

APPENDIX E
BIOLOGICAL RESOURCES

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CNDDB LIST

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California Department of Fish and Game
 Natural Diversity Database
 Selected Elements by Scientific Name - Portrait
 PXP Produced Water Reclamation Facility SEIR
 Arroyo Grande NE and Pismo Beach Quadrangles

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 <i>Agrostis hooveri</i> Hoover's bent grass	PMPOA040M0			G3	S2.2	1B.2
2 <i>Arctostaphylos luciana</i> Santa Lucia manzanita	PDERI040N0			G2	S2.2	1B.2
3 <i>Arctostaphylos morroensis</i> Morro manzanita	PDERI040S0	Threatened		G2	S2.2	1B.1
4 <i>Arctostaphylos pechoensis</i> Pecho manzanita	PDERI04140			G2	S2.2	1B.2
5 <i>Arctostaphylos pilosula</i> Santa Margarita manzanita	PDERI04160			G2	S2.2	1B.2
6 <i>Arctostaphylos wellsii</i> Wells' manzanita	PDERI042B0			G2	S2.1?	1B.1
7 <i>Arenaria paludicola</i> marsh sandwort	PDCAR040L0	Endangered	Endangered	G1	S1.1	1B.1
8 <i>Branchinecta lynchi</i> vernal pool fairy shrimp	ICBRA03030	Threatened		G3	S2S3	
9 <i>Calochortus obispoensis</i> San Luis mariposa lily	PMLIL0D110			G2	S2.1	1B.2
10 <i>Calochortus simulans</i> San Luis Obispo mariposa lily	PMLIL0D170			G2	S2.3	1B.3
11 <i>Calystegia subacaulis ssp. episcopalis</i> Cambria morning-glory	PDCON040J1			G3T1	S1.2	1B.2
12 <i>Castilleja densiflora ssp. obispoensis</i> Obispo Indian paintbrush	PDSCR0D453			G5T2	S2.2	1B.2
13 <i>Central Foredunes</i>	CTT21220CA			G1	S1.2	
14 <i>Central Maritime Chaparral</i>	CTT37C20CA			G2	S2.2	
15 <i>Centromadia parryi ssp. congdonii</i> Congdon's tarplant	PDAST4R0P1			G4T3	S3.2	1B.2
16 <i>Charadrius alexandrinus nivosus</i> western snowy plover	ABNNB03031	Threatened		G4T3	S2	SC
17 <i>Chorizanthe breweri</i> Brewer's spineflower	PDPGN04050			G2	S2.2	1B.3
18 <i>Chorizanthe rectispina</i> straight-awned spineflower	PDPGN040N0			G1	S1.2	1B.3
19 <i>Cicindela hirticollis grvida</i> sandy beach tiger beetle	IICOL02101			G5T2	S1	
20 <i>Cirsium fontinale var. obispoense</i> Chorro Creek bog thistle	PDAST2E162	Endangered	Endangered	G2T1	S1.2	1B.2
21 <i>Cirsium rhotophilum</i> Surf thistle	PDAST2E2J0		Threatened	G2	S2.2	1B.2
22 <i>Clarkia speciosa ssp. immaculata</i> Pismo clarkia	PDONA05111	Endangered	Rare	G4T1	S1.1	1B.1
23 <i>Coastal and Valley Freshwater Marsh</i>	CTT52410CA			G3	S2.1	
24 <i>Danaus plexippus</i> monarch butterfly	IILEPP2010			G5	S3	

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Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25 <i>Deinandra increscens ssp. foliosa</i> leafy tarplant	PDAST4R0U4			G4G5T2	S2.2	1B.2
26 <i>Dithyrea maritima</i> beach spectaclepod	PDBRA10020		Threatened	G2	S2.1	1B.1
27 <i>Dudleya abramsii ssp. murina</i> San Luis Obispo dudleya	PDCRA04012			G3T2	S2.3	1B.3
28 <i>Dudleya blochmaniae ssp. blochmaniae</i> Blochman's dudleya	PDCRA04051			G2T2	S2.1	1B.1
29 <i>Emys (=Clemmys) marmorata pallida</i> southwestern pond turtle	ARAAD02032			G3G4T2T3 Q	S2	SC
30 <i>Erigeron blochmaniae</i> Blochman's leafy daisy	PDAST3M5J0			G2	S2.2	1B.2
31 <i>Eriodictyon altissimum</i> Indian Knob mountainbalm	PDHYD04010	Endangered	Endangered	G2Q	S2.2	1B.1
32 <i>Eryngium aristulatum var. hooveri</i> Hoover's button-celery	PDAPI0Z043			G5T2	S2.1	1B.1
33 <i>Eucyclogobius newberryi</i> tidewater goby	AFCQN04010	Endangered		G3	S2S3	SC
34 <i>Horkelia cuneata ssp. puberula</i> mesa horkelia	PDROS0W045			G4T2	S2.1	1B.1
35 <i>Layia jonesii</i> Jones' layia	PDAST5N090			G1	S1.1	1B.2
36 <i>Lupinus ludovicianus</i> San Luis Obispo County lupine	PDFAB2B2G0			G2	S2.2	1B.2
37 <i>Oncorhynchus mykiss irideus</i> steelhead - south/central California coast esu	AFCHA0209H	Threatened		G5T2Q	S2	
38 <i>Phrynosoma coronatum (frontale population)</i> Coast (California) horned lizard	ARACF12022			G4G5	S3S4	SC
39 <i>Rana aurora draytonii</i> California red-legged frog	AAABH01022	Threatened		G4T2T3	S2S3	SC
40 <i>Scrophularia atrata</i> black-flowered figwort	PDSCR1S010			G2	S2.2	1B.2
41 <i>Taxidea taxus</i> American badger	AMAJF04010			G5	S4	SC

WETLAND ASSESSMENT REPORT

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**WETLAND ASSESSMENT REPORT
FOR THE PXP PRODUCED WATER
RECLAMATION FACILITY
SAN LUIS OBISPO, CALIFORNIA**

Prepared for:

County of San Luis Obispo
Environmental and Resource Management Division
Department of Planning and Building
San Luis Obispo, California

Prepared By:

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July 2007

Project No. 0702-0291

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TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1
1.1 Project Location.....	1
1.2 Physical Setting.....	1
1.3 Project Background.....	1
2.0 VEGETATION	2
3.0 WETLAND ASSESSMENT	2
3.1 METHODOLOGY.....	2
3.1.1 Federal Jurisdiction Determination.....	3
3.1.2 Hydrophytic Vegetation.....	3
3.1.3 Hydric Soils.....	3
3.1.4 Wetland Hydrology.....	3
3.2 RESULTS	3
3.2.1 Federal Jurisdiction Determination.....	3
3.2.2 Hydrophytic Vegetation.....	4
3.2.3 Hydric Soils.....	4
3.2.4 Wetland Hydrology.....	5
3.2.5 Federal Wetland Determination.....	5
3.2.6 CDFG Wetlands.....	5
3.2.7 Wetland Functions and Values.....	5
4.0 LITERATURE CITED	6

FIGURES

- 1 – Site Location Map
- 2 – Limits of Jurisdictional Waters
- 3 – Focused Jurisdictional Wetlands Map

APPENDICES

- Appendix A – Site Photographs
- Appendix B – Data Forms

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1.0 INTRODUCTION

Padre Associates, Inc. (Padre) is pleased to present this report documenting the recent wetland delineation conducted for the Proposed Plains Exploration and Production Company (PXP), Arroyo Grande Oil Field Produced Water Reclamation Facility (Project). The objective of this report is to present the findings of a wetland assessment conducted within the proposed project area. Wetland features analyzed include a section of Pismo Creek, two unnamed tributaries to Pismo Creek, a proposed tempering pond, three man-made storm water conveyance structures, an ephemeral swale and roadside drainage. The field survey of the subject property was conducted on June 18, 2007. This report is intended to supplement the Subsequent Environmental Impact Report (SEIR) for the proposed Project.

1.1 PROJECT LOCATION

The PXP Arroyo Grande Oil Field is located in Price Canyon about three miles northeast of the City of Pismo Beach in San Luis Obispo County, California (Project Site). The Project Site is located at 1821 Price Canyon Road, east and west of Price Canyon Road near its intersection with Ormonde Road, between Highway 101 and Highway 227. The location is illustrated on the following Figure 1 – Site Location Map.

1.2 PHYSICAL SETTING

Several wetland features are present within the project area including the proposed tempering pond located within an isolated man-made storm water collection basin northeast of the existing facility, three man-made storm water conveyance structures, an ephemeral swale area and a roadside drainage along the existing roadway southeast of Tank 202 (see Figure 2 – Limits of Jurisdictional Waters). In addition, a small portion of the riparian corridor along Pismo Creek and two unnamed tributaries to Pismo Creek are within the proposed Project Impact Area (PIA). The Project Site is highly disturbed due to historical and ongoing activities within the existing oil field.

1.3 PROJECT BACKGROUND

Development of the proposed Project would include construction of a water treatment facility and various associated structures (i.e., water tanks, air-stripper, heat exchangers, etc.) to process the produced water resulting from increased oil recovery activities. New facilities would be constructed within the existing disturbed plant area, plus a two- to three-acre area of oak woodland habitat west of the existing plant. The proposed facility will also require construction of water transmission pipelines for re-use on/off-site, placement of a permanent reclaimed water outfall structure along Pismo Creek, and creation of a smooth-bottom tempering pond. Specifically, water transmission pipelines would be placed within existing facility roadways or in existing pipe racks to the north and south of the project area. The proposed water transmission pipeline along the southern disposal route would intersect two unnamed tributaries to Pismo Creek; however, installation of the pipeline would occur along previously existing roadways and pipe racks. 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. Placement of the outfall structure would include clearing a portion of the vegetation along the bank and reinforcing the existing rip-rap slope protection with gunite. Prior to use as a tempering pond, the existing storm water collection basin would be cleared of all vegetation and the bottom would be smoothed and lined with a low-permeability material.

2.0 VEGETATION

Vegetation within the wetland features was identified to the extent feasible during the June 18, 2007 field survey. Plant specimens that were not positively identified in the field were further examined using a dissecting microscope and appropriate botanical keys, including *The Jepson Manual* (Hickman, 1993). Species diversity within the wetland features was low due to the high level of disturbance and ongoing activities within the existing oil field.

3.0 WETLAND ASSESSMENT

The U.S. Army Corps of Engineers (Corps) has jurisdiction over waters of the United States (U.S.). The limit of jurisdiction in non-tidal waters extends to the ordinary high water mark and includes all adjacent wetlands. Waters of the U.S. are defined as:

"All waters which 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; including all interstate waters including interstate wetlands, all other waters such as intrastate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce."

The Corps and U.S. Environmental Protection Agency define wetlands 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."

3.1 METHODOLOGY

The purpose of the wetland delineation was to determine the area of jurisdiction of the Corps under Section 404 of the Clean Water Act. The delineation was performed in accordance with the routine procedures for areas less than 2.02 ha (5 ac) detailed in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Environmental Laboratory, 2006). Data forms are provided as Appendix B.

Jurisdictional wetlands were determined to be present if evidence of all three Federal criteria were observed (hydrophytic vegetation, hydric soils, and wetland hydrology). However, the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) wetland definition requires that only one of the wetland criteria be present to define a wetland.

3.1.1 Federal Jurisdiction Determination

The limit of Corps jurisdiction in non-tidal waters extends to the ordinary high water mark and includes all adjacent wetlands. The ordinary high water (OHW) mark was established at Pismo Creek and the two unnamed tributaries to Pismo Creek using the presence of hydrophytic vegetation, drift lines, and bank shelving patterns as a boundary. Drift lines (organic materials deposited along the banks) are direct evidence of the highest water elevation of the most recent rain year. Bank shelving patterns (eroded benches) indicate long-term patterns in high water elevation. The width of waters of the U.S. (distance between OHW marks) was measured within the PIA at each of these locations. In addition, sample points were established within the proposed tempering pond, the ephemeral swale, and roadside drainage southeast of Tank 202.

3.1.2 Hydrophytic Vegetation

The predominance of hydrophytic (water-loving) vegetation was established by identifying dominant species within a 1.0-meter (m) (3.3-foot) radius circle (sample plot) at each sample point and determining the hydrophytic class (i.e., facultative, facultative-wetland or obligate wetland species) as listed in Reed (1988).

3.1.3 Hydric Soils

Soil pits were excavated within the proposed tempering pond, ephemeral swale, and roadside drainage. Soil pits were not excavated within the man-made storm conveyance structures/ponds due to the presence of a concrete lining. Based the *Soil Survey of San Luis Obispo County, California, Coastal Part*, soils in the vicinity of the proposed impact areas have been designated as Briones loamy sand (Ernstrom, 1984).

Briones loamy sand is a moderately deep, somewhat excessively drained, moderately steep soil on foothills and mountains. It is formed in residual material weathered from soft sandstone. Typically, the surface layer is gray loamy sand approximately 91.44 centimeter (cm) (36 inches) thick. The subsoil is pale brown loamy sand to a depth of 81.28 cm (32 inches) with an underlying layer of soft, fractured sandstone (Ernstrom, 1984). Briones loamy sand is considered non-hydric by the Natural Resources Conservation Service (1992).

3.1.4 Wetland Hydrology

Observations were conducted at each sample plot to identify evidence of inundation or soil saturation, such as drift lines, sediment deposits, drainage patterns, and oxidized root channels.

3.2 RESULTS

3.2.1 Federal Jurisdictional Determination

The area of waters of the U.S. located within the Project Site include the roadside drainage, a section of Pismo Creek, and the two unnamed tributaries to Pismo Creek intersected by the southern water transmission pipeline route. However, the two unnamed tributaries will not be impacted due to project activities. Therefore, the area of waters of the U.S. within the proposed PIA is limited to the roadside drainage, approximately 0.012 ha (0.03-

acre) and the portion of Pismo Creek affected by installation of the proposed reclaimed water outfall structure, approximately (0.006 ha) (0.014-acre).

The proposed tempering pond appears to qualify as waters of the U.S. based on the presence of all three wetland criteria; however, it is bermed on all sides with no apparent connectivity to the adjacent tributary to Pismo Creek. Due to the lack of connectivity to the adjacent tributary to Pismo Creek it is not considered a Federal wetland. The limits of jurisdictional waters within the proposed PIA are illustrated on the following Figure 2.

3.2.2 Hydrophytic Vegetation

The total area of hydrophytic vegetation found within the PIA is approximately 0.43 ha (1.07-acre). This value is based on the combined average areas of the proposed tempering pond, ephemeral swale, roadside drainage, and man-made storm conveyance structures, and the PIA along the bank of Pismo Creek. The tributaries intersected by the water transmission pipeline were not assessed because no vegetation will be impacted due to project implementation. Appendix A provides site photos of the wetland features.

The approximate areas of hydrophytic vegetation found within each of the wetland features are described below:

- Proposed Tempering Pond: 0.25 ha (0.62-acre), dominated by California bulrush (*Scirpus californicus*) and cattail (*Typha latifolia*);
- Ephemeral swale: 0.04 ha (0.09-acre), dominated by brown-headed rush (*Juncus phaeocephalus* var. *phaeocephalus*), cattail, Italian ryegrass (*Lolium multiflorum*), and western ragweed (*Ambrosia psilostachya*);
- Roadside Drainage: 0.012 ha (0.03-acre), dominated by cattail and California bulrush;
- Man-made Storm Water Conveyance Structures: 0.028 ha (0.07-acre), dominated by cattail, umbrella flatsedge (*Cyperus eragrostis*), western ragweed, and Italian ryegrass; and,
- Pismo Creek: 0.004 ha (0.01-acre), dominated by Arroyo (*Salix lasiolepis*) and yellow willows (*Salix lucida* ssp. *lasiandra*).

3.2.3 Hydric Soils

Soil pits were excavated within the ephemeral swale, roadside drainage, and the proposed tempering pond. Hydric soils as indicated by dark soil color (10YR 2/1) and sandy gleyed matrix (Gley1 4/10 Y) were identified in the roadside drainage as well as reddish yellow (7.5YR 6/8) and black (10YR 2/1) concentrations. In addition, hydric soils were also identified in the proposed tempering pond as indicated by the presence of (7.5YR 5/6 – strong brown) concentrations. Two soil pits were excavated within the ephemeral swale area; however, this area contained dry sandy material and did not support hydric soil. Test pits were not excavated within the man-made conveyance structures due to the existing concrete lining. In addition, test pits were not excavated within the two unnamed tributaries because construction activities will remain within the existing roadways or pre-disturbed areas and will not result in fill activities.

Further, test pits were not excavated along the bank of Pismo Creek due to the presence of rip-rap slope protection.

3.2.4 Wetland Hydrology

Evidence of wetland hydrology was present within the roadside drainage and the proposed tempering pond. Specifically, saturated soil conditions exist within the roadside drainage and oxidized rhizopheres and surface soil cracks were present within the proposed tempering pond.. Additionally, two of the three man-made conveyance structures contained standing water. No wetland hydrology indicators were identified within the ephemeral swale area.

It was assumed that the entire area located between OHW marks within Pismo Creek, as well as within the two unnamed tributaries is inundated at a frequency to meet the wetland hydrology criterion of the Wetland Delineation Manual.

3.2.5 Federal Wetland Determination

Corps-defined wetlands are present where hydrophytic vegetation, wetland hydrology and hydric soils co-occur. Based on the information presented above all three wetland criteria, wetland hydrology, hydrophytic vegetation, and hydric soil, were evident within the roadside drainage and the proposed tempering pond. However, due to the lack of connectivity between the proposed tempering pond and the adjacent tributary to Pismo Creek it is not considered a Federal wetland. Therefore, within the proposed PIA only the roadside drainage, consisting of 0.012 ha (0.03-acre), is considered Corps-defined wetlands (see Figure 3 – Focused Jurisdictional Wetlands Map).

3.2.6 CDFG Wetlands

Both USFWS and CDFG consider an area to be a wetland if it meets only one of the three Federal criteria (hydric soils, hydrology and hydrophytic vegetation). As such, the presence of hydrophytic vegetation was used to define CDFG wetlands. Therefore, the total area of CDFG wetlands within the PIA includes all of the wetland features described above and is approximately 0.33 ha (0.82-acre).

3.2.7 Wetland Functions and Values

Functions are physical, chemical and biological attributes of a wetland without regard to their importance to society. The term “values” is used to describe those functions generally regarded as beneficial to society. Functions and values assessed in this document are described in the Wetland Evaluation Technique by Adamus et al. (1987), including:

- Groundwater recharge;
- Groundwater discharge;
- Flood flow alteration;
- Sediment stabilization;
- Sediment/toxicant retention;
- Nutrient removal/transformation;

- Production export;
- Wildlife habitat (aquatic and terrestrial);
- Uniqueness/heritage; and,
- Recreation.

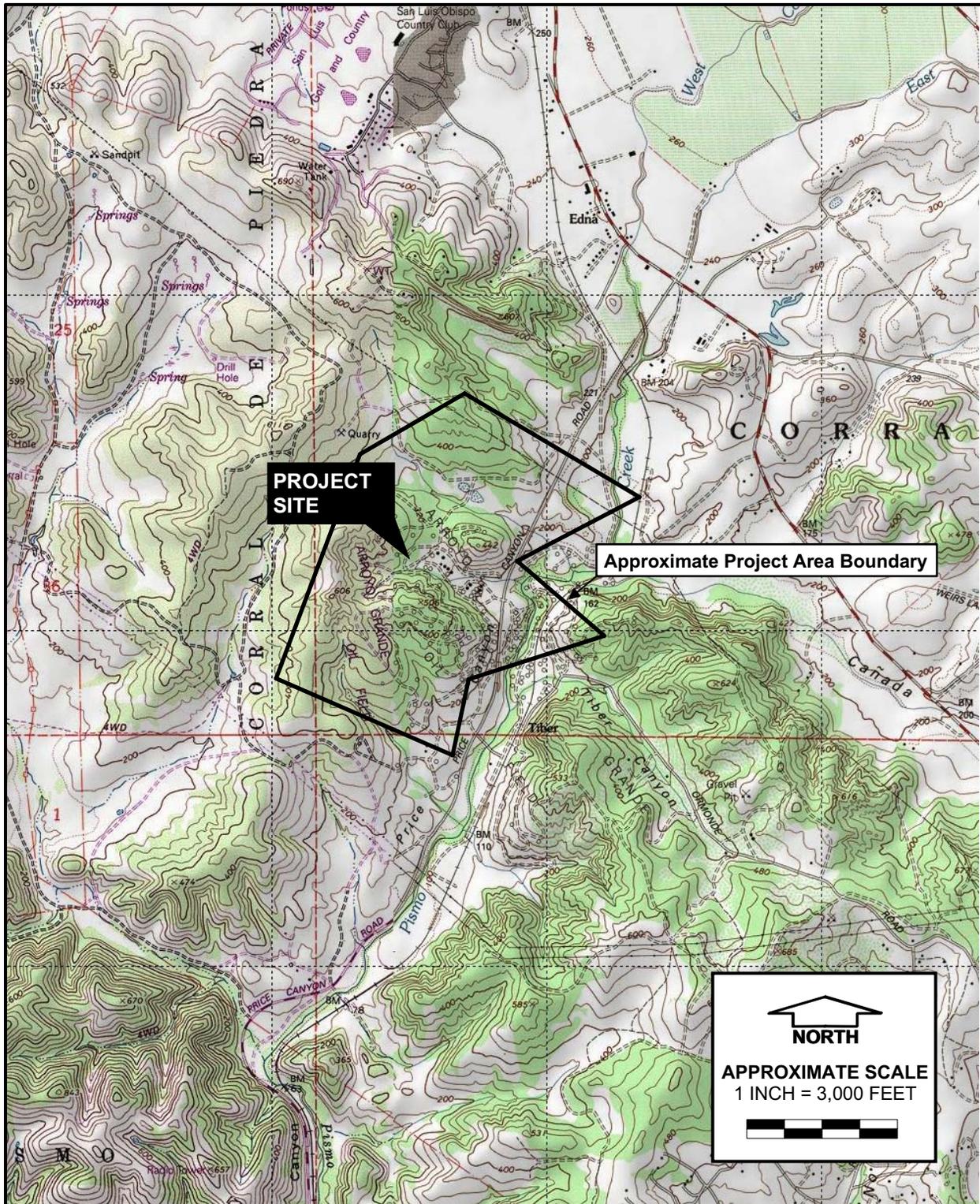
The wetlands of the PIA, excluding the concrete-lined storm water conveyance structures, facilitate groundwater recharge by reducing current velocity and increasing residence time. These wetlands also alter flood flows, and stabilize and retain sediment. The riparian vegetation of Pismo Creek and associated tributaries may remove and transform nutrients, and may export production in terms of the downstream movement of organic matter and organisms. These wetlands provide habitat for fish, and resident and migratory wildlife.

