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April 20, 2006

Ms. Cathly Wolff-White  
U.S. Department of the Interior  
Bureau of Land Management  
2610 Sweetwater Avenue  
Lake Havasu City, AZ 86406

Subject: Site Access and Sampling Procedures for Groundwater Monitoring Wells Located  
Near Potential Southwestern Willow Flycatcher Habitat, Rev. 3

Dear Ms. Wolff-White:

Enclosed is a technical memorandum describing revised groundwater sampling procedures on the floodplain of the Colorado River, which are proposed for implementation during the forthcoming 2006 nesting bird season. As discussed with staff at both the BLM and USFWS, this document describes the means by which sampling activities would be limited in duration and intensity so as to minimize potential effects to the Southwestern willow flycatcher (SWFL). Table 1 of the technical memorandum provides a comparative summary of the existing and proposed sampling procedures, and quantifies the benefit of the proposed procedures. This technical memorandum also includes a discussion of existing biological conditions and an assessment of the impacts associated with the proposed modified sampling activities. The biological discussion includes references to previous documentation, including the results of the 2005 protocol surveys for the SWFL.

By this letter and the attached technical memorandum, we request that the BLM consult with the USFWS pursuant to Section 7 of the Endangered Species Act to determine the potential effects of the proposed sampling procedures. In formulating the proposed procedures, the intent was to ensure that potential impacts to the SWFL would continue to be minimized. As such, we request that BLM grant approval to implement the proposed sampling procedures beginning May 1, 2006.

If you have any questions, please do not hesitate to contact me. I can be reached at (805) 546-5243.

Sincerely,

*Teri Herson  
for Yvonne Meeks*

Ms. Cathly Wolff-White

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Cc: James Priest/BLM  
Carrie Marr/USFWS  
Leslie Fitzpatrick/USFWS  
Norman Shopay/DTSC  
Robert Knutson/PG&E  
Ray Romero/CH2M HILL

# Site Access and Sampling Procedures for Groundwater Monitoring Wells Located Near Potential Southwestern Willow Flycatcher Habitat, Rev. 3

## PG&E Topock Compressor Station

Date: April 20, 2006

### Introduction

This technical memorandum describes proposed modifications to sampling procedures to be used for specific groundwater monitoring wells located on the Colorado River floodplain at the Pacific Gas and Electric Company (PG&E) Topock Compressor Station site, Needles, California during specific times of the year. This memo incorporates recently-constructed well sites into the groundwater sampling program and captures sampling efficiencies, while continuing to limit potential impacts of field activities on Southwestern willow flycatcher (*Empidonax traillii extimus*, SWFL), a species protected under the Federal Endangered Species Act. Biological aspects of the SWFL and habitat conditions near the project site have been described in CH2M HILL (2005a-b and 2006) and Garcia and Associates (2005). PG&E's activities are located outside designated critical habitat for the Southwestern willow flycatcher; therefore, the activities described will not destroy, adversely modify, or otherwise adversely affect designated critical habitat for this species.

Well access and sampling procedures applicable during the nesting bird season were initially developed in the summer of 2005 (hereinafter referred to as the "2005 summer floodplain sampling procedures") in response to United States Bureau of Land Management (BLM), United States Fish and Wildlife Service (USFWS), and the California Department of Toxic Substances Control (DTSC) requirements for reduced field activities in potential habitat for the SWFL. This technical memorandum describes proposed modifications to the 2005 summer floodplain sampling procedures that limit the potential impact of field activities on the SWFL, while maintaining quality control requirements for sample collection. The modified site access and procedures described in this memorandum are intended to be protective of natural resources by minimizing human impact in the potential habitat areas during SWFL nesting season between May and September.

### Background

Under the ongoing Topock Groundwater and Surface Water Monitoring Program (GMP), water samples are collected and analyzed for chromium and other water quality parameters from over 80 wells throughout the Topock site.<sup>1</sup> The frequency of sampling from the wells varies by location and is performed as frequently as biweekly at specified locations. The

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<sup>1</sup> In addition to the wells in the current GMP program, an additional 15 wells are being installed between February and April 2006. These new wells will be added to the GMP in the summer of 2006.

wells are sampled according to field procedures described in the DTSC-approved sampling plan and Standard Operating Procedures (SOPs). The sampling SOPs require purging the wells of at least three well-volumes with an electric submersible pump and stabilization of water quality parameters before sampling can be conducted. Depending on the diameter and depth of the well and the stabilization of field parameters, between 15 and 200 gallons of water are typically purged from each well. For those wells on the Colorado River floodplain, sampling activity requires the use of all-terrain vehicles (ATVs) with trailers to transport well purging and sampling equipment and purge water tanks.

