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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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 (CNDDB 2007) and the Revised Hydrological, Water Quality, and Biological Characterization of Pismo Creek (Entrix 2006). The CNDDB 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 mikanioides*). Wildlife observed at this site included crayfish (*Procambria clarkii*), American bullfrog (*Rana catesbeiana*), Pacific treefrog (*Pseduacris 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 centarchids including smallmouth bass (*Micropterus dolomieui*) (Kiesecker and Blaustein 1998; Scott and Crossman 1973; Krise and Francis 1977; Adams et al. 2003).

8.0 REFERENCES

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* * *

APPENDIX A

Photo-documentation of Survey Sites.

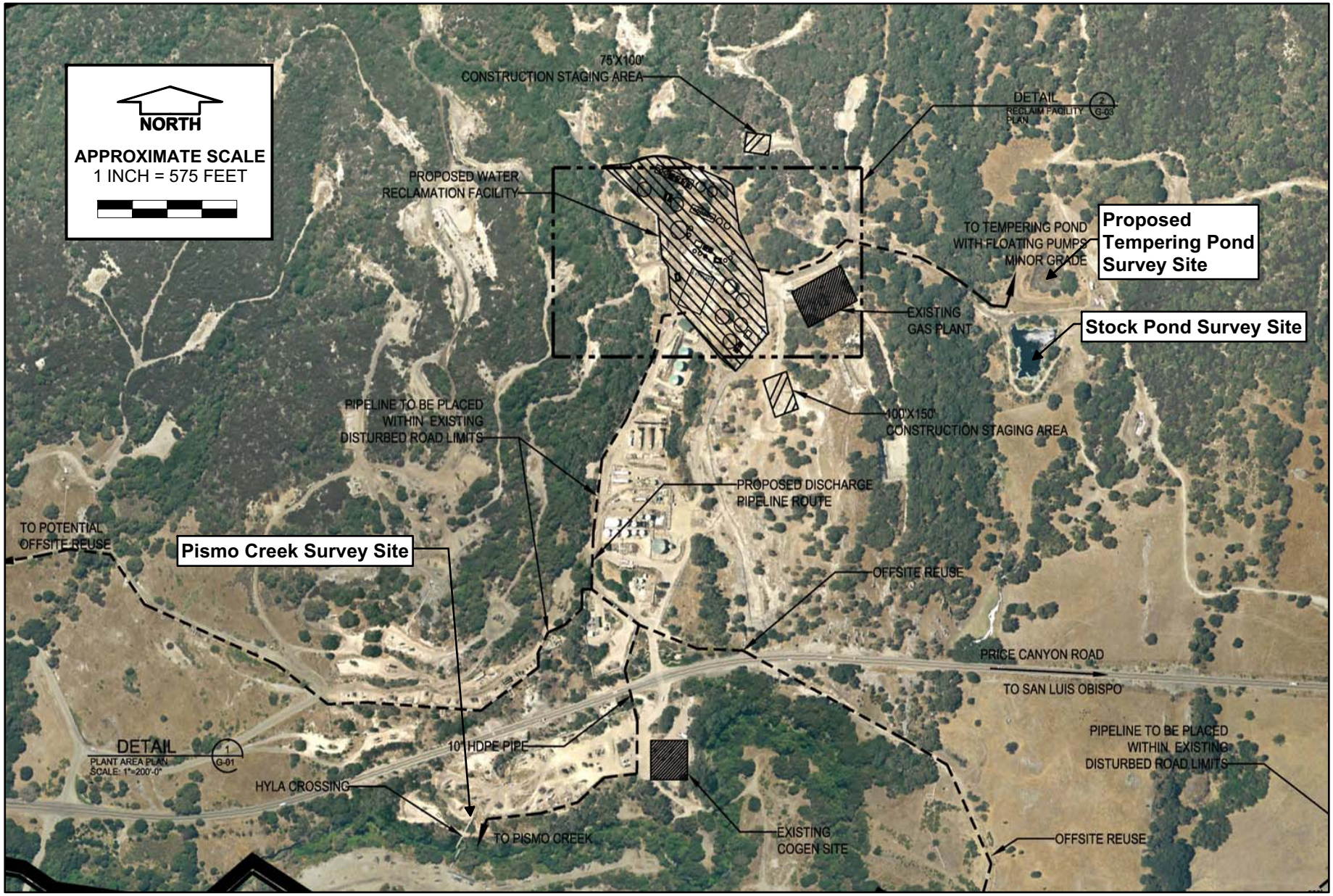
Photo 1: Representative Photo of the CRLF Habitat observed in the Pismo Creek survey area.