4.0 LITERATURE CITED

- Adamus, P.R., E.J. Clarain Jr., R.D. Smith and R.E. Young. 1987. Wetland Evaluation Technique (WET). U.S. Army Engineers Waterway Experiment Station.
- Ernstrom, Daniel J. 1984. *Soil Survey of San Luis Obispo County, California, Coastal Part*. Prepared for the U.S. Department of Agriculture, Soil Conservation Service.
- Hickman, James C. 1993. *The Jepson Manual, Higher Plants of California*. University of California Press. Berkeley, CA.
- Natural Resources Conservation Service. 1992. Field Office Official List of Hydric Soil Map Units for San Luis Obispo County, California, Coastal Part.
- Reed, P.B. Jr. 1988. *National List of Plant Species that occur in Wetlands: California (Region 0)*. (U.S. Fish and Wildl. Serv. Biol. Rep. 88(26.10)). St. Petersburg, FL.

FIGURES

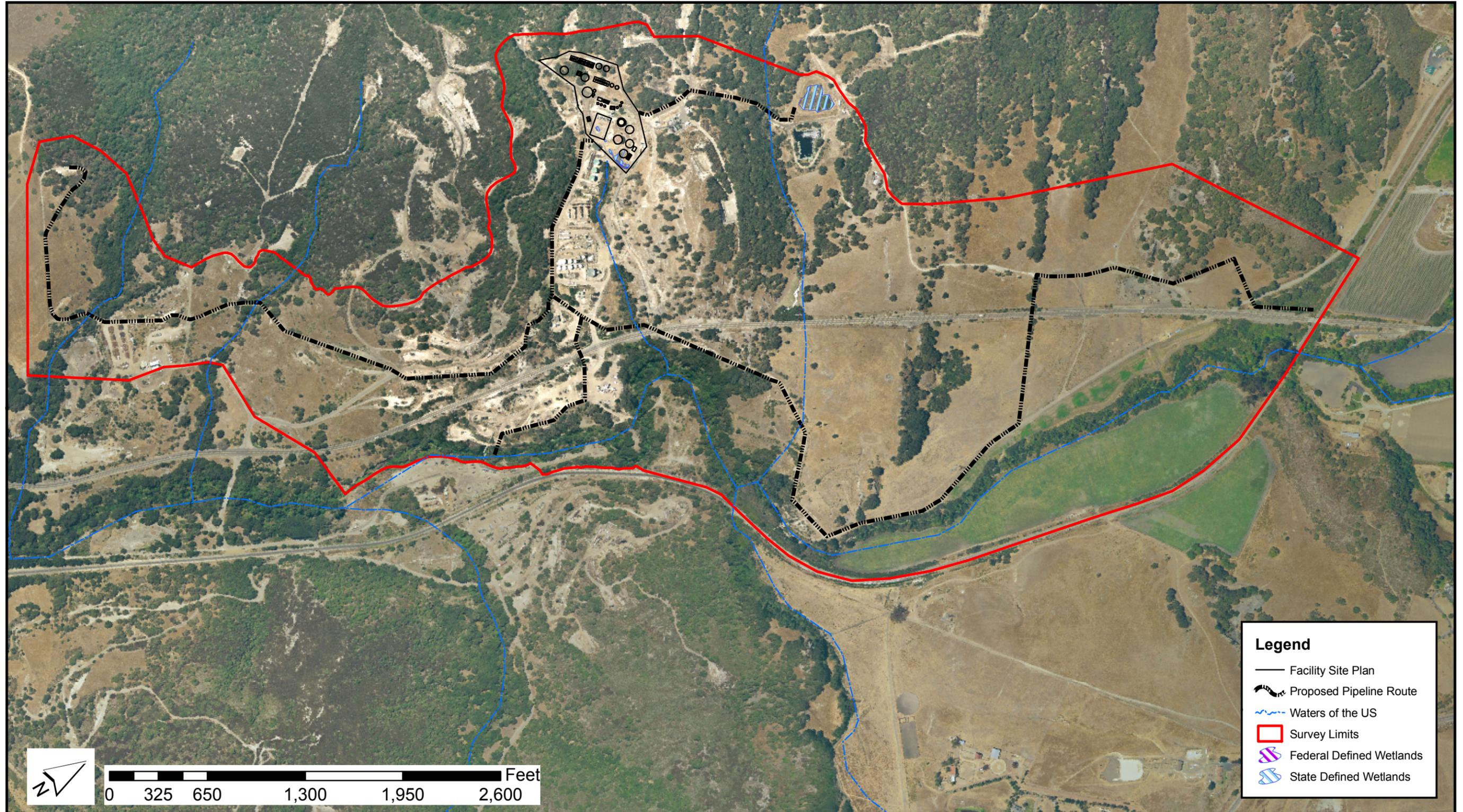
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Source: TOPO! © 2001 National Geographic Holdings (www.topo.com)



SITE LOCATION MAP



Source: ADAIR



PXP Produced Water Reclamation Facility SEIR

LIMITS OF JURISDICTIONAL WATERS
FIGURE 2



Source: ADAIR



PXP Produced Water Reclamation Facility SEIR

FOCUSED JURISDICTIONAL WETLANDS MAP
FIGURE 3

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APPENDIX A
SITE PHOTOGRAPHS

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PHOTO 1: View of proposed tempering pond (Aspect: East).



PHOTO 2: View of gradual swale area (Aspect: Northeast).



PHOTO 3: View of roadside drainage (Aspect: East).



PHOTO 4: View of man-made storm water conveyance structures (Aspect: East).



PHOTO 5: View of stormwater conveyance structures (Aspect: East).



PHOTO 6: View of proposed impact area along Pismo Creek (Aspect: Northeast).



PHOTO 3: View of roadside drainage (Aspect: East).



PHOTO 8: View of second tributary intersected by south bound pipeline route (Aspect: Southeast).

APPENDIX B
DATA FORMS

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- PXP - WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Produced Water Reclamation Facility City/County: SLO County Sampling Date: 6/18/07
 Applicant/Owner: PXP (Ag Oil Field) State: CA Sampling Point: 1
 Investigator(s): JPeak / BDugas Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): LPRC Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (if no, explain in Remarks.)
 Are Vegetation Yes, Soil Yes, or Hydrology Yes significantly disturbed? Are "Normal Circumstances" present? Yes _____ No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	
Remarks: <u>site highly disturbed, sampling point adjacent to perennial wetland/drainage feature & man-made drainage conveyance structures (ponds); area grazed (gradual swale area)</u>	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>n/a</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Total Cover: _____				
Sapling/Shrub Stratum				
1. <u>n/a</u>				
2. _____				
3. _____				
4. _____				
5. _____				
Total Cover: _____				
Herb Stratum				
1. <u>Ambrosia psilostachya</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>	
2. <u>Lolium multiflorum</u>	<u>15</u>	<u>yes</u>	<u>FAC</u>	
3. <u>Junco phaeocephalus</u>	<u>30</u>	<u>yes</u>	<u>OBL</u>	
4. <u>Avena barbata</u>	<u>2</u>	<u>no</u>	<u>UPL</u>	
5. <u>Rumex salicifolius</u>	<u>3</u>	<u>no</u>	<u>OBL</u>	
6. <u>Taraxacum officinale</u>	<u>2</u>	<u>no</u>	<u>UPL</u>	
7. <u>Vegeta sativa ssp. nigra</u>	<u>1</u>	<u>no</u>	<u>FACU</u>	
8. _____				
Total Cover: <u>83</u>				
Woody Vine Stratum				
1. <u>n/a</u>				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>0%</u>		% Cover of Biotic Crust _____		

Hydrophytic Vegetation Indicators:
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes No _____

Remarks: area highly disturbed, grazed.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
12"	10YR 3/2	100%					C.SL	coarse sandy material

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks: Reached impenetrable material @ 12", very dry sandy soils area highly disturbed, grazed.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Other (Explain in Remarks)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Thin Muck Surface (C7)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____
 Water Table Present? Yes _____ No Depth (inches): _____
 Saturation Present? Yes _____ No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

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

Remarks: no visible hydrologic features present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PXP- Produced Water Reclamation Facility City/County: SLO County Sampling Date: 6/18/07
 Applicant/Owner: PXP (AG oil field) State: CA Sampling Point: 2
 Investigator(s): Peak/BDugas Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 0
 Subregion (LRR): LRRC Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation Yes, Soil Yes, or Hydrology Yes significantly disturbed? Are "Normal Circumstances" present? Yes _____ No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>	
Remarks: <u>Site highly disturbed, area grazed; sampling point adjacent to perennial wetland/drainage feature & man-made drainage conveyance structures/ponds. (gradual gule area)</u>			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>n/a</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____				
Total Cover: _____				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. <u>Baccharis pilularis</u>	<u>3</u>	<u>NO</u>	<u>UPL</u>	Total % Cover of: _____ Multiply by:
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
				UPL species _____ x 5 = _____
Total Cover: <u>3</u>				Column Totals: _____ (A) _____ (B)
Herb Stratum				Prevalence Index = B/A = _____
1. <u>Ambrosia psilostachya</u>	<u>2</u>	<u>NO</u>	<u>PAC</u>	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Juncus latifolia</u>	<u>20</u>	<u>YES</u>	<u>OBL</u>	
3. <u>Juncus phaeoscephalus</u>	<u>50</u>	<u>YES</u>	<u>OBL</u>	
4. <u>Olochrom multiflorum</u>	<u>10</u>	<u>NO</u>	<u>FAC</u>	
5. <u>Juncus effusus</u>	<u>5</u>	<u>NO</u>	<u>OBL</u>	
6. _____				
7. _____				
8. _____				
Total Cover: <u>57</u>				
Woody Vine Stratum				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
1. <u>n/a</u>				¹ Indicators of hydric soil and wetland hydrology must be present.
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>0</u>		% Cover of Biotic Crust _____		

Remarks: area disturbed, grazed

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
12"	10YR 3/2	100%					FSL	fine sandy material

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (If present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks: *reached impenetrable material @ 12", dry sandy soil*

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____
Water Table Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No

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

Remarks: *no hydrologic features present*

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: - PXP - Produced Water Reclamation Facility City/County: SLO County Sampling Date: 6/18/07
 Applicant/Owner: PXP (AG Oil field) State: CA Sampling Point: 3
 Investigator(s): Jean / BD Myers Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 0
 Subregion (LRR): LPR C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation Yes, Soil Yes, or Hydrology Yes significantly disturbed? Are "Normal Circumstances" present? Yes _____ No
 Are Vegetation No, Soil No, or Hydrology Nr naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____	
Remarks: <u>site highly disturbed; along existing roadway, adjacent to perennial drainage feature (roadside drainage)</u>			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>n/a</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u>	(A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u>	(B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u>	(A/B)
4. _____				Prevalence Index worksheet:	
Total Cover: _____				Total % Cover of:	Multiply by:
<u>Sapling/Shrub Stratum</u>				OBL species _____	x 1 = _____
1. <u>Baccharis pilularis</u>	<u>2</u>	<u>No</u>	<u>NPL</u>	FACW species _____	x 2 = _____
2. _____				FAC species _____	x 3 = _____
3. _____				FACU species _____	x 4 = _____
4. _____				UPL species _____	x 5 = _____
5. _____				Column Totals: _____	(A) _____ (B)
Total Cover: <u>2</u>				Prevalence Index = B/A = _____	
<u>Herb Stratum</u>				Hydrophytic Vegetation Indicators:	
1. <u>Juncus latifolia</u>	<u>90</u>	<u>Yes</u>	<u>OBL</u>	<input checked="" type="checkbox"/> Dominance Test is >50%	
2. <u>Juncus effusus</u>	<u>3</u>	<u>No</u>	<u>OBL</u>	____ Prevalence Index is ≤3.0 ¹	
3. <u>Ambrosia psilostachya</u>	<u>2</u>	<u>No</u>	<u>FAC</u>	____ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
4. <u>Cyperus niger</u>	<u>1</u>	<u>No</u>	<u>FACW</u>	____ Problematic Hydrophytic Vegetation ¹ (Explain)	
5. <u>Cirsium vulgare</u>	<u>1</u>	<u>No</u>	<u>FACU</u>		
6. <u>Epilobium ciliatum</u>	<u>1</u>	<u>No</u>	<u>FACW</u>		
7. _____					
8. _____					
Total Cover: <u>98</u>				¹ Indicators of hydric soil and wetland hydrology must be present.	
<u>Woody Vine Stratum</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	
1. <u>n/a</u>					
2. _____					
Total Cover: _____					
% Bare Ground in Herb Stratum <u>0%</u>	% Cover of Biotic Crust _____				

Remarks: sampling point adjacent to existing roadway – swale along road

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5"	10YR 3/4	90%	10YR 2/1	10%	C	RC	loamy sand	
5"	10YR 2/1	100%					loamy sand	
7"-16"	Gley 4/10 Y	99%	7.5YR 4/6	1%	C	m	loamy sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> 1 cm Muck (A9) (LRR C) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> 2 cm Muck (A10) (LRR B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | <input type="checkbox"/> Reduced Vertic (F18) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Vernal Pools (F9) | |
| <input checked="" type="checkbox"/> Sandy Gleyed Matrix (S4) | | |

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- | | | |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) | <input type="checkbox"/> Water Marks (B1) (Riverine) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) | <input type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) | <input type="checkbox"/> Drift Deposits (B3) (Riverine) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | | <input type="checkbox"/> Shallow Aquitard (D3) |
| | | <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present? Yes No Depth (inches): <1"
 Water Table Present? Yes No Depth (inches): 12"
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): >16"

Wetland Hydrology Present? Yes No

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

Remarks:

-PXP-

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Produced Water Reclamation Facility City/County: SLO County Sampling Date: 6/18/07
Applicant/Owner: PXP (AG oil field) State: CA Sampling Point: 4
Investigator(s): _____ Section, Township, Range: _____
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 0
Subregion (LRR): LRR C Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation Yes, Soil Yes, or Hydrology Yes significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes X No _____
Hydric Soil Present? Yes X No _____
Wetland Hydrology Present? Yes X No _____
Is the Sampled Area within a Wetland? Yes X No _____
Remarks: Isolated man-made storm water collection basin (Proposed tempering pond); No apparent connectivity to adjacent drainage

VEGETATION

Tree Stratum (Use scientific names.) Absolute % Cover Dominant Species? Indicator Status
1. n/a _____
2. _____
3. _____
4. _____
Total Cover: _____
Sapling/Shrub Stratum
1. n/a _____
2. _____
3. _____
4. _____
5. _____
Total Cover: _____
Herb Stratum
1. Tupha latifolia 20 Yes OBL
2. Scirpus californicus 80 Yes OBL
3. Polygonum monspeliensis 1 No FACW
4. _____
5. _____
6. _____
7. _____
8. _____
Total Cover: 100%
Woody Vine Stratum
1. n/a _____
2. _____
Total Cover: _____
% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust _____
Remarks: _____
Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)
Prevalence Index worksheet:
Total % Cover of: _____ Multiply by:
OBL species _____ x 1 = _____
FACW species _____ x 2 = _____
FAC species _____ x 3 = _____
FACU species _____ x 4 = _____
UPL species _____ x 5 = _____
Column Totals: _____ (A) _____ (B)
Prevalence Index = B/A = _____
Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
____ Prevalence Index is ≤3.0¹
____ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present.
Hydrophytic Vegetation Present? Yes X No _____

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features			Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%					
2" - 8"	10YR 3/2	95%	7.5YR 5/6	5%		C	RC	loamy sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input checked="" type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: Reached impenetrable material @ 8"; man-made feature, storm water detention collection basin

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient)		<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:
 Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

OAK TREE DATA

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**Oak Tree Data for the Plains Exploration and Production
Produced Water Reclamation Facility Impact Areas, San Luis Obispo County, California**

Tree No.	Species	Size (DBH")	Canopy-N (ft)	Canopy-E (ft)	Canopy-S (ft)	Canopy-W (ft)	CRZ-N (ft)	CRZ-E (ft)	CRZ-S (ft)	CRZ-W (ft)
1	Coast live oak	13.6,7.6,9.1,9.7,8.2,8.9,11,9.1,9.2,7.7	22	21	25	20	27	26	30	25
2	Coast live oak	24.5, 32	20	26	23	30	25	31	28	35
3	Coast live oak	11.8	3	16	2	21	8	21	7	26
4	Coast live oak	16.5, 15.8	13	27	6	27	18	32	11	32
5	Coast live oak	13.2, 14.5, 6.2, 7.5	16	9	21	17	21	14	26	22
6	Coast live oak	13.4	9	16	10	15	14	21	15	20
7	Coast live oak	14.5, 12.1, 13.8, 12.6	20	19	17	18	25	24	22	23
8	Coast live oak	16.4, 14.5	24	15	15	12	29	20	20	17
9	Coast live oak	6.4, 15, 11, 10, 12.8, 12.2, 7	22	37	31	30	27	42	36	35
10	Coast live oak	12, 14	15	12	4	20	20	17	9	25
11	Coast live oak	13.1	26	13	6	5	31	18	11	10
12	Coast live oak	15	17	6	3	32	22	11	8	37
13	Coast live oak	24, 31, 14.6	32	27	30	41	37	32	35	46
14	Coast live oak	7.8, 13, 6.7, 12.5	15	20	22	12	20	25	27	17
15	Coast live oak	13, 26	15	21	20	12	20	26	25	17
16	Coast live oak	14.2	18	4	9	15	23	9	14	20
17	Coast live oak	18.5	9	3	24	22	14	8	29	27
18	Coast live oak	23.8, 24.7, 17, 18.6	32	43	36	14	37	48	41	19
19	Coast live oak	13.6, 11.5	18	12	8	15	23	17	13	20
20	Coast live oak	12.2	6	4	4	13	11	9	9	18
21	Coast live oak	8.4	12	0	6	15	17	5	11	20
22	Coast live oak	7, 21.5, 21.8	30	28	30	16	35	33	35	21
23	Coast live oak	5.9, 13.1	17	0	6	31	22	5	11	36
24	Coast live oak	11.9, 9.1, 6.9, 3.9, 5.8	0	18	16	15	5	23	21	20
25	Coast live oak	13	18	18	20	0	23	23	25	5
26	Coast live oak	13.5, 14, 17	18	15	22	14	23	20	27	19
27	Coast live oak	8.8, 15.3	30	9	0	20	35	14	5	25
28	Coast live oak	14.5, 12.7, 11, 15.2	18	27	21	24	23	32	26	29
29	Coast live oak	29.5	19	14	21	15	24	19	26	20
30	Coast live oak	15, 9.5, 5.5, 11	15	21	16	12	20	26	21	17
31	Coast live oak	15.8	18	20	0	15	23	25	5	20
32	Coast live oak	9.9, 20.5, 16.8, 19.9, 14.6	15	21	25	27	20	26	30	32

Definitions:

DBH - Diameter at Breast Height (inches)

CRZ - Critical Root Zone

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PLANT SPECIES LIST

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**Vascular Plant Flora of the Plains Exploration and Production
Produced Water Reclamation Facility Impact Areas, San Luis Obispo County, California**