In 2005, BLM staff raised concerns over groundwater monitoring plan procedures and potential impacts to SWFL during the May-September nesting season. At that time, protocol-level SWFL surveys were not yet completed. A memorandum describing access for sampling of all PG&E Topock monitoring wells and surface water sampling locations was prepared and submitted to DTSC and BLM on June 7, 2005 (CH2M HILL 2005c). During the week of June 13, 2005, PG&E was directed, via e-mail, by a BLM staff biologist that portions of the floodplain area were off limits to vehicular traffic during the nesting bird season and that sampling procedures at eight well locations would require modification.

The 2005 summer floodplain sampling procedures were developed based on BLM field visits on June 21 and July 13, 2005 and teleconferences on June 23 and July 21, 2005. The potential impacts that were considered involved sampling crew activities and associated movement and operation of equipment. The 2005 summer floodplain sampling procedures were documented in a memorandum dated June 29, 2006 (CH2M HILL 2005d); based on additional field trials and agency input, the final agreed 2005 summer floodplain sampling procedures were documented in a revised memorandum submitted to DTSC and BLM on September 14, 2005 (CH2M HILL 2005e). These procedures to avoid any potential effects to SWFL comprised a "no effect" avoidance strategy.

### 2005 Summer Floodplain Sampling Procedures

The 2005 summer floodplain sampling procedures are summarized below. The floodplain wells for which these procedures apply are well clusters MW-27 (three wells), MW-30 (two wells), MW-34 (three wells), MW-36 (six wells), and MW-42 (three wells), on BLM-managed land, and MW-22 (one well), MW-32 (two wells) and MW-43 (three wells) on USFWS land. The period that the 2005 summer floodplain sampling procedures were applied was July through September 2005. Refer to Figure 1 for the locations of access routes and staging areas established for the 2005 summer floodplain sampling procedures.

For wells located on BLM property, pickup-truck-carried equipment is staged on the graded road approximately 120 feet south of well cluster MW-35. From that point, ATVs travel south to access monitoring wells MW-29, MW-33, MW-28, and MW-39, with access to wells south and east of MW-39 (MW-27, MW-30, MW-34, MW-36, and MW-42) only on foot. ATVs park at the MW-39 well cluster. The ATVs are a Polaris 700 Sportsman and an Arctic Cat 400, which are used to transport equipment and purge water on the floodplain. Only two ATVs are in use at one time.

All vehicles, power equipment, and purge water storage tanks are staged northwest of monitoring well location MW-39, which the BLM biologist deemed sufficiently far enough from areas of potential SWFL nesting habitat. Only foot traffic along established trails is

permitted from the staging area to the five well clusters located near potential habitat (Figure 1).

On the Havasu National Wildlife Refuge (HNWR) property, located to the south of the railroad bridge, pickup-truck-carried equipment is staged at the cleared and graded area to the west of well cluster MW-32 (Figure 1). No ATVs are permitted for work in this area. All power equipment and purge water storage tanks are staged at this location. Only foot traffic along established trails is permitted from the staging area to the three well clusters MW-22, MW-32, MW-43, which are located near potential nesting habitat on the HNWR property. With the exception of staging locations, the procedures described above for BLM property also apply to sampling at HNWR locations (MW-22, MW-32, and MW-43).

An electric submersible pump is carried on foot from the staging area to each well location and lowered into the water column per the GMP sampling plan and SOPs. From the well head, discharge tubing is run along the trails to the purge water holding tanks at the staging area. The distance from the sample location to the staging area is as much as 800 feet. Electrical power cords are also run along the trails from a portable electric generator at MW-32 or MW-39 to the pump control box. The pump control box is situated approximately 350 to 400 feet from the well head. That distance is determined by the maximum length of the motor lead cable that connects the control box to the pump.