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



Source: ADAIR

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

CRLF SURVEY SITES

FIGURE 1

APPENDIX C
CRLF Survey Forms

AQUATIC SURVEY DATA FORM

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

DATE: 4/13/07	PROJECT: PXP RO WATER EIR PISMO CREEK CRLF SURVEY		
SURVEY BIOLOGIST(S): K. HILLELAND B. DUGAS			
Time Start: 1500	Time End: 1545	Survey Duration: 45 MIN	Unit-Effort:

LOCATION

City/County SLO/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 to conduct survey: Brand/model/power of binoculars used: SWIFT 10x42 LEICA 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 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

STREAM/POND VEGETATION

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

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
PSEUDACRIS REGILLA					X	☐ Visual ☒ Call ☐ Capture ☐ Spotlight
CRAYFISH				X		☐ Visual ☐ Call ☐ Capture ☐ Spotlight
SPECKLED DACE				X		☐ Visual ☐ Call ☒ Capture ☐ Spotlight
ALTINEMIS MARMORATA					X	☐ Visual ☐ Call ☒ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
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						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

DATE: 4/18/07	PROJECT: PXP Produced Water Reclamation Facility (Existing Pond & Proposed Temporing Pond)
SURVEY BIOLOGIST(S): KLG / JKP	

Time Start: 10:00 pm	Time End: 10:45 pm	Survey Duration: 45 min	Unit-Effort:

LOCATION

City/County San Luis Obispo County; ____ ¼; ____ -¼ 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: 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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 (Riparian) ☐ Savanna ☐ Grassland ☐ Wetland ☐ Agriculture ☐ Developed ☐ Other

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
Rana catesbeiana					1	☒ Visual ☐ Call ☐ Capture ☒ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
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						☐ Visual ☐ Call ☐ Capture ☐ 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

DATE: 4/25/07 | PROJECT: PXP Produced Water Reclamation Facility (Existing pond & Proposed Temporary Pond)

SURVEY BIOLOGIST(S): KLG / JKP

Time Start: 8:20 pm | Time End: 8:50 pm | Survey Duration: 30 min | Unit-Effort: _____

LOCATION

City/County San Luis Obispo County; ____ ¼; ____ -¼ 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 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 63 °F; Wind Speed: 3-5 mph; Wind Direction S; Cloud Cover 15 %

Precipitation 0 in.; Humidity ____ %; Moon Phase ½ 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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
NONE						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
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						☐ Visual ☐ Call ☐ Capture ☐ 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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

LOCATION

City/County San Luis Obispo County; ____ ¼; ____ -¼ 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 55.5 °F (3"); Water Temperature 66.6 °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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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
None						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
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						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

DATE: 5/9/07	PROJECT: PXP AG FIELD		
INVESTIGATOR(S): K. GILLELAND C. SANTALA			
Time Start: ~~2000~~ 2100	Time End: 2145	Survey Duration: 45	Unit-Effort:

LOCATION

City/County TEMPERENCE POND; ____ ¼; ____ -¼ 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 % HEAVY FOG Precipitation ____ in.

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 TEMPERENCE 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

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
RANA CATESBEIANA					1	☒ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight

DIAGRAM

NOTES

AQUATIC SURVEY DATA FORM

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

DATE: 5/17/07	PROJECT: PXP Produced Water Reclamation Facility (temporary pond)
SURVEY BIOLOGIST(S): KLG / JKP	

Time Start: 2035	Time End: 2150	Survey Duration: 25 min	Unit-Effort:

LOCATION

City/County San Luis Obispo Co. ; ___ ¼; ___ -¼ 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: Audubon/Swift 10x42

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 52.9 °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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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
Rana catesbeiana					2	☒ Visual ☐ Call ☐ Capture ☒ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

DATE: 7/3/07	PROJECT: PXP		
SURVEY BIOLOGIST(S):			
Time Start: 1352	Time End: 1435	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 TEMPERING PONDS (EXISTING STOCK POND/PROPOSED TEMPERING 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
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						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

DATE: 7/3/07 | PROJECT: PXP Produced Water Project (stock pond / tempering pond)

SURVEY BIOLOGIST(S): C. Santala, J. Peale

Time Start: ~~PM~~ 2100 | Time End: 2120 | Survey Duration: 20 min | Unit-Effort: _____