Scientific Name	Common Name	Wetland Indicator		Family	Habitat					Non-Native? Yes=1, No=0
		Habit	Status		AG	CS	OW	WM	R	
<i>Adenostoma fasciculatum</i>	Chamise	S	.	Rosaceae				X		0
<i>Aira caryophylla</i> *	Silver European hair-grass	AG	.	Poaceae	X					1
<i>Ambrosia psilostachya</i>	Western ragweed	PH	FAC	Asteraceae	X				X	0
<i>Amsinkia menziesii</i> var. <i>intermedia</i>	Common fiddleneck	AH	.	Boraginaceae	X				X	0
<i>Anagallis arvensis</i> *	Scarlet pimpernel	AH	FAC	Primulaceae	X				X	1
<i>Anthemis cotula</i> *	Mayweed	AH	FACU	Asteraceae	X					1
<i>Apera spica -venti</i> *	Common windgrass	AG	.	Poaceae					X	1
<i>Arctostaphylos wellsii</i>	Wells manzanita	S	.	Ericaceae				X		0
<i>Artemisia californica</i>	California sagebrush	S	.	Asteraceae	X	X		X		0
<i>Artemisia douglasiana</i>	Mugwort	PH	FACW	Asteraceae	X				X	0
<i>Avena barbata</i> *	Slender wild oat	AG	.	Poaceae	X				X	1
<i>Baccharis douglasii</i>	Marsh Baccharis	PH	OBL	Asteraceae					X	0
<i>Baccharis pilularis</i> [B.p. var. <i>consanguinea</i>]	Coyote brush	S	.	Asteraceae		X		X	X	0
<i>Baccharis salicifolia</i> [B. <i>viminea</i> ; B. <i>glutinosa</i>]	Mule fat, seep-willow	S	FACW	Asteraceae	X				X	0
<i>Brassica nigra</i> *	Black mustard	AH	.	Brassicaceae	X	X			X	1
<i>Bromus diandrus</i> *	Ripgut grass	AG	.	Poaceae	X	X			X	1
<i>Bromus hordeaceus</i> *	Soft chess	AG	FACU-	Poaceae	X	X				1
<i>Bromus madritensis</i> ssp. <i>rubens</i> *	Red brome	AG	NI	Poaceae	X	X			X	1
<i>Calystegia macrostegia</i> ssp. <i>cyclostegia</i> [Convolvulus c.]	Morning-glory	PV	.	Convolvulaceae	X	X				0
<i>Camissonia micrantha</i>	Miniature suncup	AH	.	Onagraceae	X					0
<i>Carduus pycnocephalus</i> *	Italian thistle	AH	.	Asteraceae	X				X	1
<i>Carpobrotus edulis</i> *	Hotten-tot fig (ice plant)	PV	.	Aizoaceae					X	1
<i>Castilleja attenuata</i>	Valley tassels	AH	.	Scrophulariaceae	X					0
<i>Castilleja exserta</i> ssp. <i>exserta</i> [Orthocarpus <i>purpurascens</i> vars. <i>p.</i> & <i>pallidus</i>]	Purple owl's clover	AH	.	Scrophulariaceae	X					0
<i>Centaurea melitensis</i> *	Tocalote	AH	.	Asteraceae	X				X	1
<i>Chamaesyce maculata</i> *	Spotted spurge	AH	.	Euphorbiaceae					X	1
<i>Chamomilla suaveolens</i> *	Pineapple weed	AH	.	Asteraceae					X	1
<i>Chlorogalum pomeridianum</i>	Soap plant	PH	.	Liliaceae	X					0
<i>Chorizanthe staticoides</i>	Turkish rugging	AH	.	Polygonaceae	X					0
<i>Clarkia epilobioides</i> [Godetia e.]	Willow herb godetia	AH	.	Onagraceae	X					0
<i>Clarkia purpurea</i> ssp. <i>quadrivulnera</i>	Four-spotted purple clarkia	AH	.	Onagraceae	X				X	0
<i>Clarkia speciosa</i> ssp. <i>immaculata</i>	Pismo clarkia	AH	.	Onagraceae	X		X			0
<i>Clarkia unguiculata</i> [C. <i>elegans</i>]	Elegant clarkia	AH	.	Onagraceae	X	X			X	0
<i>Conium maculatum</i> *	Poison hemlock	BH	FACW	Apiaceae	X				X	1
<i>Convolvulus arvensis</i> *	Bind weed	PV	.	Convolvulaceae					X	1
<i>Conyza canadensis</i> [var. <i>canadensis</i>]	Horseweed	AH	FAC	Asteraceae	X				X	0
<i>Cordylanthus rigidus</i> ssp. <i>rigidus</i>	Birds beak	AH	.	Scrophulariaceae	X					0
<i>Cortaderia selloana</i> *	Pampas grass	PG	.	Poaceae	X					1
<i>Cotula coronopifolia</i> *	Brass buttons	PH	OBL	Asteraceae					X	1
<i>Croton californicus</i>	California croton	S	.	Euphorbiaceae	X					0
<i>Cynodon dactylon</i> *	Bermuda grass	PG	FAC	Poaceae	X				X	1
<i>Cyperus eragrostis</i>	Tall flatsedge	AH	FACW	Cyperaceae	X				X	0
<i>Dichelostemma capitatum</i> ssp. <i>capitatum</i> [D. <i>pulchella</i>]	Blue dicks	PH	.	Amaryllidaceae	X					0
<i>Deinandra congesta</i> ssp. <i>luzulifolia</i> [Hemizonia <i>congesta</i> ssp. <i>luzulifolia</i>]	Hayfield tarweed	AH	.	Asteraceae	X					0
<i>Deinandra increscens</i> ssp. <i>foliosa</i> [Hemizonia <i>increscens</i> ssp. <i>foliosa</i>]	Tarplant	AH	.	Asteraceae	X	X				0
<i>Ehrharta calycina</i> *	Veldt grass	PG	.	Poaceae	X	X			X	1
<i>Equisetum telmateia</i> ssp. <i>braunii</i>	Giant horsetail	PH	OBL	Equisetaceae					X	0
<i>Eremocarpus setigerus</i>	Dove weed	AH	.	Euphorbiaceae	X					0
<i>Eriophyllum confertiflorum</i> var. <i>confertiflorum</i> [vars. <i>discoideum</i> & <i>laxiflorum</i>]	Golden yarrow	PH	.	Asteraceae	X	X				0
<i>Erodium botrys</i> *	Storks bill	AH	.	Geraniaceae	X				X	1
<i>Erodium cicutarium</i> *	Redstem filaree	AH	.	Geraniaceae					X	1

**Vascular Plant Flora of the Plains Exploration and Production
Produced Water Reclamation Facility Impact Areas, San Luis Obispo County, California**

Scientific Name	Common Name	Wetland Indicator		Family	Habitat					Non-Native?		
		Habit	Status		AG	CS	OW	WM	R	D	Yes=1, No=0	
<i>Eucalyptus corynocalyx</i> *	Sugar gum	T	.	Myrtaceae							X	1
<i>Filago californica</i>	California filago	AH	.	Asteraceae	X						X	0
<i>Foeniculum vulgare</i> *	Sweet fennel	PH	FACU	Apiaceae	X						X	1
<i>Galium aparine</i> *	Goose grass, catchweed bedstraw	AH	FACU	Rubiaceae			X					1
<i>Geranium dissectum</i> *	Geranium	AH	.	Geraniaceae	X							1
<i>Gnaphalium californicum</i>	Green everlasting	A/BH	.	Asteraceae	X	X						0
<i>Gnaphalium luteo-album</i> *	Cudweed everlasting	AH	FACW-	Asteraceae	X						X	1
<i>Helianthemum scoparium</i>	Peak rush-rose	S	.	Cistaceae	X	X						0
<i>Heteromeles arbutifolia</i> [var. <i>macrocarpa</i>]	Toyon	S	.	Rosaceae		X	X	X				0
<i>Heterotheca grandiflora</i>	Telegraph weed	PH	.	Asteraceae	X						X	0
<i>Hirschfeldia incana</i> *	Summer mustard	BH	.	Brassicaceae	X	X					X	1
<i>Hordeum marinum</i> *	Mediterranean barley	AG	FAC	Poaceae	X							1
<i>Hordeum murinum</i> ssp. <i>leporinum</i> *	Hare barley	AG	NI	Poaceae	X						X	1
<i>Hypochaeris glabrata</i> *	Smooth cat's ear	AH	.	Asteraceae	X						X	1
<i>Hypochaeris radicata</i>	Rough cat's ear	PH	.	Asteraceae	X						X	1
<i>Isocoma menziesii</i> var. <i>menziesii</i>	Coastal goldenbush	S	.	Asteraceae	X	X						0
<i>Juncus effusus</i> var. <i>brunneus</i>	Common rush	PH	OBL	Juncaceae							X	0
<i>Lactuca serriola</i> *	Prickly wild lettuce	AH	FAC	Asteraceae	X						X	1
<i>Lamarckia aurea</i> *	Golden top	AG	.	Poaceae	X							1
<i>Lemna minor</i>	Duckweed	PH	OBL	Lemnaceae							X	0
<i>Lolium multiflorum</i> *	Italian ryegrass	AG	FAC	Poaceae	X							1
<i>Lotus purshianus</i> var. <i>pushianus</i> [var. <i>glaber</i>]	Pursh's lotus	AH	.	Fabaceae	X						X	0
<i>Lotus scoparius</i> var. [ssp.] <i>scoparius</i>	Deerweed, California broom	PH	.	Fabaceae	X	X						0
<i>Lupinus bicolor</i> [ssp. & vars.; <i>L. congdonii</i> ; <i>L. polycarpus</i> ; <i>L. micranthus</i>]	Bicolored or miniature lupine	AH	.	Fabaceae	X	X					X	0
<i>Lupinus nanus</i>	Lupine	AH	.	Fabaceae	X							0
<i>Lythrum hyssopifolium</i> *	Loosestrife	AH	FACW	Lythraceae	X							1
<i>Malva parviflora</i> *	Cheese weed	AH	.	Malvaceae	X						X	1
<i>Medicago polymorpha</i> *	Bur clover	AH	.	Fabaceae	X						X	1
<i>Melilotus alba</i> *	White sweetclover	A/BH	FACU+	Fabaceae	X							1
<i>Melilotus indica</i> *	Sourclover	AH	FAC	Fabaceae	X						X	1
<i>Mimulus aurantiacus</i> [<i>Diplacus a.</i> ; <i>D. longiflorus</i> ssp. <i>l.</i>]	Bush monkeyflower	S	.	Scrophulariaceae		X	X	X				0
<i>Nassella pulchra</i> [<i>Stipa p.</i>]	Purple needlegrass	PG	.	Poaceae	X							0
<i>Navarretia hamata</i>	Hooked skunkweed	AH	.	Polemoniaceae	X						X	0
<i>Nicotiana glauca</i> *	Tree tobacco	S	FAC	Solanaceae	X	X					X	1
<i>Oxalis corniculata</i> *	Oxalis	PH	.	Oxalidaceae							X	1
<i>Pennisetum clandestinum</i> *	Kikuyu grass	PG	FACU+	Poaceae	X							1
<i>Picris echioides</i> *	Bristly ox-tongue	AH	FAC*	Asteraceae	X							1
<i>Pinus muricata</i>	Bishop pine	T	.	Pinaceae				X				0
<i>Plantago lanceolata</i> *	Narrowleaf or English plantain	PH	FAC-	Plantaginaceae	X						X	1
<i>Platanus racemosa</i>	Western sycamore	T	FACW	Plantanaceae	X						X	0
<i>Polygonum arenastrum</i> *	Common knotweed, doorweed	AH	FAC	Polygonaceae	X						X	1
<i>Polygogon monspeliensis</i> *	Rabbitsfoot or annual beard grass	AG	FACW+	Poaceae	X							1
<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>	Black cottonwood	T	FACW	Salicaceae							X	0
<i>Pteridium aquilinum</i>	Bracken fern	PF	FACU	Dennstaedtiaceae	X		X					0
<i>Quercus agrifolia</i> var. <i>agrifolia</i>	Coast live oak	T	.	Fagaceae	X	X	X	X				0
<i>Raphanus sativus</i>	Radish	AH	.	Brassicaceae	X						X	1
<i>Rhamnus californica</i>	California coffee-berry	S	.	Rhamnaceae			X					0
<i>Rubus ursinus</i>	California blackberry	PV	FACW*	Rosaceae			X				X	0
<i>Rumex acetosella</i> *	Sheep sorrel	PH	FAC-	Polygonaceae	X							1
<i>Rumex crispus</i> *	Curly dock	PH	FACW-	Polygonaceae	X						X	1
<i>Rumex salicifolius</i>	Willow dock	PH	OBL	Polygonaceae	X							0
<i>Salix laevigata</i>	Red willow	S/T	.	Salicaceae							X	0
<i>Salix lasiolepis</i> [vars. <i>braceliniae</i> & <i>sandbergii</i> ; <i>S. lutea</i> var. <i>nivaria</i> ; <i>S. tracyi</i>]	Arroyo willow	T	FACW	Salicaceae	X	X					X	0
<i>Salix lucida</i> ssp. <i>lasianhra</i>	Yellow willow	S/T	OBL	Salicaceae							X	0
<i>Salvia mellifera</i>	Black sage	S	.	Lamiaceae	X	X						0
<i>Salvia spathaceae</i>	Pitcher sage	PH	.	Lamiaceae			X					0

**Vascular Plant Flora of the Plains Exploration and Production
Produced Water Reclamation Facility Impact Areas, San Luis Obispo County, California**

Scientific Name	Common Name	Wetland Indicator		Family	Habitat					Non-Native? Yes=1, No=0		
		Habit	Status		AG	CS	OW	WM	R		D	
<i>Schinus molle</i> *	Peruvian pepper tree	T	.	Anacardiaceae							X	1
<i>Scirpus californicus</i>	California tule	PH	OBL	Cyperaceae							X	0
<i>Scirpus microcarpus</i>	Panicled bulrush	PH	OBL	Cyperaceae							X	0
<i>Senecio mikanioides</i>	German-ivy	PV	.	Asteraceae							X	1
<i>Silene gallica</i> *	Windmill pink	AH	.	Caryophyllaceae	X	X					X	1
<i>Silybum marianum</i> *	Milk thistle	AH	.	Asteraceae	X						X	1
<i>Sisymbrium orientale</i> *	Sisymbrium	AH	.	Brassicaceae							X	1
<i>Sisyrinchium bellum</i> [S. eastwoodiae; S. greenei; S. hesperium]	Blue eyed grass	PH	FAC	Iridaceae	X							0
<i>Sonchus asper</i> *	Prickly sow thistle	AH	FAC	Asteraceae							X	1
<i>Sonchus oleraceus</i> *	Common sow thistle	AH	NI*	Asteraceae	X						X	1
<i>Spergularia rubra</i> *	Sand spurrey	AH	FAC-	Caryophyllaceae	X						X	1
<i>Toxicodendron diversilobum</i> [Rhus diversiloba]	Poison oak	S/V	.	Anacardiaceae		X	X	X	X			0
<i>Trifolium fragiferum</i> *	Strawberry clover	AH	.	Fabaceae	X							1
<i>Trifolium hirtum</i> *	Rose clover	AH	.	Fabaceae	X						X	1
<i>Typha latifolia</i>	Broad-leaved cattail	PH	OBL	Typhaceae							X	0
<i>Verbesina encelioides</i> ssp. <i>exauriculata</i> *	Golden crownbeard	AH	FAC	Asteraceae							X	1
<i>Vicia benghalensis</i> *	Purple vetch	AV	.	Fabaceae	X						X	1
<i>Vicia sativa</i> ssp. <i>nigra</i> *	Narrow-leaf vetch	AV	FACU	Fabaceae	X							1
<i>Vinca major</i> *	Greater periwinkle	PV	.	Apocynaceae	X		X				X	1
<i>Xanthium strumarium</i> [sspp./vars. <i>canadense</i> & <i>glabratum</i>]	Cocklebur	AH	FAC+	Asteraceae	X							0

64

Notes: Scientific nomenclature follows Hickman (1993) and Skinner and Pavlik (1994) for native taxa and Bailey and Bailey (1976).

Common names follow Abrams and Ferris (1960), Neihaus and Ripper (1976), and DeGarmo (1980).

An "*" indicates non-native species which have become naturalized or persist without cultivation.

Habit definitions:

AF = annual fern or fern ally.
 AG = annual grass.
 AH = annual herb.
 BH = biennial herb.
 PF = perennial fern or fern ally.
 PG = perennial grass.
 PH = perennial herb.
 PV = perennial vine.
 S = shrub.
 T = tree.

Habitat Definitions:

AG = Annual grassland
 CS = Coyote brush scrub
 OW = Coast live oak woodland
 WM = Wells manzanita scrub
 D = Disturbed areas
 R = Riparian woodland/scrub

Wetland indicator status (Reed 1988): OBL = obligate wetland species, occurs almost always in wetlands (>99% probability)

FACW = facultative wetland species, usually found in wetlands (67-99% probability).

FAC = facultative species, equally likely to occur in wetlands or nonwetlands (34-67% probability).

FACU = facultative upland species, usually occur in nonwetlands (67-99% probability).

+ or - symbols are modifiers that indicate greater or lesser affinity for wetland habitats.

NI = no indicator has been assigned due to a lack of information to determine indicator status.

* = a tentative assignment to that indicator status by Reed (1988).

A period "." indicates that no wetland indicator status has been given in Reed (1988).

Parentheses around an indicator status indicates the wetland status as suggested by David Magney.

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WILDLIFE SPECIES LIST

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**WILDLIFE SPECIES OBSERVED OR LIKELY TO OCCUR IN THE VICINITY OF THE
PLAINS EXPLORATION AND PRODUCTION OIL FACILITY, SAN LUIS OBISPO, CALIFORNIA**

Common Name	Scientific Name	Residence Status	Protected Status	Habitat
Fishes				
South-central California coast steelhead*	<i>Oncorhynchus mykiss irideus</i>	R	FT, CSC	A
Tidewater goby	<i>Eucyclogobius newberryi</i>	R	FE, CSC	A
Speckled dace*	<i>Rhinichthys osculus</i>	R	--	A
Threespine stickleback*	<i>Gasterosteus aculeatus</i>	R	--	A
Prickly sculpin*	<i>Cottus asper</i>	R	--	A
Amphibians				
California tiger salamander	<i>Ambystoma californiense</i>	R	FC, CSC	A,R
Ensatina	<i>Ensatina eschscholtzii</i>	R	--	R,G,P
Western toad	<i>Bufo boreas</i>	R	--	A,R
Pacific treefrog*	<i>Hyla regilla</i>	R	--	A,R
California red-legged frog	<i>Rana aurora draytonii</i>	R	FT, CSC	A,R
Bullfrog*	<i>Rana catesbeiana</i>	R	--	A,R
Reptiles				
Southwestern pond turtle*	<i>Clemmys marmorata pallida</i>	R	CSC	A,R
Western fence lizard*	<i>Sceloporus occidentalis</i>	R	--	G,D,P,M
Sagebrush lizard	<i>Sceloporus graciosus</i>	R	--	G,P
Side-blotched lizard	<i>Uta stansburiana</i>	R	--	G,D,P,M
Coast horned lizard	<i>Phrynosoma coronatum frontale</i>	R	CSC	G,P
Western skink	<i>Eumeces skiltonianus</i>	R	--	G
Western whiptail*	<i>Cnemidophorus tigris</i>	R	--	G,P
Southern alligator lizard*	<i>Gerrhonotus multicarinatus</i>	R	--	A,R,G
Common kingsnake	<i>Lampropeltis getulus</i>	R	--	A,R,P,M
Ringneck snake	<i>Diadophis punctatus</i>	R	--	R,G,P
Racer	<i>Coluber constrictor</i>	R	--	G
Gopher snake	<i>Pituophis melanoleucus</i>	R	--	R,G,P
Common garter snake	<i>Thamnophis sirtalis</i>	R	--	R,G,P
Terrestrial garter snake	<i>Thamnophis elegans</i>	R	--	R,G,P
Western aquatic garter snake	<i>Thamnophis couchi</i>	R	--	A,R
Western rattlesnake	<i>Crotalus viridis</i>	R	--	R,G,P
Birds				
Black-crowned night-heron	<i>Nycticorax nycticorax</i>	R	M	W,G,R
Green heron	<i>Butorides virescens</i>	R	M	W,G,R
Snowy egret	<i>Egretta thula</i>	W	M	W,G,R
Great egret	<i>Ardea alba</i>	R	M	W,G,R
Great blue heron	<i>Ardea herodias</i>	R	M	W,G,R
Mallard	<i>Anas platyrhynchos</i>	R	M	W,G,R
Turkey vulture*	<i>Cathartes aura</i>	R	M	R,G,P
Osprey	<i>Pandion haliaetus</i>	W	M, CSC (nesting)	A,W
White-tailed kite*	<i>Elanus leucurus</i>	R	M, FSC (nesting), FP	G,P
Northern harrier	<i>Circus cyaneus</i>	R	M, CSC (wintering)	W,G
Golden eagle	<i>Aquila chrysaetos</i>	R	M, CSC (nesting and wintering), CFP	R,G,P
Sharp-shinned hawk	<i>Accipiter striatus</i>	W	M, CSC (nesting)	P,R,G
Cooper's hawk*	<i>Accipiter cooperii</i>	R	M, CSC (nesting)	R,G
Red-shouldered hawk*	<i>Buteo lineatus</i>	R	M	R,G

**WILDLIFE SPECIES OBSERVED OR LIKELY TO OCCUR IN THE VICINITY OF THE
PLAINS EXPLORATION AND PRODUCTION OIL FACILITY, SAN LUIS OBISPO, CALIFORNIA**

Common Name	Scientific Name	Residence Status	Protected Status	Habitat
Red-tailed hawk*	<i>Buteo jamaicensis</i>	R	M	R,G
Ferruginous hawk	<i>Buteo regalis</i>	W	CSC (wintering), M	R,G
American kestrel*	<i>Falco sparverius</i>	R	M	R,G,P
Merlin	<i>Falco columbarius</i>	W	M, CSC (wintering)	R,G,P
Prairie falcon	<i>Falco mexicanus</i>	W	M, CSC (nesting)	G
American peregrine falcon*	<i>Falco peregrinus</i>	R	SE, FP, M	R,G,P
Wild turkey*	<i>Meleagris gallopavo</i>	R	--	P
California quail*	<i>Cillipepla californica</i>	R	--	R,P
Mountain quail	<i>Oreotyx pictus</i>	R	M	P
Killdeer	<i>Charadrius vociferus</i>	R	M	W,G
Band-tailed pigeon	<i>Columba fasciata</i>	R	M	R
Rock dove	<i>Columba livia</i>	R	--	D
Mourning dove*	<i>Zenaida macroura</i>	R	M	R,G
Barn owl	<i>Tyto alba</i>	R	M	R,G,P
Short-eared owl	<i>Asio flammeus</i>	W	CSC (nesting), M	R,P,W
Long-eared owl	<i>Asio otus</i>	R	CSC (nesting), M	R,P,W
Great horned owl*	<i>Bubo virginianus</i>	R	M	R,G,P
Western screech-owl	<i>Otus kennicottii</i>	R	M	R,G,P
Northern pygmy-owl	<i>Glaucidium gnoma</i>	R	M	R
Northern saw-whet owl	<i>Aegolius acadicus</i>	R	M	R,G,P
White throated swift	<i>Aeronautes saxatalis</i>	R	M	R,G,P
Black-chinned hummingbird	<i>Archilochus alexandri</i>	B	M	R,G,P
Costa's hummingbird	<i>Calypte costae</i>	B	CSC (nesting), M	R,G,P
Anna's hummingbird*	<i>Calypte anna</i>	R	M	R,G,P
Allen's hummingbird	<i>Selasphorus sasin</i>	B	M	R,G,P
Belted kingfisher	<i>Ceryle alcyon</i>	R	M	R,A
Acorn woodpecker*	<i>Melanerpes formicivorus</i>	R	M	P
Lewis's woodpecker	<i>Melanerpes lewis</i>	W	M	P
Northern flicker*	<i>Colaptes auratus</i>	R	M	R,P
Red-breasted sapsucker*	<i>Sphyrapicus ruber</i>	B	M	R,P
Nuttall's woodpecker	<i>Picoides nuttallii</i>	R	M	R,P
Downy woodpecker	<i>Picoides pubescens</i>	R	M	R,P
Hairy woodpecker*	<i>Picoides villosus</i>	R	M	P
Olive-sided flycatcher	<i>Contopus cooperi</i>	B	M	R,P
Western wood-pewee	<i>Contopus sordidulus</i>	B	M	R,P
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	B	SE (nesting), M	R,G,P
Pacific-slope flycatcher*	<i>Empidonax difficilis</i>	B	M	R,G,P
Black phoebe	<i>Sayornis nigricans</i>	R	M	R,G,P
Say's phoebe*	<i>Sayornis saya</i>	R	M	G
Ash-throated flycatcher*	<i>Myiarchus cinerascens</i>	B	M	R,G,P
Western kingbird*	<i>Tyrannus verticalis</i>	B	M	G
Cassin's kingbird	<i>Tyrannus vociferans</i>	B	M	G
Loggerhead shrike	<i>Lanius ludovicianus</i>	R	CSC (nesting), M	M
Hutton's vireo	<i>Vireo huttoni</i>	R	M	W,R
Cassin's vireo	<i>Vireo cassinii</i>	B	M	W,R
Steller's jay*	<i>Cyanocitta stelleri</i>	R	M	R,G
Western scrub-jay*	<i>Aphelocoma c. californica</i>	R	M	R,G,P