The following list summarizes the 2005 summer floodplain sampling procedures for the eight floodplain well clusters MW-22, MW-27, MW-30, MW-32, MW-34, MW-36, MW-42, and MW-43:

- All field staff receive sensitivity training prior to an activity to become familiar with the habitat issues on the floodplain.
- A biologist pre-surveys the planned work area for the presence of nesting listed-bird species, and sampling will proceed if the survey results are negative. BLM and DTSC will be contacted and sampling will not proceed if pre-survey finds nesting listed-bird species.
- Sampling procedures and biological resource sensitivity are reviewed at each field event kickoff briefing.
- Pickup trucks stage at the MW-35 area off Park Moabi Road or west of the MW-32 cluster.
- Only two ATVs transport equipment from MW-35 area to the MW-39 area.
- ATVs maintain low speed and low revolutions per minute (RPM) to minimize noise to the extent possible without getting stuck. The target speed is 5 miles per hour on the floodplain, per BLM direction.
- A biologist accompanies the sampling team upon startup of activities and provides a reconnaissance "sweep" during the sampling event.
- All equipment transported by ATV is staged east of MW-32 or northwest of MW-39, which are the ATV staging areas. Generators are operated at these areas only. Two 2-kilowatt generators are operated in parallel to mitigate noise.



Since the water from the discharge hose is expected to be heated, analytical samples are collected at the well head. Once the field parameters are stable and three well volumes have been purged from the well, one crew member carries an ice chest with sample bottles to the well head and collects the samples in accordance with the SOP.

**Health and Safety.** The nesting season of the SWFL occurs during the hottest part of the year when afternoon temperatures can exceed 120 degrees Fahrenheit. Additional health and safety procedures are in place to address the additional exertion required for the modified sampling procedures while working in the summer heat.

The following procedures are implemented for sampling in hot-weather conditions:

- The workday begins at 5:00 a.m. and work ceases no later than 12:00 p.m.
- Crew numbers are at least doubled to allow for crew rotations for rest and rehydration breaks.
- Oral body temperature is monitored to determine if employees are adequately dissipating heat buildup. If an employee's body temperature exceeds 99.6 degrees Fahrenheit, the following work period will be shortened by one-third. If an employee's oral temperature exceeds 100.4 degrees Fahrenheit, he or she will not return to work.
- Heart rate is measured during each break period. If an employee's heart rate exceeds 100 beats per minute (bpm), or 20 bpm above resting rate, the subsequent work period will be shortened by one-third. If the heart rate exceeds 180 bpm minus the employee's age, then work activities are suspended until the rate returns to resting rate.
- Each individual's weight is measured throughout the day. If weight loss exceeds 1.5 percent of total body weight, the worker will be removed from work until fluids have had time to be absorbed and body weight returns to less than 1.5 percent of loss. If body weight loss exceeds 3 percent, the employee will be removed from work for the day.

These procedures were observed by CH2M HILL Health and Safety Specialist and a DTSC Certified Industrial Hygienist on July 13, 2005. The procedures were deemed sufficient to protect employees from heat related illness.

## Proposed Modifications to 2005 Summer Floodplain Sampling Procedures

This section presents proposed modifications to the 2005 summer floodplain sampling procedures, as well as an evaluation of the modifications.

### Modifications Since July 2005

The following events have occurred since the modified field procedures were in effect in July 2005:

1. In late summer 2005, DTSC modified the required sampling frequency schedule for certain wells in the area of the floodplain identified as potential SWFL habitat. In the area of the floodplain listed as a concern for potential habitat, the number of wells that

are sampled monthly was reduced from 19 to 7<sup>2</sup>; the number of wells sampled biweekly was reduced from 2 to 1; and the number of wells sampled weekly was reduced from 1 to 0.

