frog) shall be adhered to and implemented as part of the project. Approvals and/or authorizations from these agencies shall be provided to the County for review prior to ~~project implementation~~ issuance of grading permit;
- B. Mitigation Measure HYD 4A and 4B (PXP shall obtain an NPDES permit from the RWQCB the requirements of which shall be fully implemented including waste discharge limitations, and monitoring and reporting requirements. During plant operations, the applicant shall report phenol concentrations in effluent samples indicated above the method detection limits but less than quantitation limits. At such a time that laboratory analytical methods allow for lower quantitation limits, the applicant shall report phenol concentrations to the RWQCB to ensure compliance with the RWQCB's water quality standards~~During operation, the applicant shall utilize granular activate carbon as a polishing unit to ensure that treated water does not contain phenol or other organic compounds that are present in concentrations in excess of RWQCB water quality standards but less than the contract laboratory's analytical method detection limit~~);
- C. Mitigation Measure HYD 5 (water treatment system shall be constructed with sufficient holding capacity to contain water that fails to meet water quality per the NPDES permit or other agency permit conditions so that water not meeting specifications is not released to Pismo Creek);
- D. To mitigate potentially significant impacts to steelhead and other special-status species due to increased water temperatures within Pismo Creek, PXP shall prepare a Stream Monitoring Plan for the proposed water reclamation facility. The Plan shall

be prepared for County and NMFS review and approval prior to project implementation and shall contain at a minimum the following provisions:

- Identification of permanent temperature monitoring stations within Pismo Creek both upstream and immediately downstream of the proposed discharge location. The upstream location shall be utilized to determine baseline stream temperature conditions of Pismo Creek and downstream shall be utilized as a temperature control station;
  - The monitoring stations shall consist of HOBO continuous temperature recorders or an equivalent to allow automatic stream temperature measurements at approximate 2-hour intervals;
  - DO levels shall also be monitored at the designated stations on a periodic basis (to be defined in the Plan) utilizing appropriate water quality sampling equipment. If deemed necessary, additional features shall be installed to the treatment system and/or along the splash pad to increase oxygenation of the discharge water;
  - The Plan shall identify the procedures and schedule for stream temperature data collection and reporting requirements which will be utilized to determine the maximum discharge water temperature from the water reclamation facility to ensure compliance with the RWQCB Basin Plan and NMFS requirements throughout the life of the project (i.e., at no time shall the temperature of receiving waters be increased by more than 5°F). This shall include modifying water temperatures accordingly throughout the year to coincide with seasonal fluctuations of Pismo Creek ~~with a maximum discharge temperature not to exceed 20°C (68°F)~~;
  - The Plan shall include maintenance and inspection procedures to ensure that the temperature monitoring stations are periodically serviced and/or replaced, as necessary throughout the life of the project. This shall include inspections after significant storm events to ensure that the stations are not dislodged and/or damaged by storm flows and debris; and,
  - The Plan shall include a reporting schedule that provides quarterly monitoring reports to the County and the RWQCB. The Plan shall also contain provisions for the immediate reporting of upset conditions to the County and RWQCB.
- E. To mitigate potentially significant impacts to steelhead due to stranding during periodic maintenance events, emergency shut-downs, and transfer of water to adjacent landowners, PXP shall prepare a Steelhead Stranding Plan for the proposed water reclamation facility. Per NMFS requirements, the Plan shall clearly outline a series of steelhead stranding avoidance measures that shall be adhered to for the life of the facility. The Plan shall be prepared for County and NMFS ~~for~~ review and approval prior to project implementation and shall contain at a minimum the following provisions:

- An analysis of the expected flow fluctuations of Pismo Creek in conjunction with the Water Reclamation Facility at the time of shutdown and/or water transfers;
- Development and implementation of a steelhead monitoring program with emphasis on habitat areas downstream of the facility to provide [“real time”baseline](#) estimates of steelhead populations within the vicinity of the facility [and periodically thereafter as deemed necessary by the NMFS](#);
- Identification of all factors affecting steelhead stranding potential including but not limited to changes in wetted width with modifications in stream flows and stranding potential in side channels;
- Recommendations for appropriate ramping rates to ensure that the water discharge rate is decreased slowly over a long-duration to prevent to the extent feasible steelhead stranding with emphasis on fry and juveniles;
- Monitoring program during [extended](#) temporary shut-ins and emergencies which outlines procedures for qualified biologists to monitor pools and stream channels downstream of the facility and relocate stranded steelhead to suitable habitat areas. The extent of areas within and/or downstream of the PXP property to be monitored for potential steelhead stranding shall be determined as part of the analysis and include a map identifying approximate locations of likely habitat areas (i.e., pools) and distances downstream. Information on relocation sites and estimated steelhead mortalities shall be provided to NMFS and the County in comprehensive monitoring reports; and,
- [To mitigate potential impacts to steelhead due to stranding and/or relocation through the life of the project \(i.e., worst case scenario\), the Plan shall include several mitigation options such as implementation of creek habitat restoration projects within the PXP facility and/or p](#)~~rovisions for monetary compensation to fund high priority projects identified within the Pismo Creek Watershed Plan and adjacent watersheds. Mitigation options, if required, would be commensurate to the level of impact (i.e., installation of a series of root wads to enhance steelhead production). Maximum monetary compensation amounts shall be provided in the Plan and agreed upon by all parties prior to Plan approval, to mitigate potential impacts to steelhead mortalities due to stranding and/or relocation through the life of the project.~~

### **Residual Impacts**

Impact Categories = Class 2 and Class 4. Implementation of the above listed measures will reduce potential long-term project impacts to special-status species of Pismo Creek to less than significant levels (Class 2). Further, with appropriate implementation of mitigation measures and long-term monitoring to ensure water quality standards are being met through the life of the project, the proposed discharged water would be seen as beneficial to the lower 4 miles of the Pismo Creek system during operation (Class 4). The following provides an overview of several of the expected beneficial effects to Pismo Creek:

- Increased water flow into Pismo Creek would have the potential to dilute nutrients that accumulate during low flow periods from adjoining land uses (cattle operations), and agricultural operations next to the creek. Fine sediments could also be kept in suspension instead of settling and smothering BMI habitat and nutrient loading could be diluted to promote the increase in diversity and abundance of sensitive BMI species (Entrix, 2006);
- Increased water flow into the creek would potentially allow the creek to flow (i.e., surface flow) in all reaches from the project site to the ocean. Stream flow as measured during the CDFG stream survey in 2005 at mile 0.87 upstream from the ocean, after a significant winter which produced above average rainfall for the area, was less than 1.0 cfs flow in early June and 0.12 cfs by September (CDFG, 2005);
- Increased water flow into the creek would provide for increased flow over the riffles and would result in an overall expansion in the available habitat for all aquatic species residing in Pismo Creek downstream of PXP property, especially BMI which are the primary food for steelhead;
- Increased water flow into the creek would potentially reduce the existing fine sediments and thick algae mats, especially in the vicinity of the project area, from embedding of the gravel and cobbles essential for steelhead spawning and survival. As was noted during snorkel surveys, a thick layer of fine sediment and algae covered most of the bottom of the pool habitats surveyed;
- Increased water flow into the creek would increase the useable habitat for rearing and survival as the potential for poaching from homeless camps and populations along the creek is a factor for survival of the steelhead. Maximum residual pool depth was another parameter examined during the CDFG 2005 stream survey. This parameter is important especially in small coastal drainages that have the potential to become intermittent or dry during parts of the year as most of the drainages in San Luis Obispo County. The maximum residual pool depth is the deepest portion of the pool, and of the 193 pools measured during the survey, almost 50% had depths between 1 and 2-feet (CDFG, 2005); and,
- Increased water flow into the creek will ensure increased inflow into the estuary to improve water quality and quantity, which can aid in survival of both steelhead trout and tidewater goby. Site conditions in the Pismo Creek estuary as recorded in June 2005 were 1.0 ppt (parts per thousand) salinity and ~145% oxygen saturation (HES, 2005). The saturation of oxygen is an important water quality parameter as it demonstrates significant production during the day. This parameter will convert to respiration at night and could create anoxic conditions, which could be lethal to fish species located in the estuary. This specific issue is documented in the Recovery Plan for Tidewater Goby (USFWS, 2005). The first recovery task for tidewater goby is to stabilize and protect habitat conditions at occupied sites by developing strategies to maintain or enhance, as needed, current habitat conditions, including managing freshwater inflow and water quality.