**WILDLIFE SPECIES OBSERVED OR LIKELY TO OCCUR IN THE VICINITY OF THE
PLAINS EXPLORATION AND PRODUCTION OIL FACILITY, SAN LUIS OBISPO, CALIFORNIA**

Common Name	Scientific Name	Residence Status	Protected Status	Habitat
Yellow-billed magpie	<i>Pica nuttalli</i>	R	M	W,G
American crow*	<i>Corvus brachyrhynchos</i>	R	M	M
Common raven*	<i>Corvus corax</i>	R	M	M
Tree swallow	<i>Tachycineta bicolor</i>	R	M	R,G
Violet-green swallow	<i>Tachycineta thalassina</i>	R	M	R,G
Purple martin	<i>Progne subis</i>	B	CSC (nesting), M	R,G
Cliff swallow*	<i>Hirundo pyrrhonota</i>	B	M	R,G
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	B	M	R,G
Barn swallow*	<i>Hirundo rustica</i>	B	M	R,G
Wrentit	<i>Chamaea fasciata</i>	R	--	R
Oak titmouse*	<i>Baeolophus inornatus</i>	R	M	R,P
Chestnut-backed chickadee*	<i>Parus rufescens</i>	R	M	R,P
Bushtit*	<i>Psaltriparus minimus</i>	R	M	P
Brown creeper	<i>Certhia americana</i>	R	M	W,R,P
White-breasted nuthatch*	<i>Sitta carolinensis</i>	R	M	P
Red-breasted nuthatch	<i>Sitta canadensis</i>	W	M	P
House wren*	<i>Troglodytes aedon</i>	R	M	R,G
Bewick's wren*	<i>Thryomanes bewickii</i>	R	M	R,G
Canyon wren	<i>Catherpes mexicanus</i>	R	M	R,G
Marsh wren	<i>Cistothorus palustris</i>	R	M	R,P
Golden-crowned kinglet*	<i>Regulus satrapa</i>	W	M	R
Ruby-crowned kinglet	<i>Regulus calendula</i>	W	M	P
Blue-gray gnatcatcher*	<i>Poliopitila caerulea</i>	B	M	R,G
Western bluebird*	<i>Sialia mexicana</i>	R	M	R
Swainson's thrush	<i>Catharus ustulatus</i>	B	M	P
Hermit thrush	<i>Catharus guttatus</i>	W	M	R,G
Varied thrush	<i>Ixoreus naevius</i>	W	M	P
American robin*	<i>Turdus migratorius</i>	R	M	P,G
Northern mockingbird	<i>Mimus polyglottos</i>	R	M	R
California thrasher*	<i>Toxostoma redivivum</i>	R	M	W,G
European starling*	<i>Sturnus vulgaris</i>	R	--	R,P
American pipit	<i>Anthus rubescens</i>	W	M	M
Cedar waxwing	<i>Bombycilla cedrorum</i>	W	M	G,W
Orange-crowned warbler	<i>Vermivora celata</i>	R	M	G,P
Yellow-rumped warbler	<i>Dendroica coronata</i>	B	M	G,P
Black-throated gray warbler*	<i>Dendroica nigrescens</i>	B	M	G,P
Townsend's warbler	<i>Dendroica townsendi</i>	W	M	P
Hermit warbler	<i>Dendroica occidentalis</i>	W	M	P
Yellow warbler*	<i>Dendroica petechia</i>	B	CSC (nesting), M	R
MacGillivray's warbler	<i>Oporonis tolmiei</i>	B	M	W,R
Wilson's warbler	<i>Wilsonia pusilla</i>	B	M	W,R
Common yellowthroat*	<i>Geothlypis trichas</i>	R	M	W,R
Yellow-breasted chat	<i>Icteria virens</i>	B	CSC (nesting), M	R
Western tanager	<i>Piranga ludoviviana</i>	B	M	P
California towhee*	<i>Pipilo crissalis</i>	R	M	R,P
Spotted towhee*	<i>Pipilo maculatus</i>	R	M	R,P
Rufous-crowned sparrow	<i>Aimophila ruficeps</i>	R	M	G

**WILDLIFE SPECIES OBSERVED OR LIKELY TO OCCUR IN THE VICINITY OF THE
PLAINS EXPLORATION AND PRODUCTION OIL FACILITY, SAN LUIS OBISPO, CALIFORNIA**

Common Name	Scientific Name	Residence Status	Protected Status	Habitat
Lark sparrow	<i>Chondestes grammacus</i>	B	M	G
Sage sparrow	<i>Amphispiza b. belli</i>	R	CSC, M	G,W
Fox sparrow	<i>Passerella iliaca</i>	W	M	G,W
Savannah sparrow	<i>Passerculus sandwichensis</i>	R	M	G
Lincoln's sparrow	<i>Melospiza lincolnii</i>	W	M	W,R
Song sparrow*	<i>Melospiza melodia</i>	R	M	G,W
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	R	M	R,W,G
Golden-crowned sparrow	<i>Zonotrichia atricapilla</i>	W	M	W,R
Dark-eyed junco*	<i>Junco hyemalis</i>	R	M	R,W,G
Black-headed grosbeak*	<i>Pheucticus melanocephalus</i>	B	M	R,P
Blue grosbeak	<i>Guiraca caerulea</i>	B	M	R,W,G
Lazuli bunting	<i>Passerina amoena</i>	B	M	R,W,G
Western meadowlark	<i>Sturnella neglecta</i>	R	M	W
Red-winged blackbird*	<i>Agelaius phoeniceus</i>	R	M	R
Tricolored blackbird	<i>Agelaius tricolor</i>	R	CSC, M	W
Great-tailed grackle	<i>Quiscalus mexicanus</i>	R	M	M
Brewer's blackbird*	<i>Euphagus cyanocephalus</i>	R	M	R,W,G
Brown-headed cowbird	<i>Molothrus ater</i>	R	M	R,W,G
Hooded oriole	<i>Icterus cucullatus</i>	B	M	M
Bullock's oriole*	<i>Icterus bullockii</i>	B	M	R,P
Purple finch	<i>Carpodacus purpureus</i>	R	M	R,G,P
House finch*	<i>Carpodacus mexicanus</i>	R	M	R,G,P
Pine siskin*	<i>Carduelis pinus</i>	W	M	R,P
American goldfinch	<i>Carduelis tristis</i>	R	M	R,P
Lesser goldfinch	<i>Carduelis psaltria</i>	B	M	R,P
Lawrence's goldfinch	<i>Carduelis lawrencei</i>	R	M	R,P
House sparrow	<i>Passer domesticus</i>	R	--	D
Common snipe*	<i>Gallinago gallinago</i>	R	M	R
Mammals				
Virginia opossum	<i>Didelphis virginiana</i>	R	--	R,P
Broad-footed mole	<i>Scapanus latimanus</i>	R	--	R,G
California myotis	<i>Myotis californicus</i>	R	--	P
Yuma myotis bat	<i>Myotis yumanensis</i>	R	--	R
Small-footed myotis	<i>Myotis ciliolabrum</i>	R	--	R,P
Long-eared myotis bat	<i>Myotis evotis</i>	R	--	R,P
Long-legged myotis bat	<i>Myotis volans</i>	R	--	P
Red bat	<i>Lasiurus borealis</i>	R	--	M
Fringed myotis bat	<i>Myotis thysanodes</i>	R	--	P
Hoary bat	<i>Lasiurus cinereus</i>	R	--	M
Big brown bat	<i>Episticus fuscus</i>	R	--	M
Townsend's big-eared bat	<i>Plecotus townsendii</i>	R	CSC	M
Pallid bat	<i>Antrozous pallidus</i>	R	CSC	M
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>	R	--	R,P,G
Western mastiff bat	<i>Eumops perotis</i>	R	CSC	M
Desert cottontail	<i>Sylvilagus audubonii</i>	R	--	G
Brush rabbit	<i>Sylvilagus bachmani</i>	R	--	R
Black-tailed jackrabbit*	<i>Lepus californicus</i>	R	--	P,G

**WILDLIFE SPECIES OBSERVED OR LIKELY TO OCCUR IN THE VICINITY OF THE
PLAINS EXPLORATION AND PRODUCTION OIL FACILITY, SAN LUIS OBISPO, CALIFORNIA**

Common Name	Scientific Name	Residence Status	Protected Status	Habitat
Merriam's chipmunk	<i>Tamias merriami</i>	R	--	G
California ground squirrel	<i>Spermophilus beecheyi</i>	R	--	G
Western gray squirrel	<i>Sciurus griseus</i>	R	--	R,P
Botta's pocket gopher	<i>Thomomys bottae</i>	R	--	R,G,P
California pocket mouse	<i>Chaetodipus californicus</i>	R	--	M
Beaver	<i>Castor canadensis</i>	R	--	A,R
Western harvest mouse	<i>Reithrodontomys megalotis</i>	R	--	G
Brush mouse	<i>Peromyscus boylii</i>	R	--	G
California mouse	<i>Peromyscus californicus</i>	R	--	G
Deer mouse	<i>Peromyscus maniculatus</i>	R	--	M
Dusky-footed woodrat*	<i>Neotoma fuscipes</i>	R	CSC	R,P
California vole*	<i>Microtus californicus</i>	R	--	R,G,W
Norway rat	<i>Rattus norvegicus</i>	R	--	D
Black rat	<i>Rattus rattus</i>	R	--	M
House mouse	<i>Mus musculus</i>	R	--	D
Domestic dog	<i>Canis familiaris</i>	R	--	D
Coyote*	<i>Canis latrans</i>	R	--	M
Gray fox*	<i>Urocyon cinereoargenteus</i>	R	--	M
Black bear	<i>Ursus americanus</i>	R	--	R,P,G
Ringtail	<i>Bassariscus astutus</i>	R	--	R
Raccoon*	<i>Procyon lotor</i>	R	--	M
Long-tailed weasel	<i>Mustela frenata</i>	R	--	M
American badger	<i>Taxidea taxus</i>	R	--	M
Western spotted skunk	<i>Spilogale gracilis</i>	R	--	R
Striped skunk	<i>Mephitis mephitis</i>	R	--	R,G
Domestic cat	<i>Felis catus</i>	R	--	M
Mountain lion	<i>Felis concolor</i>	R	--	R,P
Bobcat*	<i>Lynx rufus</i>	R	--	R
Mule deer*	<i>Odocoileus hemionus</i>	R	--	R,G

*Observed and/or signs (e.g., scat, tracks, vocalization, etc.) detected during field surveys conducted by Padre.

Residence Status

R = Permanent resident
W = Winter resident
B = Summer resident

Protected Status

FE – Federal endangered species
FT -- Federal threatened species
FC – Federal candidate species
M – Migratory Bird Treaty Act
SE – State endangered species
ST – State threatened species
CSC – California Species of Special Concern
CFP – California Fully Protected Species

Typical Habitat

A – Freshwater aquatic
D – Developed areas
G – Grassland
M – Multiple habitats
P – Woodland
R – Riparian
W - Wetland

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CALIFORNIA RED-LEGGED FROG REPORT

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**CALIFORNIA RED-LEGGED FROG (*RANA AURORA DRAYTONII*)
SURVEY RESULTS
FOR THE PXP PRODUCED WATER
RECLAMATION FACILITY
SAN LUIS OBISPO, CALIFORNIA**

Prepared for:

County of San Luis Obispo
Environmental and Resource Management Division
Department of Planning and Building
San Luis Obispo, California

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July 2007

Project No. 0702-0291

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TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION.....	1
2.0 CALIFORNIA RED-LEGGED FROG LITERATURE REVIEW.....	1
3.0 SURVEY METHODOLOGY.....	1
4.0 SURVEY SITE CHARACTERISTICS	2
4.1 PISMO CREEK	2
4.2 STOCK POND AND PROPOSED TEMPERING POND.....	2
5.0 SURVEY RESULTS.....	3
6.0 CALIFORNIA RED-LEGGED FROG PREDATOR CONTROL.....	4
7.0 CONCLUSION	4
8.0 REFERENCES.....	5

TABLES

TABLE 1. Survey Results for Pismo Creek

TABLE 2. Survey Results for the Stock Ponds

APPENDICES

APPENDIX A – Photo-documentation of the Survey Sites

APPENDIX B – Figure 1. Map of the Survey Sites

APPENDIX C – CRLF Survey Forms

APPENDIX D – Padre Staff Resumes

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1.0 INTRODUCTION

The following report documents recent California red-legged frog (CRLF) (*Rana aurora draytonii*) survey results for the Plains Exploration and Production Company (PXP) Arroyo Grande Oil Field Produced Water Reclamation Facility Subsequent Environmental Impact Report (SEIR) located in San Luis Obispo County, California. The surveys were conducted to determine the presence or absence of the federally-threatened CRLF and assess the potential impacts associated with the proposed installation of a permanent reclaimed water outfall structure at Pismo Creek and creation of the proposed tempering pond located within an existing stormwater collection basin.

All survey sites were selected based on the CRLF literature review (see below) and encompass proposed project impact areas that have the potential to affect aquatic habitats with the potential to contain CRLF.

2.0 CALIFORNIA RED-LEGGED FROG LITERATURE REVIEW

Prior to conducting CRLF field surveys, a literature review was conducted to investigate the historical presence of CRLF proximate to the proposed reclaimed water outfall structure at Pismo Creek and the proposed tempering pond. The literature review examined multiple sources of information including a query of the California Natural Diversity Database (CNDDDB 2007) and the Revised Hydrological, Water Quality, and Biological Characterization of Pismo Creek (Entrix 2006). The CNDDDB indicated that CRLF have recently been identified approximately 2.5 miles downstream of the subject project area in an unnamed tributary of Pismo Creek. Additionally, the Revised Hydrological, Water Quality, and Biological Characterization of Pismo Creek identified suitable habitat for CRLF, but did not indicate their presence (Entrix 2006).

3.0 SURVEY METHODOLOGY

All surveys were conducted in accordance to the USFWS Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog (USFWS 2005). When surveyors arrived at the site, attempts were made to identify CRLF vocalizations. Following auditory identification attempts, surveys were conducted by walking or boating transects of opportunity within all available CRLF habitat. The majority of the survey effort was focused on riparian areas that had the highest potential to contain CRLF. Surveys were conducted 500-feet up and downstream of the identified potential project impact area in Pismo Creek, within the proposed tempering pond, and in all nearby potential CRLF habitat areas including the existing stock pond located directly southeast of the proposed tempering pond. One or two biologists with prior experience with CRLF performed each respective survey. A thermometer (Traceable® Calibration Control Company) and a wind meter (Kestrel® 2000) were utilized to record weather data. Binoculars (Swift 10x42, Leica 10x42, and Audubon 10x42) and lights (Nite Lite® with < 100,000 candle power) were utilized to scan all available CRLF habitat, detect the species via eye-shine during night surveys, and to investigate potential CRLF refugium during the day.

4.0 SURVEY SITE CHARACTERISTICS

The following discussion details the respective survey site characteristics observed during the surveys. These characterizations include a physical description of the available aquatic habitat, dominant vegetation observed, and wildlife observed. Additionally, Figure 1 (Contained in Appendix B) provides the location of each survey site.

4.1 PISMO CREEK

Available CRLF habitat in Pismo Creek predominately consists of a narrow strip of willow scrub which comprises the riparian corridor of the creek (Refer to Appendix A – Photo 1). Ruderal areas surround the willow scrub habitat and include roadsides and oil production activities. The channel width of Pismo Creek is approximately 20 feet and the maximum depth exceeds 5 feet. Vegetation observed in this habitat includes Arroyo willow (*Salix lasiolepis*), coast live oak (*Quercus agrifolia*), black cottonwood (*Populus balsamifera ssp. trichocarpa*), western sycamore (*Platanus racemosa*), poison oak (*Toxicodendron diversilobum*), California blackberry (*Rubus ursinus*), Himalayan blackberry (*Rubus discolor*), periwinkle (*Vinca major*), and German ivy (*Senecio mikanoides*). Wildlife observed at this site included crayfish (*Procambrina clarkii*), American bullfrog (*Rana catesbeiana*), Pacific treefrog (*Pseudacris regilla*), Pacific pond turtle (*Actinemys marmorata pallida*), speckled dace (*Rhinichthys osculus*), rainbow (steelhead) trout (*Oncorhynchus mykiss*), prickly sculpin (*Cottus asper*), mallard (*Anas platyrhynchos*), yellow warbler (*Dendroica petechia*), black-headed grosbeak (*Pheucticus melanocephalus*), Pacific slope flycatcher (*Empidonax difficilis*), golden eagle (*Aquila chrysaetos*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), lesser goldfinch (*Carduelis psaltria*), house finch (*Carpodacus mexicanus*), house wren (*Troglodytes aedon*), and beaver (*Castor canadensis*).

4.2 STOCK POND AND PROPOSED TEMPERING POND

Available CRLF habitat proximate to the stock pond predominately consists of a narrow strip of California bulrush (*Scripus californicus*) and Arroyo willow dominated wetland surrounding the perimeter of the stock pond (Refer to Appendix A – Photos 2 and 3). The stock pond has a 60-foot width and a 110-foot length, and is predominantly oblong in shape. Surface water was present in the stock pond during each survey. The depth of the pool was not estimated during the surveys. Emergent vegetation observed in this habitat includes California bulrush, Arroyo willow, and greater duckweed (*Lemna major*). The areas surrounding the stock pond consist of relatively undisturbed oak woodland habitat and annual grasslands. A limited number of dirt access roads transect this area. Wildlife observed at this site included Pacific tree frog, American bullfrog, largemouth bass (*Micropterus salmoides*), red-winged blackbird (*Agelaius phoeniceus*), mallard, American turkey (*Meleagris gallopavo*), and common snipe (*Gallinago gallinago*). The proposed tempering pond is dominated by California bulrush and broad-leaved cattails (*Typha latifolia*) and no surface water was present during the surveys. Therefore, this area was surveyed, but the majority of the survey effort was committed to the stock pond which had surface water.

5.0 SURVEY RESULTS

The following tables depict the results of the CRLF surveys conducted at the sites described above. As required in the USFWS protocol, if CRLF were identified, surveys would be ceased at the respective site and further survey effort would not be exerted (USFWS 2005). When CRLF are not detected a total of eight surveys (2 day and 6 night) must be conducted to determine CRLF absence. Padre Biologists did not observe CRLF; therefore, a total of eight surveys were conducted at each respective site (Table 1 and 2).

TABLE 1: Survey Results for Pismo Creek.

Survey Number	Survey Date Start Time	Survey Type	Air Temp. Water Temp.	Weather Conditions	CRLF Detected
1	Date: 4/13/07 Time: 1500	Day	Air: 72.4°F Water: 61.8°F	0% cloud cover, 5.2 mph E wind	No
2	Date: 4/18/07 Time: 2045	Night	Air: 51.0°F Water: 56.7°F	0% cloud cover, new moon, 2.7 mph S wind	No
3	Date: 4/25/07 Time: 2100	Night	Air: 57.0°F Water: 59.5°F	10% cloud cover, ½ waxing moon, 0.5 mph S wind	No
4	Date: 5/02/07 Time: 2130	Night	Air: 54.5°F Water: 60.1°F	0% cloud cover, full moon, 3 mph SW wind	No
5	Date: 5/09/07 Time: 2200	Night	Air: 52.3°F Water: 60.7°F	100% cloud cover, ½ waning moon, 0.5 mph NE wind	No
6	Date: 5/17/07 Time: 2115	Night	Air: 56.6°F Water: 60.6°F	0% cloud cover, new moon, 0 mph wind	No
7	Date: 7/03/07 Time: 1352	Day	Air: 84.4°F Water: 71.1°F	0% cloud cover, 3.4 mph E wind	No
8	Date: 7/03/07 Time: 2130	Night	Air: 61.0°F Water: 67.0°F	0% cloud cover, ½ waxing moon, 0 mph wind	No

TABLE 2: Survey Results for the Stock Pond and Proposed Tempering Pond.