2. In addition to changing the sampling frequency of certain wells in the floodplain, DTSC also approved of the modification to the sampling schedule so that larger quarterly events are scheduled to minimize impacts to the SWFL. Second quarter events performed in June in past years are now allowed to be scheduled in late April/early May. Third quarter events performed in September in past years are now allowed to be scheduled in early October.
3. Results of surveys for the SWFL have been finalized. At the time the 2005 summer floodplain sampling procedures were designed, surveys were not yet completed. Surveys for the SWFL were completed in 2005 in accordance with USFWS protocol. The results of the surveys were documented in a report prepared by Garcia and Associates in August 2005. As described in that report, no positive identification of the SWFL was made during the protocol surveys.
4. New power supply outlets have been installed at PE-1. By using this power supply to power the groundwater pumps instead of a generator, the sampling operation is virtually noiseless when sampling wells near PE-1: MW-30 cluster, MW-34 cluster, and MW-36 cluster. Using a heavy-gauge extension cord, it is possible to use this power source for sampling at more remote locations on BLM property, such as MW-27.
5. New dedicated pumps were installed in late 2005 in some of the wells that are sampled monthly and are located near the sensitive habitat, including wells at MW-27, MW-34, and MW-43. These new dedicated pumps are in addition to existing dedicated pumps in other wells at MW-30, MW-32, and MW-36. Therefore, pumps and decontamination equipment no longer need to be transported to these wells, decreasing the overall impact associated with sampling at these locations.
6. Additional monitoring wells are being installed on the floodplain, to be incorporated into the GMP. The well at MW-45 is located in the portion of the floodplain for which the procedures identified herein are presumed to apply.

### Additional Proposed Modifications

In addition to the six items noted above, the following three modifications to the 2005 summer floodplain sampling procedures are proposed. Figure 2 presents the proposed modifications to access routes and staging areas.

- Acquire and use new 6x6 (six-wheel drive) ATVs with “stealth” mufflers.
- Designate new staging areas that are closer to the monitoring wells: at PE-1, and between MW-27 and MW-42 (Figure 2).
- Acquire and use “lay-flat” hose that will remain in place after sampling is complete.

<sup>2</sup> MW-43-075 and MW-43-090 are sampled monthly, but currently DTSC is considering decreasing the sampling frequency to quarterly to further limit the impacts to the SWFL. Sampling data collected from MW-43 over the past year have shown that concentrations of hexavalent chromium and total chromium are consistently less than analytical reporting limits at MW-43.



**6x6 ATVs.** Larger 6x6 ATVs are recommended for use in floodplain sampling on BLM property<sup>3</sup> to minimize noise and enable navigating through the sand without getting stuck. No ATVs are used for sampling on HNWR property during the SWFL nesting season. The recommended ATV model is the Polaris Ranger 6x6 EFI. This ATV has four driven rear wheels under a pickup-like storage bed and two front steering wheels that are also driven. This is a larger ATV that has two seats in front of the storage bed. In addition to seating two people, the Ranger 6x6 has a larger onboard cargo and towed (trailer) cargo capacity than the currently used ride-on or motorcycle style 4x4 ATVs. The additional traction of the 6x6 would make it possible to tow the water storage tank through the sand at low RPMs while avoiding getting stuck in the loose sand. Currently, the smaller 4 x 4 ATVs in use require high RPMs to get through the sand. The larger ATVs would also have secondary “stealth” mufflers installed, which would lower noise levels further by approximately 10 dB. The aftermarket “stealth” mufflers may also slightly increase the low end torque of the ATVs engines. The higher towing capacity of the new 6x6 ATVs would allow for more purge water to be transported per trip. With the 4x4 ATV, only 100 gallons of water can currently be towed per trip. The larger ATVs will be able to trailer 200-gallon purge tanks, which would mean driving in and out once to dispose of the purge water from a typical well cluster, rather than twice. By decreasing the number of trips, the overall impact on the floodplain from driving would be decreased.

The use of the quieter ATVs, in combination with the revised staging areas on BLM property, would result in driving to wells MW-30 and MW-36, which were previously accessed on foot under the 2005 summer floodplain sampling procedures.

To summarize, the larger 6x6 ATVs with “stealth” mufflers are expected to be quieter and to operate at lower RPM engine speeds than the currently used 4x4 ATV equipment. This would allow driving to a number of wells that were walked to under the 2005 summer floodplain sampling procedures. Use of the larger 6x6 ATVs is expected to allow a reduction in the crew size from six to four people (minimizing potential disturbance due to the number of sampling personnel) and to minimize the number of ATV trips along access routes that are needed to sample each well cluster. Only one trip to and from the staging area (rather than two) by one 6x6 ATV should be needed at most locations. Currently, two smaller ATVs are used; due to the lower towing capacity of these ATVs, it often requires two trips to transport the purge water out of the floodplain. Both of those effects are beneficial in terms of reducing possible impacts from noise and sampling activities to the potential SWFL nesting habitat.