LOCATION

City/County San Luis Obispo County; ____ ¼; ____ -¼ 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 73.9 °F; Wind Speed: 0 mph; Wind Direction N/A; Cloud Cover 0 %

Precipitation 0 in.; Humidity ___ %; Moon Phase ¼ 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 _____ 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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
None						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
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						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

DATE: 4/13/07	PROJECT: PXP RO WATER EIR TEMPORARY POND		
SURVEY BIOLOGIST(S): B. DOUGLAS / K. BELLEVAND			
Time Start: 1345	Time End: 1425	Survey Duration:	Unit-Effort:

LOCATION

City/County SLO/SLO PXP AG FIELD ; ___ 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 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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		☐ Visual ☐ Call ☒ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

DATE: 4/18/07	PROJECT: PXP Produced Water Reclamation Facility (Pismo Creek)
SURVEY BIOLOGIST(S): KLG / JKP	

Time Start: 8:45 pm	Time End: 10:00 pm	Survey Duration: 1hr 15min	Unit-Effort:

LOCATION

City/County San Luis Obispo County; ____ ¼; ____ -¼ 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: Audobon / Swift 10x42

WEATHER CONDITIONS AT START OF SURVEY

Air Temperature 51 °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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

STREAM/POND VEGETATION

Canopy Cover(mid-day): 60%; 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
Rana catesbeiana					1	☒ Visual ☐ Call ☐ Capture ☒ Spotlight
Pseudacris regilla					+10	☐ Visual ☒ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
Other:						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
Castor canadensis (Beaver)					1	☒ Visual ☐ Call ☐ Capture ☒ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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

LOCATION

City/County San Luis Obispo County; ____ ¼; ____ -¼ 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 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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
Pseudacris regilla					+20	☐ Visual ☒ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
Other:						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
crayfish					1	☒ Visual ☐ Call ☐ Capture ☒ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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

LOCATION

City/County San Luis Obispo Co. ; ___ ¼; ___ -¼ 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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
PSEUDACRIS REGILLA					X	☐ Visual ☒ Call ☐ Capture ☐ Spotlight
RANA CATESBEIANA						☒ Visual ☐ Call ☐ Capture ☐ Spotlight
RAINBOW TROUT						☒ Visual ☐ Call ☐ Capture ☐ Spotlight
SCULPIN						☒ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
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						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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

FULL 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 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

SPECIES AND NUMBERS OBSERVED

Species	Egg Masses	Larvae	Metamorphs (w/legs)	Juvenile	Adult	Detection Method
PSEUDACRIS REGILLA					1	☐ Visual ☒ Call ☐ Capture ☐ Spotlight
UNKNOWN RANID					2	☒ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
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						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight

DIAGRAM

NOTES

AQUATIC SURVEY DATA FORM

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

DATE: 9/17/07	PROJECT: PXP Produced Water Reclamation Facility (Pismo Creek)
SURVEY BIOLOGIST(S): KLG / JKP	

Time Start: 2115	Time End: 2230	Survey Duration: 1hr 15min	Unit-Effort:

LOCATION

City/County San Luis Obispo Co.; ____ 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: 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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
None						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

DATE:	PROJECT:		
SURVEY BIOLOGIST(S):			
Time Start: 1404	Time End: 1504	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 (7) 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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

LOCATION

City/County San Luis Obispo County; ____ ¼; ____ -¼ Section ____ Township ____ Range ____

Latitude ____ Longitude ____; Quadrangle Arroyo Grande NE, Pismo Beach; 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 61 °F (3"); Water Temperature 61 °F; Wind Speed: 0 mph; Wind Direction N/A; Cloud Cover 0 %

Precipitation 0 in.; Humidity ____ %; Moon Phase ¼ 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

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

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
Rana catesbeiana					1	☒ Visual ☐ Call ☐ Capture ☒ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
						☐ Visual ☐ Call ☐ Capture ☐ Spotlight
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						☐ Visual ☐ Call ☐ Capture ☐ 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 oppossum along stream channel

DIAGRAM

NOTES

APPENDIX D

Padre Staff Resumes

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

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

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

- **Galapagos giant tortoise (*Geochelone elephanthopus)* 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. Chris Dunn
1861 Knoll Dr.
Ventura, Ca. 93003
(805) 644-2220 ext. 59
c.dunn@padreinc.com

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

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 (NCSD) 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.

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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

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.