Survey Number	Survey Date Start Time	Survey Type	Air Temp. Water Temp.	Weather Conditions	CRLF Detected
1	Date: 4/13/07 Time: 1345	Day	Air: 74.7°F Water: 65.3°F	0% cloud cover, 6.1 mph NW wind	No
2	Date: 4/18/07 Time: 2200	Night	Air: 51.0°F Water: 61.7°F	0% cloud cover, new moon, 2.0	No

				mph S wind	
3	Date: 4/25/07 Time: 2020	Night	Air: 54.0°F Water: 63.0°F	15% cloud cover, ½ waxing moon, 3.5 mph S wind	No
4	Date: 5/02/07 Time: 2035	Night	Air: 55.5°F Water: 66.1°F	10% cloud cover, full moon, 1.7 mph SW wind	No
5	Date: 5/09/07 Time: 2100	Night	Air: 60.7°F Water: 67.3°F	100% cloud cover, full moon, ½ waning moon, 0 mph wind	No
6	Date: 5/17/07 Time: 2035	Night	Air: 52.9°F Water: 66.2°F	0% cloud cover, new moon, 1.6 mph W wind	No
7	Date: 7/03/07 Time: 1352	Day	Air: 81.4°F Water: 75.6°F	0% cloud cover, 4.6 mph E wind	No
8	Date: 7/03/07 Time: 2100	Night	Air: 60.3°F Water: 73.9°F	0% cloud cover, ½ waxing moon, 0 mph wind	No

6.0 CALIFORNIA RED-LEGGED FROG PREDATOR CONTROL

During the night surveys approximately 3 adult bullfrogs were eliminated from the Pismo Creek survey area (one bullfrog observed was dispatched on 4/18/07; 1 of 2 bullfrogs observed was dispatched on 5/02/07; and 1 of 2 bullfrogs observed was dispatched on 5/17/07). Prior to eradication, each frog was identified to species level. Following species identification, capture and subsequent dispatching was performed. Additionally, crayfish were observed in Pismo Creek and largemouth bass were observed in the stock pond near the proposed tempering pond.

7.0 CONCLUSION

CRLF were not observed at any of the surveyed sites. Although suitable habitat exists in both Pismo Creek and the existing stock ponds, the presence of bullfrogs in these areas may have assisted with the extirpation of CRLF from these locations. Correlations between the presence of bullfrogs and the absence of CRLF have been identified (Jennings and Hayes 1986); therefore, it is unlikely that CRLF will be identified in this area of Pismo Creek. Additionally, the southern stock pond maintains a population of largemouth bass. Scientific literature on the effects of largemouth bass on CRLF populations is nonexistent. Although the interactions of largemouth bass and CRLF populations remain obscure, researchers have identified negative effects to northern red-legged frogs (*Rana aurora aurora*) and CRLF in the presence of other centrarchids including smallmouth bass (*Micropterus dolomieu*) (Kiesecker and Blaustein 1998; Scott and Crossman 1973; Krise and Francis 1977; Adams et al. 2003).

8.0 REFERENCES

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- Hayes M.P., and M.R. Jennings. 1986. Decline of ranid frog species in western North America: are bullfrogs (*Rana catesbeiana*) responsible? *Journal of Herpetology* 20: 490-509.
- Kiesecker, J.M. and A.R. Blaustein. 1998. Effects of introduced bullfrogs and smallmouth bass on microhabitat use, growth, and survival of native red-legged frogs (*Rana aurora*). *Conservation Biology* 12(4): 776-787.
- Kruse, K.C., and M.G. Francis. 1977. A predation deterrent in the larvae of the bullfrog (*Rana catesbeiana*). *Transactions of the American Fisheries Society*. 106: 248-252.
- Scott, W.B., and E.J. Crossman. 1973. Freshwater fish of Canada. *Bulletin of the Fisheries Research Board of Canada* 184: 1-996.
- U.S. Fish and Wildlife Service (USFWS). 2005. Revised guidance on site assessments and field surveys for the California red-legged frog. U.S. Fish and Wildlife Service, Portland, Oregon. 26.

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APPENDIX A
Photo-documentation of Survey Sites.

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Photo 1: Representative Photo of the CRLF Habitat observed in the Pismo Creek survey area.



Photo 2: Representative Photo of the CRLF Habitat Observed at the Stock Pond.

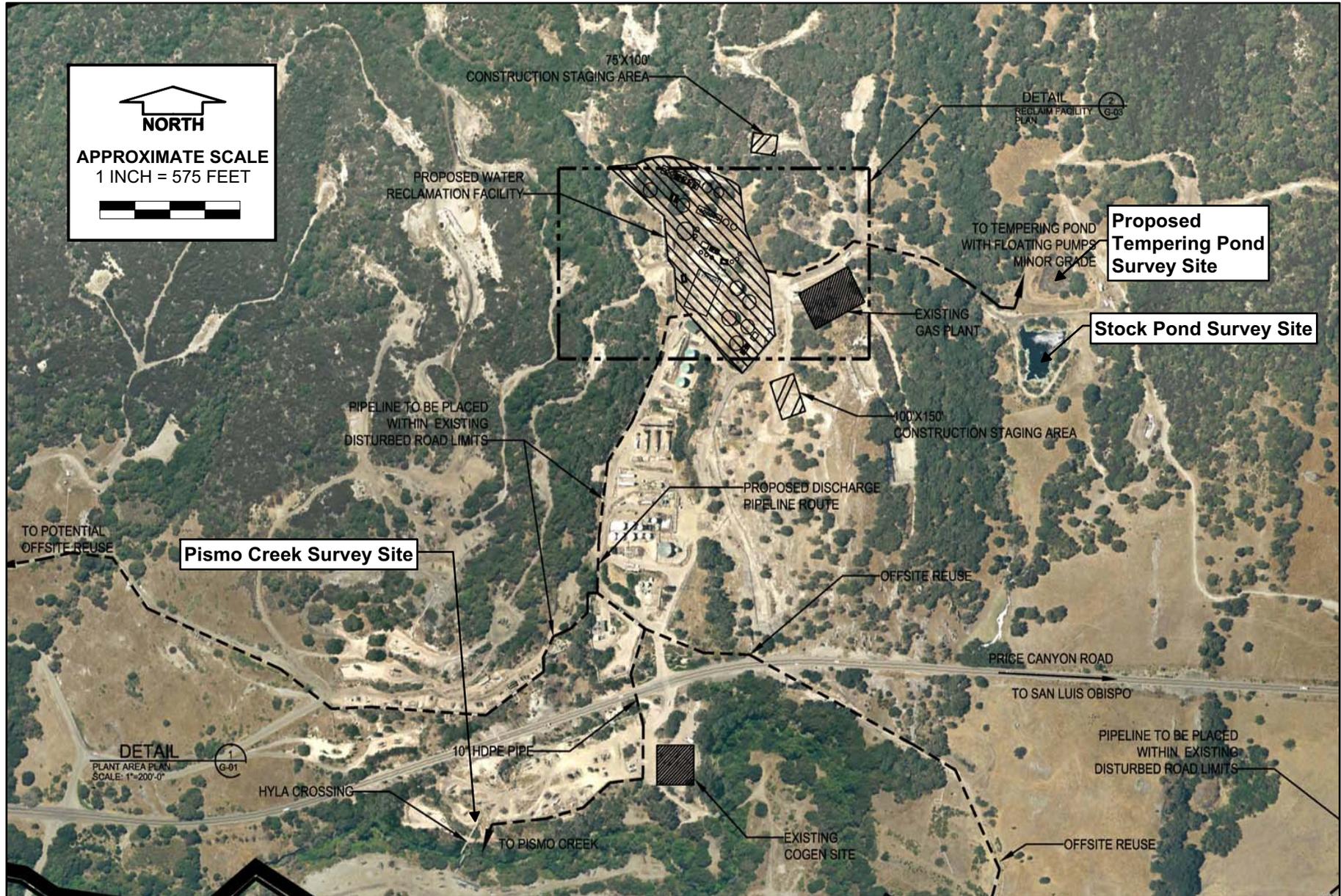


Photo 3: Representative Photo of the CRLF Habitat Observed at the Tempering Pond proposed for Land Management Modification.

APPENDIX B

Figure 1 – Map of Survey Sites

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APPENDIX C

CRLF Survey Forms

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AQUATIC SURVEY DATA FORM

DATE: <u>4/13/07</u>	PROJECT: <u>AXP RO WATER ETL PESMO CREEK CULV SURVEY</u>		
SURVEY BIOLOGIST(S): <u>K. HILLIAND B. DOUGAS</u>			
Time Start: <u>1500</u>	Time End: <u>1545</u>	Survey Duration: <u>45 MIN</u>	Unit-Effort: _____

LOCATION

City/County SLO/SLO ; _____ %; _____ -1/4 Section _____ Township _____ Range _____
 Latitude _____ Longitude _____ ; Quadrangle _____ ; Elevation _____
 ATTACH MAP (include habitat types, important features, and species locations)

TYPE OF SURVEY

Day Night; Breeding Non-Breeding; Survey Number: 1 2 3 4 5 6 7 8
 Brand name/model of light used to conduct survey: _____ Brand/model/power of binoculars used: SWIFT 10x42 LILECA 10x42

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 72.4°F (3"); Water Temperature 61.8°F; Wind Speed: 5.2 mph; Wind Direction E; Cloud Cover 0 %
 Precipitation _____ in.; Humidity 20 %; Moon Phase NA

AQUATIC HABITAT TYPE

River Stream Swale Ditch Lake Natural Pond Stock Pond Impoundment Vernal Pool Marsh/Wetland
 Hydrogeomorphology Class: Depression Slope Riverine

HYDROPERIOD

Permanent Intermittent Ephemeral

STREAM MORPHOMETRY/FEATURES

River/Creek Name PESMO CREEK River Mile _____ Stream Order _____
 Hydroperiod: Permanent Intermittent Ephemeral Reach Length _____ Right Bank Height _____ Left Bank Height _____
 Top Bank Width _____ Stream Width _____ Channel Width @ OHWM _____ Right Bank Slope _____ Left Bank Slope _____
 Water Depth _____ Sinuosity Index _____ Stream Gradient _____ Flow Velocity _____ Wetted Perimeter _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Riffles Pools (max. depth _____) Glides Undercut Banks LOD (jams/snags) Other _____
 Channel Condition: Terracing Bank or Bed Degradation

LAKE/POND MORPHOMETRY/FEATURES

Pond/Lake Name: _____ Hydroperiod: Permanent Seasonal
 Area: _____ Maximum Width _____ Maximum Length _____ Maximum Depth _____
 Shore Line _____ Shoreline Development _____ Width of Drawdown Zone _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Shoals Undercut Banks LOD (jams/snags) Other _____

SUBSTRATE (Percent)

Silt Sand Gravel Cobble Boulder Bedrock Other: _____

AQUATIC SURVEY DATA FORM

STREAM/POND VEGETATION

Canopy Cover(mid-day): 50%; Emergent Vegetation: X; Floating Vegetation ^; Open Water X
Dominant Species: COTTONWOOD, AR WELLOW, WE SYCAMORE, CED

ADJACENT COVER TYPE(S)

Woodland Shrub Savanna Grassland Wetland Agriculture Developed Other

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
<u>PROSCARIS RUBELLA</u>					<u>X</u>	<input type="checkbox"/> Visual <input checked="" type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
<u>CRAYFISH</u>				<u>X</u>		<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
<u>SPECKLED DACE</u>				<u>X</u>		<input type="checkbox"/> Visual <input type="checkbox"/> Call <input checked="" type="checkbox"/> Capture <input type="checkbox"/> Spotlight
<u>ALTIJEMIS MARMORATA</u>					<u>X</u>	<input type="checkbox"/> Visual <input type="checkbox"/> Call <input checked="" type="checkbox"/> Capture <input type="checkbox"/> Spotlight
						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
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Describe potential threats to California red-legged frogs observed, including non-native and native fish predators such as fish, bullfrogs, and raccoons:

DIAGRAM

NOTES

AQUATIC SURVEY DATA FORM

DATE: <u>4/18/07</u>	PROJECT: <u>PXP Produced Water Reclamation Facility (Existing pond & Proposed Temporing Pond)</u>		
SURVEY BIOLOGIST(S): <u>KLG / JKP</u>			
Time Start: <u>10:00 pm</u>	Time End: <u>10:45 pm</u>	Survey Duration: <u>45 min</u>	Unit-Effort: _____

LOCATION

City/County San Luis Obispo County; _____ %; _____ -1/4 Section _____ Township _____ Range _____

Latitude _____ Longitude _____; Quadrangle Pismo Beach 4; Elevation _____

****ATTACH MAP (include habitat types, important features, and species locations)**** Arroyo Grande NE

TYPE OF SURVEY

Day Night; Breeding Non-Breeding; Survey Number: 1 2 3 4 5 6 7 8

Brand name/model of light used: Nite Lite Brand/model/power of binoculars used: Audobon / Swift 10x42

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 51 °F (3"); Water Temperature 61.7 °F; Wind Speed: 2.0 mph; Wind Direction S; Cloud Cover 0 %

Precipitation 0 in.; Humidity _____ %; Moon Phase _____

AQUATIC HABITAT TYPE

River Stream Swale Ditch Lake Natural Pond Stock Pond Impoundment Vernal Pool Marsh/Wetland

Hydrogeomorphology Class: Depression Slope Riverine

HYDROPERIOD

Permanent Intermittent Ephemeral

STREAM MORPHOMETRY/FEATURES

River/Creek Name _____ River Mile _____ Stream Order _____

Hydroperiod: Permanent Intermittent Ephemeral Reach Length _____ Right Bank Height _____ Left Bank Height _____

Top Bank Width _____ Stream Width _____ Channel Width @ OHWM _____ Right Bank Slope _____ Left Bank Slope _____

Water Depth _____ Sinuosity Index _____ Stream Gradient _____ Flow Velocity _____ Wetted Perimeter _____

Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)

Instream Structure: Riffles Pools (max. depth _____) Glides Undercut Banks LOD (jams/snags) Other _____

Channel Condition: Terracing Bank or Bed Degradation

LAKE/POND MORPHOMETRY/FEATURES

Pond/Lake Name: unnamed pond Hydroperiod: Permanent Seasonal

Area: _____ Maximum Width _____ Maximum Length _____ Maximum Depth _____

Shore Line _____ Shoreline Development _____ Width of Drawdown Zone _____

Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)

Instream Structure: Shoals Undercut Banks LOD (jams/snags) Other _____

SUBSTRATE (Percent)

Silt Sand Gravel Cobble Boulder Bedrock Other: _____

AQUATIC SURVEY DATA FORM

STREAM/POND VEGETATION

Canopy Cover(mid-day): 10%; Emergent Vegetation: ; Floating Vegetation ; Open Water 90%
 Dominant Species: Scirpus californicus, Lemna minor, Salix spp.

ADJACENT COVER TYPE(S)

Woodland Shrub Savanna Grassland Wetland Agriculture Developed Other
 (Riparian)

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
<i>Rana catesbeiana</i>					1	<input checked="" type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input checked="" type="checkbox"/> Spotlight
						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
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						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight

Describe potential threats to California red-legged frogs observed, including non-native and native fish predators such as fish, bullfrogs, and raccoons:

DIAGRAM

NOTES

AQUATIC SURVEY DATA FORM

DATE: <u>4/25/07</u>	PROJECT: <u>PXP Produced Water Reclamation Facility (Existing pond & Proposed Temporary Pond)</u>		
SURVEY BIOLOGIST(S): <u>KLG / JKP</u>			
Time Start: <u>8:20 pm</u>	Time End: <u>9:50 pm</u>	Survey Duration: <u>30 min</u>	Unit-Effort: _____

LOCATION

City/County San Luis Obispo County; _____ 1/4; _____ -1/4 Section _____ Township _____ Range _____
 Latitude _____ Longitude _____; Quadrangle Pismo Beach 4; Elevation _____
Arroyo Grande NE
****ATTACH MAP (include habitat types, important features, and species locations)****

TYPE OF SURVEY

Day Night; Breeding Non-Breeding; Survey Number: 1 2 3 4 5 6 7 8
 Brand name/model of light used to conduct survey: Nite Lite Brand/model/power of binoculars used: Audobon / Swift 10x42

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 54 °F (3"); Water Temperature 10.5 °F; Wind Speed: 3.9 mph; Wind Direction S; Cloud Cover 15 %
 Precipitation 0 in.; Humidity _____%; Moon Phase 1/2 Waxing

AQUATIC HABITAT TYPE

River Stream Swale Ditch Lake Natural Pond Stock Pond Impoundment Vernal Pool Marsh/Wetland
 Hydrogeomorphology Class: Depression Slope Riverine

HYDROPERIOD

Permanent Intermittent Ephemeral

STREAM MORPHOMETRY/FEATURES

River/Creek Name _____ River Mile _____ Stream Order _____
 Hydroperiod: Permanent Intermittent Ephemeral Reach Length _____ Right Bank Height _____ Left Bank Height _____
 Top Bank Width _____ Stream Width _____ Channel Width @ OHWM _____ Right Bank Slope _____ Left Bank Slope _____
 Water Depth _____ Sinuosity Index _____ Stream Gradient _____ Flow Velocity _____ Wetted Perimeter _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Riffles Pools (max. depth _____) Glides Undercut Banks LOD (jams/snags) Other _____
 Channel Condition: Terracing Bank or Bed Degradation

LAKE/POND MORPHOMETRY/FEATURES

Pond/Lake Name: unnamed pond Hydroperiod: Permanent Seasonal
 Area: _____ Maximum Width _____ Maximum Length _____ Maximum Depth _____
 Shore Line _____ Shoreline Development _____ Width of Drawdown Zone _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Shoals Undercut Banks LOD (jams/snags) Other _____

SUBSTRATE (Percent)

Silt Sand Gravel Cobble Boulder Bedrock Other: _____

AQUATIC SURVEY DATA FORM

STREAM/POND VEGETATION

Canopy Cover (mid-day): _____; Emergent Vegetation: ; Floating Vegetation: ; Open Water: _____

Dominant Species: *Refer to survey 2 data (4/18/07)*

ADJACENT COVER TYPE(S)

Woodland Shrub Savanna Grassland Wetland Agriculture Developed Other

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
<i>NONE</i>						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
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						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight

Describe potential threats to California red-legged frogs observed, including non-native and native fish predators such as fish, bullfrogs, and raccoons:

DIAGRAM

NOTES

AQUATIC SURVEY DATA FORM



DATE: <u>5/2/07</u>	PROJECT: <u>PXP Produced Water Project (Temporary pond / existing pond)</u>		
SURVEY BIOLOGIST(S): <u>KLG / JKP</u>			
Time Start: <u>2035</u>	Time End: <u>2115</u>	Survey Duration: <u>40 min</u>	Unit-Effort: _____

LOCATION

City/County San Luis Obispo County; _____ 1/4; _____ - 1/4 Section _____ Township _____ Range _____

Latitude _____ Longitude _____; Quadrangle Pismo Beach / Arroyo Grande NE; Elevation _____

****ATTACH MAP** (include habitat types, important features, and species locations)**

TYPE OF SURVEY

Day Night; Breeding Non-Breeding; Survey Number: . 1 2 3 4 5 6 7 8

Brand name/model of light used: Nite Lite Brand/model/power of binoculars used: Swift / Audubon 10x42

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 55-59°F (3"); Water Temperature low °F; Wind Speed: 1-7 mph; Wind Direction S; Cloud Cover 10 %

Precipitation 0 in.; Humidity _____ %; Moon Phase _____

AQUATIC HABITAT TYPE

River Stream Swale Ditch Lake Natural Pond Stock Pond Impoundment Vernal Pool Marsh/Wetland

Hydrogeomorphology Class: Depression Slope Riverine

HYDROPERIOD

Permanent Intermittent Ephemeral

STREAM MORPHOMETRY/FEATURES

River/Creek Name _____ River Mile _____ Stream Order _____

Hydroperiod: Permanent Intermittent Ephemeral Reach Length _____ Right Bank Height _____ Left Bank Height _____

Top Bank Width _____ Stream Width _____ Channel Width @ OHWM _____ Right Bank Slope _____ Left Bank Slope _____

Water Depth _____ Sinuosity Index _____ Stream Gradient _____ Flow Velocity _____ Wetted Perimeter _____

Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)

Instream Structure: Riffles Pools (max. depth _____) Glides Undercut Banks LOD (jams/snags) Other _____

Channel Condition: Terracing Bank or Bed Degradation

LAKE/POND MORPHOMETRY/FEATURES

Pond/Lake Name: unnamed pond Hydroperiod: Permanent Seasonal

Area: _____ Maximum Width _____ Maximum Length _____ Maximum Depth _____

Shore Line _____ Shoreline Development _____ Width of Drawdown Zone _____

Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)

Instream Structure: Shoals Undercut Banks LOD (jams/snags) Other _____

SUBSTRATE (Percent)

Silt Sand Gravel Cobble Boulder Bedrock Other: _____

AQUATIC SURVEY DATA FORM

STREAM/POND VEGETATION

Canopy Cover(mid-day): _____; Emergent Vegetation: _____; Floating Vegetation _____; Open Water _____
 Dominant Species: *REFER TO SURVEY 2 data (4/18/07)*

ADJACENT COVER TYPE(S)

Woodland Shrub Savanna Grassland Wetland Agriculture Developed Other

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
<i>NONE</i>						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
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Describe potential threats to California red-legged frogs observed, including non-native and native fish predators such as fish, bullfrogs, and raccoons:

DIAGRAM

NOTES

AQUATIC SURVEY DATA FORM

DATE: <u>5/9/07</u>	PROJECT: <u>PXP AG FIELD</u>		
INVESTIGATOR(S): <u>K. GILLELAND C. SANTALA</u>			
Time Start: <u>1900 2100</u>	Time End: <u>2145</u>	Survey Duration: <u>45</u>	Unit-Effort: _____

LOCATION

City/County TEMPERENH POND ; _____ %; _____ -1/4 Section _____ Township _____ Range _____
 Latitude _____ Longitude _____ ; Quadrangle _____ ; Elevation _____

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 60.7°F (3"); Water Temperature 67.3°F; Wind Speed: 0 mph; Wind Direction NA; Cloud Cover 100%. Precipitation _____ in.
FRESH FOG

AQUATIC HABITAT TYPE FULL MOON

River Stream Swale Ditch Lake Natural Pond Stock Pond Impoundment Vernal Pool Marsh/Wetland
 Hydrogeomorphology Class: Depression Slope Riverine