**New Staging Areas.** Two new staging areas are proposed: one at PE-1 and the second in the area between MW-27 and MW-42 (see Figure 2). Establishment of these new staging areas will decrease the distance to be traveled on foot by field crews while carrying sampling equipment. It is also recommended that the power source from PE-1 be used for sampling at the MW-27 cluster, with new foot route between the MW-34 cluster and the MW-27 cluster.

1. The proposed staging area at PE-1 (Figure 2) would replace the current staging area at MW-39. The ATV with the purge tank would be parked at PE-1 when wells at the MW-34 clusters and MW-45 are sampled. The power source at PE-1 would be used to eliminate noise from a generator while purging and sampling. By staging at a closer

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<sup>3</sup> ATVs are not proposed for use on HNWR property.

location to the well heads, the time required for setup and teardown is decreased, resulting in reduced impact in the potential SWFL nesting area.

2. The PE-1 power source may also be used for sampling at wells in the MW-27 cluster but would require a new foot route to be approved between MW-34 and MW-27 (Figure 2). There is an existing route between the two well heads, so the impact on the habitat should be minimal.
3. The proposed staging area between MW-27 and MW-42 (Figure 2) would replace the current staging area at MW-39 when wells at the MW-27 and MW-42 clusters are sampled. By staging at a closer location to the well head, the time required for setup and teardown is decreased, resulting in reduced impact in the potential SWFL nesting area.

**“Lay-Flat” Hose.** Approximately 700 feet of 4-inch “lay-flat” hose is recommended to replace the current garden hose used to connect the pumps at the well head to the purge tanks at the staging areas. During the summer of 2005, garden hose was laid out along the access routes from the well to be sampled to the staging area at either MW-39 or near MW-32. This required up to 800 feet of hose weighing hundreds of pounds. Due to the bulk of the material, the hose was transported in 100-foot lengths. During the hottest portion of summer, a six-person crew is required for the field work. Each individual is limited to 30 pounds per trip. As an alternative, the lay-flat hose would be rolled out using ATVs the week before nesting season is to begin. The heavy burden of transporting the hose under current practice would be eliminated by installing the lay-flat hose before the nesting season and leaving the hose in place after sampling is completed. Spill containment would be provided under any hose connections, if any connections are required to reach more distant wells. The hose would be cleared of all water after sampling is completed and left in place until the next sampling event. Clearing water from the hose will be accomplished by lifting the hose to shoulder height to drain the water into the purge water storage tank. Since the area is open to public recreation and the potential for damage to the hose exists, the field crews will carefully inspect the hose before each use. Using the lay-flat hose would decrease the overall traffic, crew size, and time spent in the habitat areas. It would also decrease the chances of heat stress for the crews when carrying hose to and from well heads.

## Effects Analysis

Table 1 presents an evaluation of the proposed changes to the 2005 summer floodplain sampling procedures as described herein. The evaluation accounts for the modifications already in place (e.g., reduced sampling frequency, use of PE-1 power, and dedicated pumps to eliminate generator use and need for decontamination), as well as the additional proposed modifications (6x6 ATVs, new staging areas, lay-flat hose).

Since fall 2005, summer SWFL survey results have been finalized. No positive identification of a Southwestern willow flycatcher was made during the 2005 protocol surveys of the study area (Garcia and Associates 2005) or during pre-well sampling biological surveys. Although SWFLs are not precluded from using the area in either foraging or migration, the vegetation at the project site, particularly in areas north of the Burlington Northern-Santa Fe (BNSF) railroad, is not consistent with other sites noted for breeding success. According to Sogge et al. (1997), all sites occupied by SWFL have consisted of patches with dense vegetation on the interior and in patches no smaller than 2 acres (0.8 hectares), regardless of

species composition. This quantity of dense vegetative structure (e.g., virtually impenetrable foliage at some point in the canopy) is not characteristic of the vegetation in the floodplain well-sampling area north of (BNSF) railroad. Areas south of the railroad are more densely vegetated and are, therefore, more consistent with areas where the SWFL has successfully nested. However, SWFLs were not observed in this area during 2005 surveys (Garcia and Associates 2005) or any other pre-activity surveys. It is possible that the proximity of the BNSF railroad and the Interstate 40 highway and the constant rail and vehicle traffic have some effect on bird ecology at and near the site. However, this is speculative and any related effects are difficult to quantify.