**Impact BIO-9:** Termination of the PXP Arroyo Grande oil field and eventual decommissioning of the proposed Produced Water Reclamation Facility could result in significant impacts to steelhead populations potentially occurring within Pismo Creek.

**Discussion:** As discussed above, the proposed Produced Water Reclamation Facility could result in long-term enhancement of available fish and wildlife habitat in Pismo Creek and its estuary, which in turn could result in a substantial increase in overall populations of special-status aquatic and semi-aquatic species. Specifically, it is feasible that steelhead may become entirely dependent upon the flows from the facility over time. Due to the fact that the proposed Water Reclamation Facility is only required to support continued production of the PXP Arroyo Grande oil field, the water discharge from the facility would be discontinued at some unknown future date and is not considered a permanent source of water to Pismo Creek. Therefore, decommissioning of the proposed Water Reclamation Facility and termination of water discharge to Pismo Creek could have a significant impact on steelhead which become dependent on the water source overtime. The following local case study provides a specific example of related fisheries impacts, which were directly attributable to removal of an artificial water source from a local waterway supporting steelhead:

*The City of San Luis Obispo (City) maintains the sewage treatment plant located at the south end of City limits adjacent to Prado Lane. The facility discharges treated wastewater (effluent) into San Luis Obispo Creek. In the mid-1990's, the City upgraded their treatment process to a tertiary level at a rate of approximately 6.5 cfs. As a result, a dramatic improvement of the steelhead trout population was immediately noticed within the downstream portions of San Luis Obispo Creek. When the City began examining the option of diverting a portion of the treated discharge water into the City for beneficial recycling and reducing the overall amount of discharge, the regulatory agencies, including NMFS became concerned. The initial reduced discharge rate was to be as low as 1.7-cfs which has subsequently been increased to 2.5-cfs minimum allowable daily discharge rate. However, before any diversion could be approved and/or initiated, a complete assessment of all baseline parameters for the existing steelhead population and their associated habitat was required. This included development of a Habitat Suitability Index (HIS) for the lower 7-miles of San Luis Obispo creek which would be potentially impacted by the diversion.*

*The HIS provided a comprehensive analysis of all parameters associated with steelhead during any/all portions of their lifecycle while in the freshwater system. Canopy cover, water depth, water temperature, creek substrate surveys, etc. were completed in San Luis Obispo Creek and assigned a score which required mitigation at a ratio of 1:1. A watershed wide steelhead population census and distribution analysis was also completed to document where and how many fish were in the system.*

*This included an emigration survey which was completed for a 1-year period to determine timing of steelhead smolt emigration. An infra-red water gage was also installed immediately downstream of the discharge location to provide assurance to the agencies that the City was discharging water as required. As mitigation, twenty habitat restoration projects (i.e., development of pools) were required in San Luis Obispo Creek to increase the available habitat for steelhead in the system. However, once the population census was analyzed, it was noticed that there were more fish than anticipated in the lower section of the creek (i.e. below the discharge location) so additional mitigation was required at that time. Specifically, the City was required to remove a barrier on Coon Creek located between PG&E's Diablo Canyon Nuclear Power Plant and Montana de Oro State Park. This effectively opened an additional 6-miles of protected habitat to offset future potential impacts to steelhead trout in San Luis Obispo Creek from removing the artificial water source from the system.*

Based upon the case study above proposed long-term discharge of water to Pismo Creek as part of the project (i.e., > 10 years), potential impacts to steelhead associated with future facility decommissioning activities are considered reasonably foreseeable and potentially significant.