HYDROPERIOD

Permanent Intermittent Ephemeral

STREAM MORPHOMETRY/FEATURES

River/Creek Name TEMPERENH PONDS River Mile _____ Stream Order _____
 Hydroperiod: Permanent Intermittent Ephemeral Reach Length _____ Right Bank Height _____ Left Bank Height _____
 Top Bank Width _____ Stream Width _____ Channel Width @ OHWM _____ Right Bank Slope _____ Left Bank Slope _____
 Water Depth _____ Sinuosity Index _____ Stream Gradient _____ Flow Velocity _____ Wetted Perimeter _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Riffles Pools (max. depth _____) Glides Undercut Banks LOD (jams/snags) Other _____
 Channel Condition: Terracing Bank or Bed Degradation

LAKE/POND MORPHOMETRY/FEATURES

Pond/Lake Name: _____ Hydroperiod: Permanent Seasonal
 Area: _____ Maximum Width _____ Maximum Length _____ Maximum Depth _____
 Shore Line _____ Shoreline Development _____ Width of Drawdown Zone _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Shoals Undercut Banks LOD (jams/snags) Other _____

SUBSTRATE (Percent)

Silt Sand Gravel Cobble Boulder Bedrock Other: _____

STREAM/POND VEGETATION

Canopy Cover(mid-day): _____ ; Emergent Vegetation: _____ ; Floating Vegetation _____ ; Open Water _____
 Dominant Species: _____

ADJACENT COVER TYPE(S)

Woodland Shrub Savanna Grassland Wetland Agriculture Developed Other _____

AQUATIC SURVEY DATA FORM

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
<i>RANA CATESBEIANA</i>					1	<input checked="" type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
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DIAGRAM

NOTES

AQUATIC SURVEY DATA FORM

DATE: <u>5/17/07</u>	PROJECT: <u>PXP Produced Water Reclamation Facility (temporing pond)</u>		
SURVEY BIOLOGIST(S): <u>KLA / JKP</u>			
Time Start: <u>2039</u>	Time End: <u>2150</u>	Survey Duration: <u>29 min</u>	Unit-Effort: _____

LOCATION

City/County San Luis Obispo Co.; _____ 1/4; _____ -1/4 Section _____ Township _____ Range _____
 Latitude _____ Longitude _____; Quadrangle Pismo Beach #; Elevation _____
RR 406 Range NE

****ATTACH MAP (include habitat types, important features, and species locations)****

TYPE OF SURVEY

Day Night; Breeding Non-Breeding; Survey Number: 1 2 3 4 5 6 7 8
 Brand name/model of light used: Nite Lite Brand/model/power of binoculars used: Audon/Swift 10x42

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 72.9 °F (3"); Water Temperature 66.2 °F; Wind Speed: 1.6 mph; Wind Direction W; Cloud Cover 0 %
 Precipitation 0 in.; Humidity 0 %; Moon Phase new moon

AQUATIC HABITAT TYPE

River Stream Swale Ditch Lake Natural Pond Stock Pond Impoundment Vernal Pool Marsh/Wetland
 Hydrogeomorphology Class: Depression Slope Riverine

HYDROPERIOD

Permanent Intermittent Ephemeral

STREAM MORPHOMETRY/FEATURES

River/Creek Name _____ River Mile _____ Stream Order _____
 Hydroperiod: Permanent Intermittent Ephemeral Reach Length _____ Right Bank Height _____ Left Bank Height _____
 Top Bank Width _____ Stream Width _____ Channel Width @ OHWM _____ Right Bank Slope _____ Left Bank Slope _____
 Water Depth _____ Sinuosity Index _____ Stream Gradient _____ Flow Velocity _____ Wetted Perimeter _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Riffles Pools (max. depth _____) Glides Undercut Banks LOD (jams/snags) Other _____
 Channel Condition: Terracing Bank or Bed Degradation

LAKE/POND MORPHOMETRY/FEATURES

Pond/Lake Name: unnamed pond Hydroperiod: Permanent Seasonal
 Area: _____ Maximum Width _____ Maximum Length _____ Maximum Depth _____
 Shore Line _____ Shoreline Development _____ Width of Drawdown Zone _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Shoals Undercut Banks LOD (jams/snags) Other _____

SUBSTRATE (Percent)

Silt Sand Gravel Cobble Boulder Bedrock Other: _____

AQUATIC SURVEY DATA FORM

STREAM/POND VEGETATION

Canopy Cover(mid-day): _____; Emergent Vegetation: _____; Floating Vegetation _____; Open Water _____
 Dominant Species: *refer to survey 2 data (4/18/07)*

ADJACENT COVER TYPE(S)

Woodland Shrub Savanna Grassland Wetland Agriculture Developed Other

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
<i>Rana catesbeiana</i>					<i>2</i>	<input checked="" type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input checked="" type="checkbox"/> Spotlight
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Describe potential threats to California red-legged frogs observed, including non-native and native fish predators such as fish, bullfrogs, and raccoons:

DIAGRAM

NOTES

AQUATIC SURVEY DATA FORM

DATE: <u>7/3/07</u>	PROJECT: <u>PXP</u>		
SURVEY BIOLOGIST(S):			
Time Start: <u>1352</u>	Time End: <u>1435</u>	Survey Duration: _____	Unit-Effort: _____

LOCATION

City/County SLO; _____ ¼; _____ -¼ Section _____ Township _____ Range _____
 Latitude _____ Longitude _____; Quadrangle _____; Elevation _____
****ATTACH MAP (include habitat types, important features, and species locations)****

TYPE OF SURVEY

Day Night; Breeding Non-Breeding; Survey Number: 1 2 3 4 5 6 7 8
 Brand name/model of light used: _____ Brand/model/power of binoculars used: _____

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 81.9°F (3"); Water Temperature 75.6°F; Wind Speed: 4.6 mph; Wind Direction E; Cloud Cover 0 %
 Precipitation N/A in.; Humidity _____%; Moon Phase N/A

AQUATIC HABITAT TYPE

River Stream Swale Ditch Lake Natural Pond Stock Pond Impoundment Vernal Pool Marsh/Wetland
 Hydrogeomorphology Class: Depression Slope Riverine

HYDROPERIOD

Permanent Intermittent Ephemeral

STREAM MORPHOMETRY/FEATURES

River/Creek Name TEMPERARY PONDS (EXISTING STOCK POND/PALPSCO TEMPERARY POND) River Mile _____ Stream Order _____
 Hydroperiod: Permanent Intermittent Ephemeral Reach Length _____ Right Bank Height _____ Left Bank Height _____
 Top Bank Width _____ Stream Width _____ Channel Width @ OHWM _____ Right Bank Slope _____ Left Bank Slope _____
 Water Depth _____ Sinuosity Index _____ Stream Gradient _____ Flow Velocity _____ Wetted Perimeter _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Riffles Pools (max. depth _____) Glides Undercut Banks LOD (jams/snags) Other _____
 Channel Condition: Terracing Bank or Bed Degradation

LAKE/POND MORPHOMETRY/FEATURES

Pond/Lake Name: _____ Hydroperiod: Permanent Seasonal
 Area: _____ Maximum Width _____ Maximum Length _____ Maximum Depth _____
 Shore Line _____ Shoreline Development _____ Width of Drawdown Zone _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Shoals Undercut Banks LOD (jams/snags) Other _____

SUBSTRATE (Percent)

Silt Sand Gravel Cobble Boulder Bedrock Other: _____

AQUATIC SURVEY DATA FORM

STREAM/POND VEGETATION

Canopy Cover(mid-day): _____; Emergent Vegetation: _____; Floating Vegetation _____; Open Water _____
 Dominant Species: _____

ADJACENT COVER TYPE(S)

Woodland Shrub Savanna Grassland Wetland Agriculture Developed Other

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
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						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight

Describe potential threats to California red-legged frogs observed, including non-native and native fish predators such as fish, bullfrogs, and raccoons:

DIAGRAM

NOTES

AQUATIC SURVEY DATA FORM

DATE: <u>7/3/07</u>	PROJECT: <u>PXP Produced Water Project (stock pond / tempering pond)</u>		
SURVEY BIOLOGIST(S): <u>C. Santala, J. Peak</u>			
Time Start: <u>2100</u>	Time End: <u>2120</u>	Survey Duration: <u>20 min</u>	Unit-Effort: _____

LOCATION

City/County San Luis Obispo County; _____%; _____-1/4 Section _____ Township _____ Range _____
 Latitude _____ Longitude _____; Quadrangle Arroyo Grande Elevation _____
 ATTACH MAP (include habitat types, important features, and species locations) NE of Pismo Beach

TYPE OF SURVEY

Day Night; Breeding Non-Breeding; Survey Number: 1 2 3 4 5 6 7 8
 Brand name/model of light used: _____ Brand/model/power of binoculars used: _____

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 60.3°F (3"); Water Temperature 13.9°F; Wind Speed: 0 mph; Wind Direction N/A; Cloud Cover 0 %
 Precipitation 0 in.; Humidity _____%; Moon Phase 1/4 Waxing

AQUATIC HABITAT TYPE

River Stream Swale Ditch Lake Natural Pond Stock Pond Impoundment Vernal Pool Marsh/Wetland
 Hydrogeomorphology Class: Depression Slope Riverine

HYDROPERIOD

Permanent Intermittent Ephemeral

STREAM MORPHOMETRY/FEATURES

River/Creek Name _____ River Mile _____ Stream Order _____
 Hydroperiod: Permanent Intermittent Ephemeral Reach Length _____ Right Bank Height _____ Left Bank Height _____
 Top Bank Width _____ Stream Width _____ Channel Width @ OHWM _____ Right Bank Slope _____ Left Bank Slope _____
 Water Depth _____ Sinuosity Index _____ Stream Gradient _____ Flow Velocity _____ Wetted Perimeter _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Riffles Pools (max. depth _____) Glides Undercut Banks LOD (jams/snags) Other _____
 Channel Condition: Terracing Bank or Bed Degradation

LAKE/POND MORPHOMETRY/FEATURES

Pond/Lake Name: unnamed pond Hydroperiod: Permanent Seasonal
 Area: _____ Maximum Width _____ Maximum Length _____ Maximum Depth _____
 Shore Line _____ Shoreline Development _____ Width of Drawdown Zone _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Shoals Undercut Banks LOD (jams/snags) Other _____

SUBSTRATE (Percent)

Silt Sand Gravel Cobble Boulder Bedrock Other: _____

AQUATIC SURVEY DATA FORM

STREAM/POND VEGETATION

Canopy Cover(mid-day): 10%; Emergent Vegetation: _____; Floating Vegetation _____; Open Water 90%
 Dominant Species: See SURVEY 3 data

ADJACENT COVER TYPE(S)

Woodland
 Shrub
 Savanna
 Grassland
 Wetland
 Agriculture
 Developed
 Other

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
<u>None</u>						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
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Describe potential threats to California red-legged frogs observed, including non-native and native fish predators such as fish, bullfrogs, and raccoons:

DIAGRAM

NOTES

AQUATIC SURVEY DATA FORM

DATE: <u>4/13/07</u>	PROJECT: <u>PXP RD WATER ERO TEMPORARY POND</u>		
SURVEY BIOLOGIST(S): <u>B. DUGAS / K. BELLELAND</u>			
Time Start: <u>1345</u>	Time End: <u>1425</u>	Survey Duration: _____	Unit-Effort: _____

LOCATION

City/County SLO/SLO PXP AG FIELD; _____ %; _____ -1/4 Section _____ Township _____ Range _____
 Latitude _____ Longitude _____; Quadrangle _____; Elevation _____
****ATTACH MAP (include habitat types, important features, and species locations)****

TYPE OF SURVEY

Day Night; Breeding Non-Breeding; Survey Number: 1 2 3 4 5 6 7 8
 Brand name/model of light used to conduct survey: _____ Brand/model/power of binoculars used: SWIFT 10X42 LEICA 10X42

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 74.7 °F (3"); Water Temperature 65.3 °F; Wind Speed: 6.1 mph; Wind Direction NW; Cloud Cover 0 %
 Precipitation _____ in.; Humidity 20 %; Moon Phase NA

AQUATIC HABITAT TYPE

River Stream Swale Ditch Lake Natural Pond Stock Pond Impoundment Vernal Pool Marsh/Wetland
 Hydrogeomorphology Class: Depression Slope Riverine

HYDROPERIOD

Permanent Intermittent Ephemeral

STREAM MORPHOMETRY/FEATURES

River/Creek Name TEMPORARY POND River Mile _____ Stream Order _____
 Hydroperiod: Permanent Intermittent Ephemeral Reach Length _____ Right Bank Height _____ Left Bank Height _____
 Top Bank Width _____ Stream Width _____ Channel Width @ OHWM _____ Right Bank Slope _____ Left Bank Slope _____
 Water Depth _____ Sinuosity Index _____ Stream Gradient _____ Flow Velocity _____ Wetted Perimeter _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Riffles Pools (max. depth _____) Glides Undercut Banks LOD (jams/snags) Other _____
 Channel Condition: Terracing Bank or Bed Degradation

LAKE/POND MORPHOMETRY/FEATURES

Pond/Lake Name: _____ Hydroperiod: Permanent Seasonal
 Area: _____ Maximum Width _____ Maximum Length _____ Maximum Depth _____
 Shore Line _____ Shoreline Development _____ Width of Drawdown Zone _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Shoals Undercut Banks LOD (jams/snags) Other _____

SUBSTRATE (Percent)

Silt Sand Gravel Cobble Boulder Bedrock Other: _____

AQUATIC SURVEY DATA FORM

STREAM/POND VEGETATION

Canopy Cover(mid-day): 10%; Emergent Vegetation: X; Floating Vegetation X; Open Water X
 Dominant Species:

ADJACENT COVER TYPE(S)

Woodland Shrub Savanna Grassland Wetland Agriculture Developed Other

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
LARGE MOUTH BASS				X		<input type="checkbox"/> Visual <input type="checkbox"/> Call <input checked="" type="checkbox"/> Capture <input type="checkbox"/> Spotlight
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Describe potential threats to California red-legged frogs observed, including non-native and native fish predators such as fish, bullfrogs, and raccoons:

DIAGRAM

NOTES

AQUATIC SURVEY DATA FORM

DATE: <u>4/18/07</u>	PROJECT: <u>PXP Produced Water Reclamation Facility (Pismo Creek)</u>		
SURVEY BIOLOGIST(S): <u>KLG / JKP</u>			
Time Start: <u>8:45 pm</u>	Time End: <u>10:00 pm</u>	Survey Duration: <u>1 hr 15 min</u>	Unit-Effort: _____

LOCATION

City/County San Luis Obispo County; _____ 1/4; _____ -1/4 Section _____ Township _____ Range _____
 Latitude _____ Longitude _____; Quadrangle Pismo Beach 4; Elevation _____
 ATTACH MAP (include habitat types, important features, and species locations) Arroyo Grande NE

TYPE OF SURVEY

Day Night; Breeding Non-Breeding; Survey Number: 1 2 3 4 5 6 7 8
 Brand name/model of light used: Nite Lite Brand/model/power of binoculars used: Audubon / Swift 10x42

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 91 °F (3"); Water Temperature 56-7 °F; Wind Speed: 2.7 mph; Wind Direction S; Cloud Cover 0 %
 Precipitation 0 in.; Humidity _____%; Moon Phase _____

AQUATIC HABITAT TYPE

River Stream Swale Ditch Lake Natural Pond Stock Pond Impoundment Vernal Pool Marsh/Wetland
 Hydrogeomorphology Class: Depression Slope Riverine

HYDROPERIOD

Permanent Intermittent Ephemeral

STREAM MORPHOMETRY/FEATURES

River/Creek Name Pismo Creek River Mile _____ Stream Order _____
 Hydroperiod: Permanent Intermittent Ephemeral Reach Length _____ Right Bank Height _____ Left Bank Height _____
 Top Bank Width _____ Stream Width _____ Channel Width @ OHWM _____ Right Bank Slope _____ Left Bank Slope _____
 Water Depth _____ Sinuosity Index _____ Stream Gradient _____ Flow Velocity _____ Wetted Perimeter _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Riffles Pools (max. depth _____) Glides Undercut Banks LOD (jams/snags) Other Beaver Dams
 Channel Condition: Terracing Bank or Bed Degradation

LAKE/POND MORPHOMETRY/FEATURES

Pond/Lake Name: _____ Hydroperiod: Permanent Seasonal
 Area: _____ Maximum Width _____ Maximum Length _____ Maximum Depth _____
 Shore Line _____ Shoreline Development _____ Width of Drawdown Zone _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Shoals Undercut Banks LOD (jams/snags) Other _____

SUBSTRATE (Percent)

Silt Sand Gravel Cobble Boulder Bedrock Other: _____

AQUATIC SURVEY DATA FORM

STREAM/POND VEGETATION

Canopy Cover (mid-day): 100%; Emergent Vegetation: ; Floating Vegetation ; Open Water 40%
 Dominant Species: Platanus racemosa, Salix spp., Toxicodendron diversilobum, Rubus ursinus, R. discolor
Populus fremontii, Vinca major, Quercus agrifolia, Senecio mikanioides

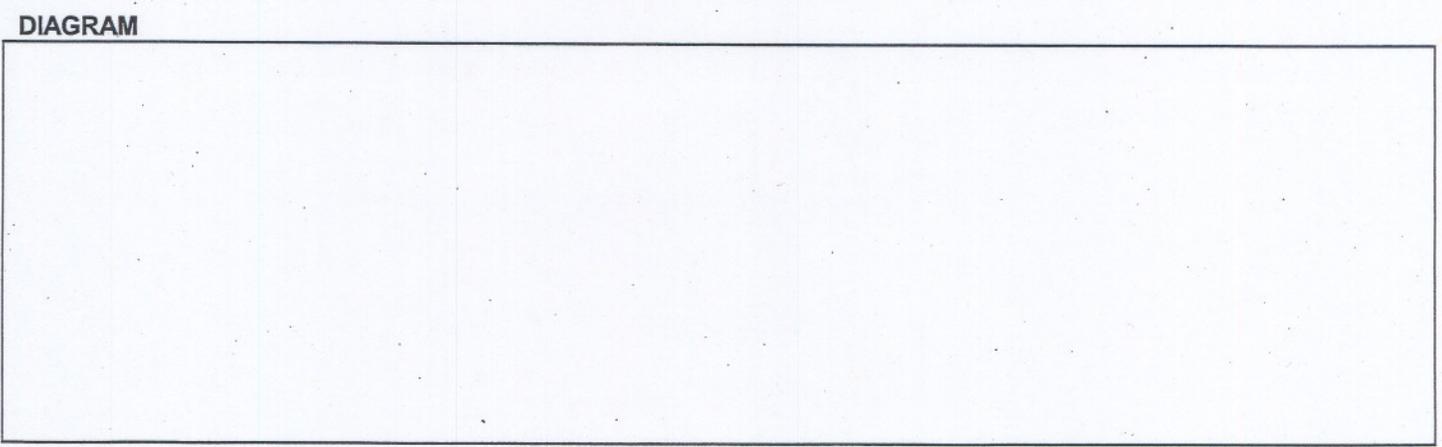
ADJACENT COVER TYPE(S)

Woodland (Riparian) Shrub Savanna Grassland Wetland Agriculture Developed Other

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
<i>Rana catesbeiana</i>					1	<input checked="" type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input checked="" type="checkbox"/> Spotlight
<i>Pseudacris regilla</i>					10	<input type="checkbox"/> Visual <input checked="" type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
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Other:						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
<i>Castor canadensis</i> (Beaver)					1	<input checked="" type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input checked="" type="checkbox"/> Spotlight
						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
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						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight

Describe potential threats to California red-legged frogs observed, including non-native and native fish predators such as fish, bullfrogs, and raccoons:



NOTES

AQUATIC SURVEY DATA FORM

*Existing Pond #
 Pismo Creek*

DATE: 4/25/07 PROJECT: PXP Produced Water Reclamation Facility
 SURVEY BIOLOGIST(S): KLG / SKP
 Time Start: 9:00pm Time End: 10:00pm Survey Duration: 1 hr. Unit-Effort: _____

LOCATION

City/County San Luis Obispo County; _____ 1/4; _____ - 1/4 Section _____ Township _____ Range _____
 Latitude _____ Longitude _____; Quadrangle Pismo Beach #; Elevation _____
 ATTACH MAP (include habitat types, important features, and species locations) Arroyo Grande NE

TYPE OF SURVEY

Day Night; Breeding Non-Breeding; Survey Number: 1 2 3 4 5 6 7 8
 Brand name/model of light used to conduct survey: Nite Lite Brand/model/power of binoculars used: Audobon/Swift 10x42

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 57 °F (3"); Water Temperature 59.5 F; Wind Speed: 0.5 mph; Wind Direction 3; Cloud Cover 10 %
 Precipitation 0 in.; Humidity _____%; Moon Phase 1/2 waxing

AQUATIC HABITAT TYPE

River Stream Swale Ditch Lake Natural Pond Stock Pond Impoundment Vernal Pool Marsh/Wetland
 Hydrogeomorphology Class: Depression Slope Riverine

HYDROPERIOD

Permanent Intermittent Ephemeral

STREAM MORPHOMETRY/FEATURES

River/Creek Name Pismo Creek River Mile _____ Stream Order _____
 Hydroperiod: Permanent Intermittent Ephemeral Reach Length _____ Right Bank Height _____ Left Bank Height _____
 Top Bank Width _____ Stream Width _____ Channel Width @ OHWM _____ Right Bank Slope _____ Left Bank Slope _____
 Water Depth _____ Sinuosity Index _____ Stream Gradient _____ Flow Velocity _____ Wetted Perimeter _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Riffles Pools (max. depth _____) Glides Undercut Banks LOD (jams/snags) Other Beaver dams
 Channel Condition: Terracing Bank or Bed Degradation

LAKE/POND MORPHOMETRY/FEATURES

Pond/Lake Name: _____ Hydroperiod: Permanent Seasonal
 Area: _____ Maximum Width _____ Maximum Length _____ Maximum Depth _____
 Shore Line _____ Shoreline Development _____ Width of Drawdown Zone _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Shoals Undercut Banks LOD (jams/snags) Other _____