Given the pre-existing and continuing levels of human activity in the area, the relative absence of typical nesting habitat (north of the BNSF), and that no SWFL nests have been identified in the project site in annual and pre-activity biological surveys, the likelihood of an adverse effect due to implementation of proposed sampling procedures outlined on Table 1 is both insignificant and discountable.

According to the changes in floodplain well sampling procedures proposed for 2006 and subsequent annual implementation (during May-September), activity will still be restricted during nesting season sampling of wells near and south of BNSF railroad. Therefore, the proposed modifications are not likely to adversely affect the Southwestern willow flycatcher.

## Summary

The typical procedures for sampling a monitoring well on the Colorado River floodplain outside of the SWFL nesting season involves driving a pair of ATVs to a well head and remaining at the location from 20 minutes to 90 minutes, depending on the volume and rate of the required purge at a specific location. There is generally one round trip to and from each well. A typical sampling team in this scenario consists of three people.

The 2005 summer floodplain sampling procedures minimize the time spent at the well heads but require more trips on foot to the well and more people to set up and demobilize for each well. The 2005 procedures use ATVs with water storage tanks and electrical generators staged at MW-39 on BLM land and near MW-32 on HNWR land. Discharge hoses and electrical cords are carried by hand from the staging areas to the wells. The maximum distance that equipment must be carried is approximately 800 feet to well MW-27. During the hottest portion of the summer, the task of moving equipment to the well can require up to five trips to the well head with equipment. As many as six people are required to set up and remove equipment in the hottest weather. The overall time at the well head is minimized to about 15 minutes to set up equipment, collect a sample, and remove equipment.

Changes to the sampling frequencies and sampling schedules, in addition to the installation of dedicated pumps since the summer of 2005, has further limited the disturbance and amount of time spent at the wells for sampling during future sampling events. Additionally, the new power source at well PE-1 allows sampling operations without any power generator noise.

The additional proposed changes to the sampling procedures for the specific wells during the specific times of the year balance the need to minimize time at the wells while protecting

the health and safety of team members and maintaining the quality control requirements for sample collection. The proposed changes are summarized in Table 1. With the lay-flat hose already in place prior to the beginning of the nesting season, one person will make a trip to the well head to connect the hose and control box to the pump in the well prior to collecting each sample. New staging areas in closer proximity to the wells to be sampled would result in a reduced impact in the potential SWFL nesting area, including fewer trips to each well (from five trips to four), fewer field staff (from six to four), less equipment to be carried, and a shorter distance to transport equipment to the well. Larger, quieter 6x6 ATVs would provide greater towing capacity with less noise, allowing for approximately half the number of trips to and from the staging areas to discharge purge water.

As noted previously, given the pre-existing and continuing levels of human activity in the area, the relative absence of typical nesting habitat, and that no SWFL nests have been identified in the project site, the likelihood of an adverse effect due to implementation of proposed sampling procedures is both insignificant and discountable. These procedures continue to restrict sampling activities during the nesting season at wells near and south of BNSF railroad. Therefore, the proposed modifications are not likely to adversely affect the Southwestern willow flycatcher.

## Attachments

Figure 1

Figure 2

Table 1

## References

- California Department of Toxic Substances Control (DTSC). 2005. *Modification to Groundwater Sampling Frequency Schedule, Site-wide and Floodplain Groundwater Monitoring Programs, PG&E Topock Compressor Station, Needles, California*. September 6.
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- \_\_\_\_\_. 2005d. *Technical Memorandum. Site Access and Sampling Procedures for Groundwater Monitoring Wells Located Near Potential Southwestern Willow Flycatcher Habitat, Rev. 1*. June 29.
- \_\_\_\_\_. 2005e. *Technical Memorandum. Site Access and Sampling Procedures for Groundwater Monitoring Wells Located Near Potential Southwestern Willow Flycatcher Habitat, Rev. 2*. September 14.
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**Tables**

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TABLE 1  
Comparison of Current and Proposed Sampling Procedures in Potential SWFL Nesting Habitat  
PG&E Topock Compressor Station, Needles, California