**Impact Category:** Impacts to steelhead due to ultimate facility decommissioning and removal of water source from Pismo Creek = Class 2

**Thresholds of Significance:** 1 and 4

**Mitigation Measure: BIO-9:** The following measures shall be implemented to offset potential impacts to steelhead populations established within Pismo Creek due to decommissioning of the Produced Water Reclamation Facility:

- A. ~~Prior At the time PXP determines~~ to decommissioning of the Produced Water Reclamation Facility, PXP shall be required to obtain formal approval and/or authorization from the County and NMFS. As part of the decommissioning request, PXP shall conduct a complete assessment of all baseline parameters for the existing steelhead population and their associated habitat within Pismo Creek. This shall include a detailed summary of the ~~annual~~ steelhead monitoring data required as part of BIO-8E and development of a Habitat Suitability Index (HIS) for the lower 4 miles of Pismo Creek which would be potentially impacted by removal of the artificial water supply from the creek system;
- B. In the event it is determined by NMFS and the County after review of the data that removal of the facility would result in a significant impact to the existing Pismo Creek steelhead population, then PXP shall submit a Pismo Creek Steelhead Habitat Mitigation Plan (Plan) to the County and NMFS for review and approval prior to approval of facility decommissioning. The Plan shall be prepared in accordance with

the most current California salmonid habitat restoration techniques and identify a series of creek habitat restoration projects that will be completed by PXP over a specified time period to enhance the existing breeding and over-summering habitat within Pismo Creek (i.e., creation of pools, etc.) and/or an adjacent watershed, such as Arroyo Grande Creek. The Plan shall focus on restoration of the portion of Pismo Creek located within the PXP Arroyo Grande oil field or within a comparable section of Arroyo Grande Creek including and include, as necessary, replacement of any dilapidated road crossings and associated culverts that may be acting as fish barriers. Again, mitigation options, if required, would be commensurate to the level of impact. As necessary Alternatively, the Plan ~~shall also can~~ include provisions for monetary compensation to fund high priority projects identified within other portions of the Pismo Creek and/or Arroyo Grande Watershed Plans. Maximum monetary compensation amounts shall be provided in the Plan and agreed upon by all parties prior to Plan approval. Monetary compensation can be provided as mitigation anytime prior to decommissioning of the facility at the discretion of PXP.

### **Residual Impacts**

Impact Category = Class 3. Implementation of the above listed measures will reduce potential long-term project impacts to steelhead due to facility decommissioning to less than significant levels.

#### **5.3.3.3 Cumulative Impacts**

As discussed in Section 6.2 of this EIR, cumulative projects include King South Ranch and Tentative Tract Map No. 2388 which would result in the development of low density residential land uses, a hotel, golf course and vineyards. Further, there a number of other proposed developments much smaller in scale, however with the potential to cumulatively effect the Pismo Creek watershed due to secondary impacts (i.e., increased runoff, sedimentation, etc.). Price Canyon is a biologically significant area that supports numerous sensitive plant and animal species and natural communities including the Pismo Creek riparian corridor and stream channel, such that construction of either the King South Ranch Project or the Tentative Map Tract no. 2388 may result in impacts to biological resources. Specifically, these projects have the potential to result in further removal and degradation of vegetative communities due to construction of permanent structures, introduction of impervious surfaces, and conversion of natural areas to vineyards and golf courses. This may also result in indirect impacts to Pismo Creek and associated biological resources. It is possible that construction of either of these projects may result in incremental impacts to biological resources within the area. However, these cumulative impacts are not expected to alter the significance of biological resources impacts associated with the proposed project.

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