SUBSTRATE (Percent)

Silt Sand Gravel Cobble Boulder Bedrock Other: _____

AQUATIC SURVEY DATA FORM

STREAM/POND VEGETATION

Canopy Cover(mid-day): _____; Emergent Vegetation: _____; Floating Vegetation _____; Open Water _____

Dominant Species: *refer to survey 2 data (4/13/07)*

ADJACENT COVER TYPE(S)

Woodland Shrub Savanna Grassland Wetland Agriculture Developed Other

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
<i>Pseudacris regilla</i>					+20	<input type="checkbox"/> Visual <input checked="" type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
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						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
<i>Other:</i>						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
<i>crayfish</i>					1	<input checked="" type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input checked="" type="checkbox"/> Spotlight
						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
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						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight

Describe potential threats to California red-legged frogs observed, including non-native and native fish predators such as fish, bullfrogs, and raccoons:

DIAGRAM

NOTES

AQUATIC SURVEY DATA FORM

DATE: <u>5/2/07</u>	PROJECT: <u>PXP Produced Water Project (Pismo Creek)</u>		
SURVEY BIOLOGIST(S): <u>KLG / JKP</u>			
Time Start: <u>2130</u>	Time End: <u>2230</u>	Survey Duration: <u>1 hour</u>	Unit-Effort: _____

LOCATION

City/County San Luis Obispo Co.; _____ %; _____ -1/4 Section _____ Township _____ Range _____
 Latitude _____ Longitude _____; Quadrangle Pismo Beach & Arroyo Grande NE; Elevation _____
****ATTACH MAP (include habitat types, important features, and species locations)****

TYPE OF SURVEY

Day Night; Breeding Non-Breeding; Survey Number: 1 2 3 4 5 6 7 8
 Brand name/model of light used: _____ Brand/model/power of binoculars used: _____

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 54.5°F (3"); Water Temperature 60.1°F; Wind Speed: 3 mph; Wind Direction SW; Cloud Cover 0 %
 Precipitation 0 in.; Humidity _____ %; Moon Phase _____

AQUATIC HABITAT TYPE

River Stream Swale Ditch Lake Natural Pond Stock Pond Impoundment Vernal Pool Marsh/Wetland
 Hydrogeomorphology Class: Depression Slope Riverine

HYDROPERIOD

Permanent Intermittent Ephemeral

STREAM MORPHOMETRY/FEATURES

River/Creek Name Pismo Creek River Mile _____ Stream Order _____
 Hydroperiod: Permanent Intermittent Ephemeral Reach Length _____ Right Bank Height _____ Left Bank Height _____
 Top Bank Width _____ Stream Width _____ Channel Width @ OHWM _____ Right Bank Slope _____ Left Bank Slope _____
 Water Depth _____ Sinuosity Index _____ Stream Gradient _____ Flow Velocity _____ Wetted Perimeter _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Riffles Pools (max. depth _____) Glides Undercut Banks LOD (jams/snags) Other _____
 Channel Condition: Terracing Bank or Bed Degradation

LAKE/POND MORPHOMETRY/FEATURES

Pond/Lake Name: _____ Hydroperiod: Permanent Seasonal
 Area: _____ Maximum Width _____ Maximum Length _____ Maximum Depth _____
 Shore Line _____ Shoreline Development _____ Width of Drawdown Zone _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Shoals Undercut Banks LOD (jams/snags) Other _____

SUBSTRATE (Percent)

Silt Sand Gravel Cobble Boulder Bedrock Other: _____

AQUATIC SURVEY DATA FORM

STREAM/POND VEGETATION

Canopy Cover(mid-day): _____; Emergent Vegetation: _____; Floating Vegetation _____; Open Water _____

Dominant Species: *refer to survey 2 data (4/18/07)*

ADJACENT COVER TYPE(S)

Woodland Shrub Savanna Grassland Wetland Agriculture Developed Other

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
<i>PSEUDALLES REGILLA</i>					<input checked="" type="checkbox"/>	<input type="checkbox"/> Visual <input checked="" type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
<i>RANA CATESBEIANA</i>						<input checked="" type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
<i>RAINBOW TROUT</i>						<input checked="" type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
<i>SCULPIN</i>						<input checked="" type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
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						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight

Describe potential threats to California red-legged frogs observed, including non-native and native fish predators such as fish, bullfrogs, and raccoons:

DIAGRAM

NOTES

AQUATIC SURVEY DATA FORM

DATE: <u>5/9/07</u>	PROJECT: <u>PXP AG FIELD</u>		
INVESTIGATOR(S): <u>K. GELLELAND & C. SANTALA</u>			
Time Start: <u>2200</u>	Time End: <u>2250</u>	Survey Duration: <u>50</u>	Unit-Effort: _____

LOCATION

City/County PISMO CREEK ; _____ ¼; _____ -¼ Section _____ Township _____ Range _____
 Latitude _____ Longitude _____ ; Quadrangle _____ ; Elevation _____

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 52.3 °F (3"); Water Temperature 60.7 °F; Wind Speed: 5 mph; Wind Direction NE; Cloud Cover 100 % Precipitation _____ in.
HIGH FOG

AQUATIC HABITAT TYPE

FULL MOON

River Stream Swale Ditch Lake Natural Pond Stock Pond Impoundment Vernal Pool Marsh/Wetland
 Hydrogeomorphology Class: Depression Slope Riverine

HYDROPERIOD

Permanent Intermittent Ephemeral

STREAM MORPHOMETRY/FEATURES

River/Creek Name PISMO CREEK River Mile _____ Stream Order _____
 Hydroperiod: Permanent Intermittent Ephemeral Reach Length _____ Right Bank Height _____ Left Bank Height _____
 Top Bank Width _____ Stream Width _____ Channel Width @ OHWM _____ Right Bank Slope _____ Left Bank Slope _____
 Water Depth _____ Sinuosity Index _____ Stream Gradient _____ Flow Velocity _____ Wetted Perimeter _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Riffles Pools (max. depth _____) Glides Undercut Banks LOD (jams/snags) Other _____
 Channel Condition: Terracing Bank or Bed Degradation

LAKE/POND MORPHOMETRY/FEATURES

Pond/Lake Name: _____ Hydroperiod: Permanent Seasonal
 Area: _____ Maximum Width _____ Maximum Length _____ Maximum Depth _____
 Shore Line _____ Shoreline Development _____ Width of Drawdown Zone _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Shoals Undercut Banks LOD (jams/snags) Other _____

SUBSTRATE (Percent)

Silt Sand Gravel Cobble Boulder Bedrock Other: _____

STREAM/POND VEGETATION

Canopy Cover(mid-day): _____; Emergent Vegetation: _____; Floating Vegetation _____; Open Water _____
 Dominant Species: _____

ADJACENT COVER TYPE(S)

Woodland Shrub Savanna Grassland Wetland Agriculture Developed Other _____

AQUATIC SURVEY DATA FORM

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
PSEUDALIAS BEHELLA					/	<input type="checkbox"/> Visual <input checked="" type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
UNKNOWN RANID					2	<input checked="" type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
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						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight

DIAGRAM

NOTES

AQUATIC SURVEY DATA FORM

DATE: <u>9/17/07</u>	PROJECT: <u>RXP Produced Water Reclamation Facility (Pismo Creek)</u>		
SURVEY BIOLOGIST(S): <u>KLG / JKP</u>			
Time Start: <u>2115</u>	Time End: <u>2230</u>	Survey Duration: <u>1hr 15min</u>	Unit-Effort: _____

LOCATION

City/County San Luis Obispo Co.; _____ 1/4; _____ -1/4 Section _____ Township _____ Range _____
Latitude _____ Longitude _____; Quadrangle _____; Elevation _____
****ATTACH MAP (include habitat types, important features, and species locations)****

TYPE OF SURVEY

Day Night; Breeding Non-Breeding; Survey Number: 1 2 3 4 6 7 8
Brand name/model of light used: Nite Lite Brand/model/power of binoculars used: Audobon/swift 10x42

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 56.6 °F (3"); Water Temperature 50.6 °F; Wind Speed: 0 mph; Wind Direction _____; Cloud Cover 0 %
Precipitation 0 in.; Humidity 0 %; Moon Phase new moon waxing

AQUATIC HABITAT TYPE

River Stream Swale Ditch Lake Natural Pond Stock Pond Impoundment Vernal Pool Marsh/Wetland
Hydrogeomorphology Class: Depression Slope Riverine

HYDROPERIOD

Permanent Intermittent Ephemeral

STREAM MORPHOMETRY/FEATURES

River/Creek Name Pismo Creek River Mile _____ Stream Order _____
Hydroperiod: Permanent Intermittent Ephemeral Reach Length _____ Right Bank Height _____ Left Bank Height _____
Top Bank Width _____ Stream Width _____ Channel Width @ OHWM _____ Right Bank Slope _____ Left Bank Slope _____
Water Depth _____ Sinuosity Index _____ Stream Gradient _____ Flow Velocity _____ Wetted Perimeter _____
Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
Instream Structure: Riffles Pools (max. depth _____) Glides Undercut Banks LOD (jams/snags) Other _____
Channel Condition: Terracing Bank or Bed Degradation

LAKE/POND MORPHOMETRY/FEATURES

Pond/Lake Name: _____ Hydroperiod: Permanent Seasonal
Area: _____ Maximum Width _____ Maximum Length _____ Maximum Depth _____
Shore Line _____ Shoreline Development _____ Width of Drawdown Zone _____
Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
Instream Structure: Shoals Undercut Banks LOD (jams/snags) Other _____

SUBSTRATE (Percent)

Silt Sand Gravel Cobble Boulder Bedrock Other: _____

AQUATIC SURVEY DATA FORM

STREAM/POND VEGETATION

Canopy Cover(mid-day): _____; Emergent Vegetation: _____; Floating Vegetation _____; Open Water _____

Dominant Species: *refer to survey 2 data (4/18/07)*

ADJACENT COVER TYPE(S)

- Woodland Shrub Savanna Grassland Wetland Agriculture Developed Other

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
<i>None</i>						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
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						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight

Describe potential threats to California red-legged frogs observed, including non-native and native fish predators such as fish, bullfrogs, and raccoons:

DIAGRAM

NOTES

AQUATIC SURVEY DATA FORM

DATE:	PROJECT:		
SURVEY BIOLOGIST(S):			
Time Start: <u>1404</u>	Time End: <u>1504</u>	Survey Duration: _____	Unit-Effort: _____

LOCATION

City/County _____; _____ ¼; _____ -¼ Section _____ Township _____ Range _____
 Latitude _____ Longitude _____; Quadrangle _____; Elevation _____
****ATTACH MAP (include habitat types, important features, and species locations)****

TYPE OF SURVEY

Day Night; Breeding Non-Breeding; Survey Number: 1 2 3 4 5 6 8
 Brand name/model of light used: _____ Brand/model/power of binoculars used: _____

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 84.4 °F (3"); Water Temperature 71.1 °F; Wind Speed: 3.4 mph; Wind Direction E; Cloud Cover 0 %
 Precipitation N/A in.; Humidity N/A %; Moon Phase N/A

AQUATIC HABITAT TYPE

River Stream Swale Ditch Lake Natural Pond Stock Pond Impoundment Vernal Pool Marsh/Wetland
 Hydrogeomorphology Class: Depression Slope Riverine

HYDROPERIOD

Permanent Intermittent Ephemeral

STREAM MORPHOMETRY/FEATURES

River/Creek Name PESMO CREEK River Mile _____ Stream Order _____
 Hydroperiod: Permanent Intermittent Ephemeral Reach Length _____ Right Bank Height _____ Left Bank Height _____
 Top Bank Width _____ Stream Width _____ Channel Width @ OHWM _____ Right Bank Slope _____ Left Bank Slope _____
 Water Depth _____ Sinuosity Index _____ Stream Gradient _____ Flow Velocity _____ Wetted Perimeter _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Riffles Pools (max. depth _____) Glides Undercut Banks LOD (jams/snags) Other _____
 Channel Condition: Terracing Bank or Bed Degradation

LAKE/POND MORPHOMETRY/FEATURES

Pond/Lake Name: _____ Hydroperiod: Permanent Seasonal
 Area: _____ Maximum Width _____ Maximum Length _____ Maximum Depth _____
 Shore Line _____ Shoreline Development _____ Width of Drawdown Zone _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Shoals Undercut Banks LOD (jams/snags) Other _____

SUBSTRATE (Percent)

Silt Sand Gravel Cobble Boulder Bedrock Other:

AQUATIC SURVEY DATA FORM

STREAM/POND VEGETATION

Canopy Cover(mid-day): _____; Emergent Vegetation: _____; Floating Vegetation _____; Open Water _____
 Dominant Species:

ADJACENT COVER TYPE(S)

Woodland Shrub Savanna Grassland Wetland Agriculture Developed Other

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
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						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight

Describe potential threats to California red-legged frogs observed, including non-native and native fish predators such as fish, bullfrogs, and raccoons:

DIAGRAM

NOTES

AQUATIC SURVEY DATA FORM

DATE: <u>7/3/07</u>	PROJECT: <u>PXP Produced Water Project (Pismo Creek)</u>		
SURVEY BIOLOGIST(S): <u>C. Santala, J. Peak</u>			
Time Start: <u>2130</u>	Time End: <u>2230</u>	Survey Duration: <u>1 hour</u>	Unit-Effort: _____

LOCATION

City/County San Luis Obispo County; _____ %; _____ -1/4 Section _____ Township _____ Range _____
 Latitude _____ Longitude _____; Quadrangle Arroyo Grande NE, Elevation _____
Pismo Beach
 ATTACH MAP (include habitat types, important features, and species locations)

TYPE OF SURVEY

Day Night; Breeding Non-Breeding; Survey Number: 1 2 3 4 5 6 7 8
 Brand name/model of light used: _____ Brand/model/power of binoculars used: _____

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 61 °F (3"); Water Temperature 67 °F; Wind Speed: 0 mph; Wind Direction N/A; Cloud Cover 0 %
 Precipitation 0 in.; Humidity _____%; Moon Phase 1/4 waning

AQUATIC HABITAT TYPE

River Stream Swale Ditch Lake Natural Pond Stock Pond Impoundment Vernal Pool Marsh/Wetland
 Hydrogeomorphology Class: Depression Slope Riverine

HYDROPERIOD

Permanent Intermittent Ephemeral

STREAM MORPHOMETRY/FEATURES

River/Creek Name Pismo Creek River Mile _____ Stream Order _____
 Hydroperiod: Permanent Intermittent Ephemeral Reach Length _____ Right Bank Height _____ Left Bank Height _____
 Top Bank Width _____ Stream Width _____ Channel Width @ OHWM _____ Right Bank Slope _____ Left Bank Slope _____
 Water Depth _____ Sinuosity Index _____ Stream Gradient _____ Flow Velocity _____ Wetted Perimeter _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Riffles Pools (max. depth _____) Glides Undercut Banks LOD (jams/snags) Other _____
 Channel Condition: Terracing Bank or Bed Degradation

LAKE/POND MORPHOMETRY/FEATURES

Pond/Lake Name: _____ Hydroperiod: Permanent Seasonal
 Area: _____ Maximum Width _____ Maximum Length _____ Maximum Depth _____
 Shore Line _____ Shoreline Development _____ Width of Drawdown Zone _____
 Water Clarity: Clear Turbid Water Color: Clear Stained (Color _____)
 Instream Structure: Shoals Undercut Banks LOD (jams/snags) Other _____

SUBSTRATE (Percent)

Silt Sand Gravel Cobble Boulder Bedrock Other: _____

AQUATIC SURVEY DATA FORM

STREAM/POND VEGETATION

Canopy Cover(mid-day): 70%; Emergent Vegetation: ; Floating Vegetation ; Open Water 30%
 Dominant Species: see survey 3 data

ADJACENT COVER TYPE(S)

Woodland Shrub Savanna Grassland Wetland Agriculture Developed Other

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
<i>Rana callosirostris</i>					1	<input checked="" type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input checked="" type="checkbox"/> Spotlight
						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight
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						<input type="checkbox"/> Visual <input type="checkbox"/> Call <input type="checkbox"/> Capture <input type="checkbox"/> Spotlight

Describe potential threats to California red-legged frogs observed, including non-native and native fish predators such as fish, bullfrogs, and raccoons:
observed an opossum along stream channel

DIAGRAM

NOTES

APPENDIX D

Padre Staff Resumes

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Kenneth Lee Gilliland

Staff Biologist

Experience Summary: Kenneth L. Gilliland has 5 years of experience as a wildlife biologist with an emphasis on the assessment and monitoring of special-status plant and wildlife species. During this period Mr. Gilliland has conducted habitat assessments; special-status plant and wildlife species surveys; ensured client compliance with the Endangered Species Act (ESA), Clean Water Act, National Pollution Discharge Elimination System, and the California Department of Fish and Game Code; habitat revegetation/restoration; invasive plant removal; wetland mitigation; special-status plant and wildlife biological monitoring; and National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) document preparation for a variety of projects. Project experience has included close coordination with all federal and state agencies involved. In addition, Mr. Gilliland has participated in numerous site-specific U.S. Fish and Wildlife Service (USFWS) protocol surveys for the California red-legged frog (*Rana aurora draytonii*) and arroyo toad (*Bufo californicus*) and has acquired the ability to identify all of their life stages as they occur in their natural habitat. Additionally, Mr. Gilliland been approved by the USFWS to handle and relocate California red-legged frogs during various projects.

Education: B.S. Zoology, Humboldt State University, Arcata, CA. 2002.
Pursuing a Masters of Science in Amphibian Ecology at Cal Poly San Luis Obispo.

Graduate level education applicable to the California red-legged frog

- **Herpetology 488 – (Spring 2000):** Course emphasized the identification and life history of southwestern herpetofauna species, including the California red-legged frog and arroyo toad. Instructor: Dr. Howard Snell (email: howard@fcdarwin.org.ec)

Specific Project Experience: The following represents a chronological list of project experience relevant to the California red-legged frog. It should be noted that all project experience described below has been conducted to USFWS protocol and under the guidance and/or direct supervision of senior level biologists, including Mrs. Jamie Uyehara (U.S. Forest Service), Mr. Tom Murphey (U.S. Forest Service), Mr. David Freed (U.S. Forest Service), Mrs. Katherine Malengo (U.S. Forest Service), Mr. Matt Ingamells (Padre Associates Inc.), Mr. Chris Dunn (Padre Associates Inc.), Mr. Brian Dugas (Padre Associates Inc.), and Mr. Sam Sweet (University of California at Santa Barbara).

- **Nipomo Community Services District Waterline Intertie Project (1/2007).** Mr. Gilliland assisted the Nipomo Community Services District with protocol level California red-legged frog surveys in Nipomo Creek and proximate agricultural ponds and storm water drainages in Santa Barbara and San Luis Obispo Counties, CA.

- **County of Santa Barbara Tajiguas Landfill detention basin cleanout California red-legged frog survey (6/2006).** Mr. Gilliland assisted the County of Santa Barbara with California red-legged frog surveys prior to the implementation of the Tajiguas Landfill basin cleanout. The northern and southern detention basins were surveyed for the presence of tadpoles prior to the conveyance of water to assist with the basin cleanout. Additionally, Mr. Gilliland was approved by the USFWS to handle and relocate California red-legged frogs encountered.
- **Venadito Canyon California red-legged frog surveys and monitoring, Santa Barbara, CA. (10/2006).** Mr. Gilliland assisted Exxon/Mobil with California red-legged frog surveys during emergency storm repair construction projects on Venadito Creek in Santa Barbara, CA. Additionally, Mr. Gilliland was approved by the USFWS to handle and relocate California red-legged frogs encountered.
- **Seneca Resources Hamp Bridge Replacement California red-legged frog survey, Ojai, CA. (5/2006).** Mr. Gilliland assisted Seneca Resources with California red-legged frog surveys during the replacement of Hamp Bridge on Sisar Creek.
- **Rancho Dos Rios California red-legged frog surveys, monitoring and relocation, Oak View, CA. (8/2005).** Mr. Gilliland assisted the owner of Rancho Dos Rios with California red-legged frog surveys and monitoring during a bridge fortification project on San Antonio Creek in Oak View, CA. In addition, Mr. Gilliland was directly involved in the relocation of a number of juvenile California red-legged frogs to areas of USFWS identified suitable habitat outside of the project impact area. These relocation efforts adhered to USFWS protocol and Declining Amphibian Populations Task Force (DAPTF) code and were performed under the direct supervision of Mr. Chris Dunn (Padre Staff Biologist).
- **Las Flores Canyon California red-legged frog surveys and monitoring, Santa Barbara, CA. (5/2005).** Mr. Gilliland assisted Exxon/Mobil with California red-legged frog surveys during emergency storm repair construction projects on Las Flores Creek in Santa Barbara, CA. In addition, Mr. Gilliland was directly involved in the relocation of numerous juvenile California red-legged frogs to areas of USFWS identified suitable habitat outside of the project impact area. These relocation efforts adhered to USFWS protocol and DAPTF code and were performed under the direct supervision of Mr. Chris Dunn (Padre Staff Biologist).
- **Cachuma Operations and Maintenance Board California red-legged frog surveys, Santa Barbara, CA. (6/2005).** Mr. Gilliland assisted the Cachuma Operations and Maintenance Board with protocol level California red-legged frog surveys in a tributary of Glen Annie Reservoir in Santa Barbara, CA.
- **Upper Santa Ynez Creek California red-legged frog and arroyo toad monitoring and surveys, Santa Barbara, CA. (12/2002-5/2003).** Mr. Gilliland assisted the U.S. Forest service with California red-legged frog and arroyo toad monitoring and surveys (day and night) at Santa Ynez Creek on the Los Padres National Forest, Santa Barbara, CA.
- **Mono Creek California red-legged frog and arroyo toad monitoring and surveys, Santa Barbara, CA. (12/2002-5/2003).** Mr. Gilliland assisted the U.S. Forest service with California red-legged frog and arroyo toad monitoring and

Statement of Qualifications – California red-legged frog and arroyo toad

- surveys (day and night) at Mono Creek on the Los Padres National Forest, Santa Barbara, CA.
- **Indian Creek California red-legged frog and arroyo toad monitoring and surveys, Santa Barbara, CA. (12/2002-5/2003).** Mr. Gilliland assisted the U.S. Forest service with California red-legged frog and arroyo toad monitoring and surveys (day and night) at Indian Creek on the Los Padres National Forest, Santa Barbara, CA.
 - **Piru Creek California red-legged frog and arroyo toad monitoring and surveys, Piru, CA (12/2002-5/2003).** Mr. Gilliland assisted the U.S. Forest service with California red-legged frog and arroyo toad monitoring and surveys (day and night) at Piru Creek on the Los Padres National Forest Piru, CA.
 - **Canton Canyon California red-legged frog and arroyo toad monitoring and surveys, Piru, CA (12/2002-5/2003).** Mr. Gilliland assisted the U.S. Forest service with California red-legged frog and arroyo toad monitoring and surveys (day and night) in Canton Canyon on the Los Padres National Forest Piru, CA.
 - **Agua Blanca California red-legged frog and arroyo toad monitoring and surveys, Piru, CA (12/2002-5/2003).** Mr. Gilliland assisted the U.S. Forest service with California red-legged frog and arroyo toad monitoring and surveys (day and night) at Piru Creek on the Los Padres National Forest Piru, CA.
 - **Sespe Creek California red-legged frog and arroyo toad monitoring and surveys, Ojai, CA (12/2002-5/2003).** Mr. Gilliland assisted the U.S. Forest service with California red-legged frog and arroyo toad monitoring and surveys (day and night) at Sespe Creek on the Los Padres National Forest Ojai, CA.