Procedural Element	Non-Nesting Season Sampling Procedures	2005 Summer Floodplain Sampling Procedures	Revisions to 2005 Summer Floodplain Sampling Procedures	Comments
Number of wells, sampling frequencies	8 well clusters (23 individual wells) located in sensitive area, varying sample frequencies	When the 2005 summer floodplain sampling procedures were designed, the 23 wells were sampled on a quarterly (1 well), monthly (19 wells), bi-weekly (2 wells), and weekly (1 well) frequency with the 2nd Quarter event scheduled in June.	One additional well MW-45-95 has been installed in the restricted area of the floodplain. With DTSC approval, sampling frequencies for the other 23 wells have been modified to quarterly (15 wells), monthly (7 wells) and bi-weekly (1 well). 2nd and 3rd quarterly events are now scheduled to occur late April/early May, and early October, respectively.	The monthly and biweekly sampling schedules were reduced at DTSCs approval, and serve to limit potential impacts to nesting birds
Staging areas on BLM property	No staging areas.	One staging area is set up on BLM property, and one staging area is set up on HNWR property.	No change to proposed staging area on HNWR property. Propose two staging areas on BLM property to replace the one staging area near MW-39, one near PE-1 and one near MW-42.	Staging areas on BLM property would be closer to wells to be sampled. The staging area near MW-39 is over 700 feet from the furthest wells at location MW-27; the proposed two staging areas are within 400 feet of all wells to be sampled.
Number of wells accessed by vehicle to well head	The 5 well cluster on BLM property in sensitive area are accessed directly by ATV. The 3 well clusters on HNWR property are accessed directly by truck.	The 5 well clusters on BLM property in sensitive area are accessed by foot, with ATVs left at staging area. The 3 well clusters on HNWR property are accessed by foot, with trucks left at staging area.	Three well clusters on BLM property would be accessed directly by ATV (MW-36, MW-30, MW-42). Three well clusters on BLM property would be accessed by foot, with ATVs left at the staging area (MW-45, MW-34, and MW-27). The 3 well clusters on HNWR property are accessed by foot, with trucks left at staging area.	With the new ATVs and quiet power source in place, operations at MW-30, MW-36 and MW-42 will be virtually noiseless
Purge Hose	ATVs access well heads, and purge water is collected directly into tanks on ATVs	Between 300 and 750 of hose needs to be rolled out each time a well is sampled. Carried in 100 foot lengths. Rolled back up after sampling each location.	Hose would be rolled out prior to the beginning of the nesting season and left in place between sampling events.	Change results in fewer trips by foot along access routes. Crew members would not be required to carry heavy hose during the hot summer months.
Crew Size	No. staff = 3	No. staff = 6 - Larger crew is required to move equipment long distances from the staging areas to the wells. A crew of 6 allows for 2 people to be in shade-rest at all times.	No. staff = 4 - With staging areas closer to the wells and purge hose already in place, smaller crews will be adequate to safely purge and sample the wells on the floodplain.	Smaller crews will result in less traffic on the floodplain in general.

TABLE 1  
 Comparison of Current and Proposed Sampling Procedures in Potential SWFL Nesting Habitat  
 PG&E Topock Compressor Station, Needles, California