Applicable Herpetological Experience: The following represents a chronological list of project experience relevant to the study of herpetology that Ken Gilliland has been involved with. It should be noted that all project experience described below has been conducted under the guidance and/or direct supervision of senior level biologists, including Mrs. Jamie Uyehara (U.S. Forest Service), Mr. Tom Murphey (U.S. Forest Service), Mr. David Freed (U.S. Forest Service), Mr. Sam Sweet (University of California at Santa Barbara), Mr. Howard Snell (University of New Mexico/Charles Darwin Research Station; Galapagos Islands, Ecuador), Mrs. Heidi Snell (Charles Darwin Research Station; Galapagos Islands, Ecuador) Mr. Thomas Fritts (United States Geological Survey), Mr. Cruz Marquez (Charles Darwin Research Station; Galapagos Islands, Ecuador), and the Desert Tortoise Council.

- **Desert Tortoise Council Handling Techniques Workshop Ridgecrest, CA. (11/6/2004).** Mr. Gilliland attended the desert tortoise council's desert tortoise handling technique workshop. The workshop provided an overview of desert tortoise ecology, threats associated with their decline, regulatory mechanisms in place for them (California Department of Fish and Game [CDFG], Bureau of Land Management [BLM], and USFWS), artificial burrow construction, nest relocation, handling techniques, health assessments, and biological monitoring protocol.
- **Herpetofauna of the Southern California Region (12/2002-5/2003).** Mr. Gilliland has been formally trained on the identification and ecology of the herpetofauna of the Southern California region by senior level biologists. The senior level biologists that provided this specific training included Mrs. Jamie Uyehara (U.S. Forest

Statement of Qualifications – California red-legged frog and arroyo toad

Service), Mr. Tom Murphey (U.S. Forest Service), Mr. David Freed (U.S. Forest Service), Vallerie Hubbard (U.S. Forest Service) and Mr. Sam Sweet (University of California at Santa Barbara).

- **Galapagos giant tortoise (*Geochelone elephantopus*) monitoring, and surveys, Galapagos Islands, Ecuador (5/2000-12/2000).** Mr. Gilliland assisted the Charles Darwin Research Station with Galapagos giant tortoise handling, radio tracking, passive integrated transponder (PIT) tagging, ultrasounding, monitoring, and surveys on the islands of Santa Cruz, Isabela, and Espanola in the Galapagos Archipelago, Ecuador.
- **Galapagos land iguana (*Conolophus subcristatus*) monitoring, and surveys, Galapagos Islands, Ecuador (5/2000-12/2000).** Mr. Gilliland assisted the Charles Darwin Research Station with Galapagos land iguana handling, radio tracking, passive integrated transponder (PIT) tagging, monitoring, and surveys on the islands of Santa Cruz, Isabela, and Plazas Sur in the Galapagos Archipelago, Ecuador.
- **Research study on the monitoring of lava lizards (*Microlophus albermarlensis*) at the Charles Darwin Research Station and the Galapagos National Park Headquarters Galapagos Islands, Ecuador (5/2000-12/2000).** Mr. Gilliland investigated the spatial and temporal relative abundance of lava lizards with visual-encounter-surveys in the developed and natural areas of the island of Santa Cruz, in the Galapagos Archipelago, Ecuador.

Applicable Professional Society Memberships:

- Society for the Study of Reptiles and Amphibians (SSAR)

California Red-legged Frog Professional References

Mr. Gilliland's California red-legged frog experience was conducted under the direct supervision of the following biologists:

Dr. Jamie Uyehara
6755 Hollister Ave., Suite 150
Goleta, Ca. 93117
(805) 961-5736
juyehara@fs.fed.us

Mr. Matt Ingamells
1861 Knoll Dr.
Ventura, Ca. 93003
(805) 644-2220 ext. 59
m.ingamells@padreinc.com

Mr. Chris Dunn
1861 Knoll Dr.
Ventura, Ca. 93003
(805) 644-2220 ext. 59
c.dunn@padreinc.com

Mrs. Katherine Malengo
406 S. Mildred
King City, CA 93930
(831) 385-5434 ext.219
kmalengo@fs.fed.us

Brian G. Dugas

Project Manager/Staff Biologist

Experience Summary: Brian Dugas has 10 years of experience in environmental and land use planning with focus on the assessment of biological resources. During this period Mr. Dugas has conducted habitat assessments, biological constraints analyses, special-status plant and wildlife species surveys, revegetation/restoration plans, wetland delineations, rapid-bioassessments, wetlands mitigation, biological monitoring, and CEQA/NEPA document preparation for a variety of projects. Project experience has included close coordination with all responsible agencies. In addition, Mr. Dugas has performed numerous site-specific surveys for the California red-legged frog (*Rana aurora draytonii*) and has acquired the ability to identify them as they occur in their natural habitats.

Education: B.S. Natural Resources Management, California Polytechnic State University, San Luis Obispo (Cal Poly), 1993.

Continued education towards M.S. at Cal Poly, Specialization: General Agriculture, Study Emphasis: Fisheries & Wildlife Management; includes the following coursework (2001-2003):

- **Zoology 329 – Vertebrate Field Zoology (Spring 2001):** Course emphasized the identification and life history of terrestrial vertebrate species, including the California red-legged frog. Instructor: Dr. Roger Gambs
- **Biology 427 – Wildlife Management (Fall 2001):** Course emphasized the important habitats and features critical to wildlife with emphasis on planning and designing habitats to meet the needs of wildlife, including riparian and wetland ecosystems. Instructor: Dr. Michael T. Hanson
- **Zoology 530 – Behavioral Ecology (Winter 2002):** Course emphasized habitat selection, spacing mechanisms, reproductive strategies, feeding strategies, agonistic, parasitic, and altruistic behavior; migration and comparative social systems of vertebrate species. Instructors: Dr. Dennis Frey and Dr. Roger Gambs

California Red-Legged Frog Workshop (April 8-10, 2002): Attended a California Red-Legged Frog Workshop presented by the Sacramento – Shasta Chapter of the Wildlife Society along with the Calif. Dept. of Water Resources, Calif. Dept. of Fish & Game, and Wildlands, Inc. The workshop provided an overview of the status and ecology of the Calif. red-legged frog, their habitat requirements, movements and life cycles, frog identification (field techniques and equipment); USFWS survey protocols and guidance, pit tagging and radio telemetry techniques (hands-on), Federal Endangered Species Act and consultations, and USFWS critical habitat and recovery plan implementation. In addition, the workshop contained a field component, which allowed participants to perform protocol-level day and nighttime surveys for Calif. red-legged frogs with a panel of selected experts at several sites located at Pt. Reyes, CA. Specifically, the hands-on field surveys focused on identification of egg masses,

Statement of Qualifications – California red-legged frog

larvae, subadult and adult stages of the frog, with emphasis on utilization of proper survey and frog handling techniques. Sponsor information: Sacramento-Shasta Chapter of the Wildlife Society, Ms. Melinda Dorin (Phone: 916-654-4024).

Specific Project Experience: The following represents a chronological list of project experience relevant to the California red-legged frog. It should be noted that all project experience described below has been conducted under the guidance and/or direct supervision of senior level biologists, including Mr. Matt Ingamells and Mr. Rick Meredith of Padre Associates, Inc. (Padre):

- **Nipomo Community Services District (NCS D) Waterline Inertie Project, Nipomo, CA (2006-2007).** Mr. Dugas recently led a focused, protocol-level Calif. red-legged frog survey of the proposed pipeline corridor which included several drainages located in northern Santa Maria, the Santa Maria River, Nipomo Creek, and a series of wetlands located along the Nipomo Mesa. Numerous adult and sub-adult Calif. red-legged frogs were identified during the survey.
- **ExxonMobil Las Flores Canyon Emergency Road Repair Project, Gaviota, CA (2005-2006):** As part of this project, Mr. Dugas led focused herpetological surveys of project area and identified Calif. red-legged frogs within Las Flores Canyon drainage and Venadito Creek. Worked with Corps and USFWS to develop appropriate avoidance and minimization measures for project. Additionally, Mr. Dugas conducted pre-activity surveys and performed appropriate worker orientations at the site. Contacts: Katie Drexhage, Biologist / USFWS: (805) 644-1766, Matthew Vandersande / U.S. Army Corps: (805) 585-2151.
- **Mahoney Road Storm Damage Repair Project, Santa Maria, California (2004).** As part of this project, Mr. Dugas conducted a worker orientation on the identification of Calif. red-legged frogs, performed protocol-level nighttime surveys of adjacent wetland areas and drainages, and captured and relocated numerous adult Calif. red-legged frogs to nearby suitable habitat areas. Contact: Katie Drexhage, Biologist / USFWS: (805) 644-1766.
- **Old Coast Highway Bridge Replacement Project, Santa Barbara County, California (May 2004).** Mr. Dugas conducted a worker orientation on the identification of Calif. red-legged frogs, performed protocol-level nighttime surveys of affected portions of Nojoqui Creek, and captured and relocated adult, juvenile, and larvae form Calif. red-legged frogs to suitable habitat areas during the course of the project. Contact: Katie Drexhage, Biologist / USFWS: (805) 644-1766.
- **River Road Bridge Replacement Project, San Miguel (April 2004):** Mr. Dugas led a series of pre-construction special-status species surveys which included protocol-level Calif. red-legged frog surveys of the proposed project area within the Salinas River drainage. Additional task will include conducting a worker orientation on the identification of Calif. red-legged frogs, and performance of construction monitoring of vegetation removal within the drainage. Contact: Kate Ballantyne, Environmental Specialist / San Luis Obispo County Public Works Department: (805) 788-2765.

Statement of Qualifications – California red-legged frog

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- **Warmuth Residence Development Project - Parcel 52, Hollister Ranch (Nov. 2003 [Late survey period pre-approved by B. Fahey, USFWS]):** As part of this biological assessment, Mr. Dugas conducted focused, protocol-level Calif. red-legged frog surveys of Agujas Creek within the Hollister Ranch. One adult Calif. red-legged frog was identified during the surveys. Contact: Melissa Mooney, Biologist / Santa Barbara County: (805) 934-6587.
- **Noyes Road Culvert Installation Project, Arroyo Grande (August 2003):** Mr. Dugas performed protocol-level Calif. red-legged frog surveys of an unnamed drainage, conducted a worker orientation on the identification of Calif. red-legged frogs, and performed construction monitoring of vegetation removal within the drainage.
- **Tassajara Creek Bridge Installation Project, San Luis Obispo (July 2003):** As part of this project, Mr. Dugas performed protocol-level Calif. red-legged frog surveys of Tassajara Creek and periodic construction monitoring of the bridge installation project.
- **Santa Barbara County Flood Control District, West Canyon Drainage Improvement Project (June 2003):** Mr. Dugas conducted focused, protocol-level Calif. red-legged frog surveys of the West Main Street drainage in Santa Maria, CA. Numerous adult Calif. red-legged frogs were identified during the survey. Contact: Bridget Fahey, Biologist / USFWS: (805) 644-1766.
- **Chevron Pipe Line Company Estero Hill Plant Sag Line Removal Project (May 2003).** Mr. Dugas conducted wildlife surveys of project area with specific emphasis on the presence of California red-legged frogs and/or existing suitable habitat within an intersecting drainage. Several adult Calif. red-legged frogs were identified during the survey.
- **Santa Barbara County, Laguna County Sanitation District, Brine Concentrate Pipeline Project & Brine Concentrate Disposal Well Project, Orcutt (2002):** Mr. Dugas conducted a worker orientation on the identification of Calif. red-legged frogs, performed protocol-level nighttime surveys of adjacent creeks and waterways, and captured and relocated Calif. red-legged frogs to suitable habitat areas during the course of the project. Contact: Bridget Fahey, Biologist / USFWS: (805) 644-1766.
- **Unocal Cojo Marine Terminal and Point Conception Facilities Decommissioning Project (2001-2003).** As part of this biological assessment, Mr. Dugas conducted focused herpetological surveys of project area and identified Calif. red-legged frogs within Wood Canyon drainage, directly east of Government Point, CA. Worked with Corps and USFWS to develop appropriate avoidance and minimization measures for project. Contacts: Katie Drexhage, Biologist / USFWS: (805) 644-1766, Jack Malone / U.S. Army Corps: (805) 585-2154.
- **Ventura County Transportation Commission, Casitas Bypass Project (October, 2001).** Conducted focused red-legged frog surveys of segments of the Ventura River and San Antonio Creek located in Ventura County, CA. The surveys collectively covered an area in

Statement of Qualifications – California red-legged frog

excess of two miles along the two stream reaches and their convergence zone. One adult Calif. red-legged frog was identified during the surveys.

- **Natural Environment Studies (NES), Jalama Road Bridge (51C-017), Santa Barbara County Public Works Department (August, 2001).** Conducted focused red-legged frog surveys of Jalama Creek at the Jalama Road Bridge crossing, located in Santa Barbara County, CA. Surveys focused on the segment of Jalama Creek located 500 feet upstream and downstream of the bridge crossing. One sub adult Calif. red-legged frog was identified during the surveys.
- **Williams Residence Biological Resources Assessment (June, 2001).** As part of this biological assessment, Mr. Dugas conducted amphibian and reptile surveys of a segment of Alamo Pintado Creek located in Buellton, CA, with specific emphasis on the presence of California red-legged frogs and/or existing suitable habitat.
- **Shell Molino Nearshore Flowline Removal Project (Spring/Summer, 2001).** Assisted on-site biologists during pre-activity surveys for California red-legged frogs within the equipment staging areas at the creek mouth of Arroyo Hondo Creek, Gaviota, CA. In addition, prepared a Site Restoration Plan for the project, which emphasized reestablishment of habitat for California red-legged frogs and other sensitive wildlife species within the project area. Contacts: Dan Dugan, Fisheries Biologist / Tenera: (805) 772-4080, John Storrer / Santa Barbara County EQAP Monitor: (805) 682-2065.
- **City of Thousand Oaks/Unit W - Phase 2 Sewer Interceptor Reconstruction Project (May, 2000).** Assisted Padre biologists during focused pre-construction surveys for California red-legged frogs along a 2-mile segment of Arroyo Conejo Creek located within the City of Thousand Oaks, CA.
- **Unocal Guadalupe A2A Emergency Excavation Project, Guadalupe, CA (1998).** Mr. Dugas participated in the monitoring (day/night) of the access routes and excavation areas throughout the project. During this period, Mr. Dugas conducted surveys with SAIC biologists and observed as well as participated in numerous California red-legged frog relocations. Using established handling protocols, all frogs observed were captured and relocated to a predetermined suitable habitat located outside the construction zone. Mr. Dugas also accompanied SAIC biologists, USFWS, and CDFG during several nighttime California red-legged frog surveys of the wetland habitats within the project area. Contact: Steve Henry, Biologist / USFWS: (805) 644-1766.
- **Rocky Canyon Quarry EIR, San Luis Obispo, CA (Sept. 1997).** Assisted Morro Group, Inc. wildlife biologist during several focused California red-legged frog surveys of Rocky Canyon Creek, Atascadero, CA. Conducted during previous employment with Morro Group, Inc., San Luis Obispo, CA.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003



IN REPLY REFER TO:
PAS 3345.5075.7171

July 11, 2007

Jessica Peak, Biologist
Padre Associates, Inc.
811 El Capitan Way, Suite 130
San Luis Obispo, California 93401

Subject: Species List for the Installation of a Produced Water Reclamation Facility within the existing Plains Exploration and Production Oil Field, San Luis Obispo County, California.

Dear Ms. Peak:

We are responding to your request, dated April 10, 2007, and received in our office on April 12, 2007, for information on listed threatened or endangered species that may occur in the vicinity of the Pismo Beach and Arroyo Grande NE USGS quadrangles, San Luis Obispo County, California. We received additional information regarding the project during a telephone call on May 14, 2007. You requested the species list to help you prepare an Environmental Impact Report (EIR) to analyze the potential impacts associated with the installation of a produced water reclamation facility within the existing Plains Exploration and Production Oil Field, located on Price Canyon Road in San Luis Obispo County. We have enclosed a list of federally listed species that may occur in the vicinity of Pismo Beach and Arroyo Grande NE USGS quadrangles.

The U.S. Fish and Wildlife Service's (Service) responsibilities include administering the Endangered Species Act of 1973, as amended (Act), including sections 7, 9, and 10. Section 9 of the Act prohibits the taking of any federally listed endangered or threatened species. Section 3(18) of the Act defines take to mean to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Service regulations (50 CFR 17.3) define harm to include significant habitat modification or degradation which actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. Harassment is defined by the Service as an intentional or negligent action that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. The Act provides for civil and criminal penalties for the unlawful taking of listed species.

Exemptions to the prohibitions against take may be obtained through coordination with the Service through interagency consultation for projects with Federal involvement pursuant to section 7 or through the issuance of an incidental take permit under section 10(a)(1)(B) of the

Act. If the subject project is to be funded, authorized, or carried out by a Federal agency and may affect a listed species, the Federal agency must consult with the Service, pursuant to section 7(a)(2) of the Act. If a proposed project does not involve a Federal agency but may result in the take of a listed animal species, the project proponent should apply for an incidental take permit, pursuant to section 10(a)(1)(B) of the Act. Once you have determined if the proposed project will have a lead Federal agency, we can provide you with more detailed information regarding the section 7 or 10(a)(1)(B) permitting process.

Proposed and candidate species should be considered in the planning process because they may become listed or proposed for listing prior to project completion. Proposed and candidate species are those species presently under review by the Service for consideration for Federal listing and are included for the sole purpose of notifying proponents in advance of possible proposals and listings, which at some time in the future may have to be considered in planning activities. If early evaluation of the project indicates that it is likely to adversely affect a proposed or candidate species, you may wish to request technical assistance from this office.

Candidate species are those species presently under review by the Service for consideration for Federal listing. Candidate species should be considered in the planning process because they may become listed or proposed for listing prior to project completion. Preparation of a biological assessment, as described in section 7(c) of the Act, is not required for candidate species. If early evaluation of your project indicates that it is likely to affect a candidate species, you may wish to request technical assistance from this office.

Only listed species receive protection under the Act. However, sensitive species should be considered in the planning process in the event they become listed or proposed for listing prior to project completion. We recommend that you review information in the California Department of Fish and Game's (CDFG) Natural Diversity Data Base. You can contact the CDFG at (916) 324-3812 for information on other sensitive species that may occur in this area.

If you have any questions concerning this letter or the enclosed list, please contact Mark A. Elvin of my staff at (805) 644-1766, extension 258.

Sincerely,



Chris Dellith
Senior Biologist
South Coast Division

Enclosures

**ENDANGERED, THREATENED, AND CANDIDATE SPECIES
WHICH MAY OCCUR IN THE VENTURA FISH AND WILDLIFE OFFICE'S AREA
OF PISMO BEACH AND ARROYO GRANDE NE USGS QUADRANGLES,
SAN LUIS OBISPO COUNTY, CALIFORNIA**

Birds

California condor	<i>Gymnogyps californianus</i>	E, CH
Least Bell's vireo	<i>Vireo bellii pusillus</i>	E, CH
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	C

Amphibians

Arroyo toad	<i>Bufo californicus</i>	E, CH
California red-legged frog	<i>Rana aurora draytonii</i>	T, CH
California tiger salamander	<i>Ambystoma californiense</i>	T, CH

Fish

Steelhead trout*	<i>Oncorhynchus mykiss</i>	*
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Plants

Morro manzanita	<i>Arctostaphylos morroensis</i>	T
Indian Knob mountainbalm	<i>Eriodictyon altissimum</i>	E
Chorro Creek bog thistle	<i>Cirsium fontinale</i> var. <i>obispoense</i>	E
Gambel's watercress	<i>Rorippa</i> [<i>Nasturtium</i>] <i>gambellii</i>	E
La Graciosa thistle	<i>Cirsium loncholepis</i>	E, CH
Marsh sandwort	<i>Arenaria paludicola</i>	E
Pismo clarkia	<i>Clarkia speciosa</i> ssp. <i>immaculata</i>	E

Key:

E	Endangered
T	Threatened
CH	Critical Habitat

C Candidate species for which the Fish and Wildlife Service has on file sufficient information on the biological vulnerability and threats to support proposals to list as endangered or threatened.

* Species for which the National Marine Fisheries Service has responsibility. For more information, call the Santa Rosa Field Office at (707) 575-6050 or go to <http://swr.ucsd.edu/>.

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