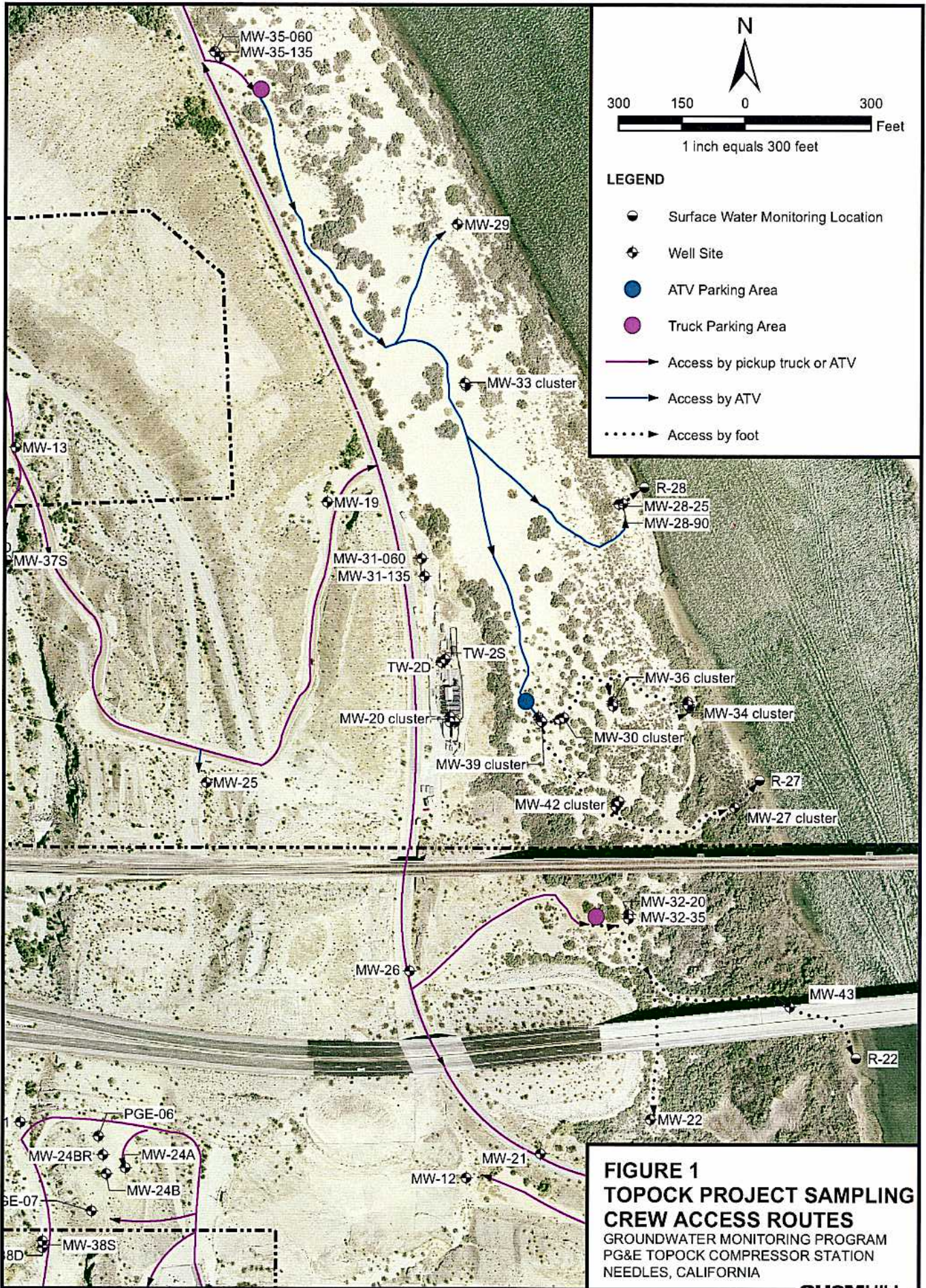
Procedural Element	Non-Nesting Season Sampling Procedures	2005 Summer Floodplain Sampling Procedures	Revisions to 2005 Summer Floodplain Sampling Procedures	Comments
Noise	4x4 ATVs without noise reduction measures were used to purge and sample well	Quiet electrical generators operating at 56 dB are used to power sampling equipment. 4x4 ATVs without noise reduction measures are used to transport equipment.	A new, noiseless power source was installed at PE-1 for equipment operation on BLM property for sampling at MW30, MW-34, and MW-36 and MW-45 clusters. New 6x6 ATVs with noise reducing mufflers will be used to transport equipment.	Wells on HNWR will still need generators for sampling operations. 6x6 ATVs will pull purge water trailer through the sand at lower RPMs, further reducing noise impact.
Approximate Time at Well	20 to 90 minutes, depending on the volume and rate of the required purge	15-20 minutes	12-15 minutes	Time spent at the wells is reduced due to closer proximity of proposed staging areas and purge hose already in place.
Trips to well	1	Approximately 5 trips from staging area to well.	Approximately 4 trips from staging area to well.	The lay-flat hose deployed prior to the nesting season would reduce the number of trip between the staging area and the well by one. However, rolling out hose for each sample as required by 2005 procedures requires numerous shorter trips to connect the 100 foot lengths of hose to cover the distance between the well and the staging area. That could require up to 5 additional trips along the access route to the well farthest from the staging areas (MW-43). Hose already in place would eliminate those trips.



Figures

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**FIGURE 1**  
**TOPOCK PROJECT SAMPLING**  
**CREW ACCESS ROUTES**  
 GROUNDWATER MONITORING PROGRAM  
 PG&E TOPOCK COMPRESSOR STATION  
 NEEDLES, CALIFORNIA



