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May 9, 2006

Mr. Norman Shopay
California Department of Toxic Substances Control
700 Heinz Avenue, Suite 200
Berkeley, CA 94710

Subject: Response to comments on conditional approval of Technical Addendum No. 2:
Approach for Hydraulic Testing of Wells at Locations 1, 2, and 4
Interim Measures Performance Monitoring
PG&E Topock Compressor Station, Needles, California

Dear Mr. Shopay,

This letter is in response to Condition 1 in DTSC's May 3, 2006 letter regarding the conditional approval of Technical Addendum No. 2: Approach for Hydraulic Testing of Wells at Locations 1, 2, and 4. As directed, prior to the start of aquifer testing, PG&E is herein submitting responses to comments 1, 2, 3, 5, 6, 7, and 8 provided in DTSC Geological Services Unit (GSU) Technical Memorandum dated May 1, 2006.

COMMENTS AND RESPONSES

Comment 1: As the final stage of well development, PG&E proposes to conduct step tests at each well in four 15-minute steps at four progressively higher pumping rates (e.g., 10, 30, 50, 70 gallons per minute (gpm)). The final design of each step test will be determined in the field based on well yield observed during development. Reviewers (USGS, DTSC, GeoTrans) have expressed concern regarding the proposed 1-hour duration of the step tests. GeoTrans has recommended that the test duration be increased if pumping rates less than 50 gpm are used. At Locations 2 and 4, it is likely that PG&E will need to use lower pumping rates than are cited in the Technical Addendum because these wells were completed in reworked Miocene Conglomerate. The 15-foot screen length used for well MW-51 (Location 4) would also constrain the allowable pumping rate, if this well is used for hydraulic testing.

Response: PG&E plans to monitor the water levels in the pumping well continuously during the step tests and is prepared to extend the step tests as needed if water levels are stabilizing slower than expected. Water management planning has been modified to allow for longer testing if needed. Steps will be increased to 30 minutes duration if drawdown has not stabilized sufficiently at the end of each 15-minute step. Previous step testing at the site (IM3 injection wells, PE-1, TW-2) has generally resulted in steady water levels in the pumping well during 15-minute steps.

Comment 2: The Technical Addendum indicates that the groundwater flow model was used to estimate the appropriate duration for the constant rate aquifer tests. Several

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reviewers (USGS, DTSC, GeoTrans) have raised concerns regarding the short time frame (2 to 4 hours) derived from the simulations and have recommended longer tests. PG&E should provide further justification for the proposed duration of the constant rate pumping tests.

Response: The groundwater model was calibrated to match data collected from previous aquifer testing at the site. Prior aquifer testing with pumping from TW-2D has shown that response in surrounding deep zone monitoring wells is rapid. Steady state drawdown was reached in most surrounding monitoring wells within 2 to 4 hours after testing began. PG&E has made arrangements to have additional water trucks available if it becomes necessary to extend the duration of the test to as long as 6 hours. Water levels will be monitored during the test to determine if drawdown has stabilized.

Comment 3: Reviewers have noted that water storage and management logistics may have influenced the recommended aquifer test duration. From a technical perspective, the aquifer tests should be designed to ensure collection of high quality data that supports the RFI. GSU realizes that the test design must consider the water management logistics, but further evaluation of water management options may allow longer test duration. GSU understands that PG&E will be providing further details regarding the water storage and management options for the aquifer tests.

Response: PG&E has arranged to manage approximately 12,000-18,000 gallons at TW-4 for constant rate testing. This location is anticipated to be the highest yielding of all these test wells. This volume will allow for a 4-6 hour test at 50 gpm if a test of this duration is needed. PG&E has arranged for management of 12,000 gallons at TW-5 (equivalent to a four-hour constant rate test at 50 gpm). MW-51 (or MW-26) is unlikely to produce high volumes of water, so no extra water management planning has been made at this location.

Comment 5: Page 2 of the Technical Addendum states that "The groundwater flow model simulations were run in steady state and do not simulate the daily or seasonal river level fluctuations, but rather indicate what the effects of pumping would be in the absence of river fluctuations." As requested by GeoTrans, PG&E should clarify how steady-state model simulations support a projection of transient drawdown effects during the aquifer test.

Response: The statement in the Technical Addendum is not completely accurate. The model included steady state boundary conditions (river levels) but was run in transient mode to project the effects of pumping over time.

Comment 6: Page 3 of the Technical Addendum states that "Model results indicate that, if pumping rates remain constant, pumping at these wells [TW-3D, PE-1] will produce minimal variations in water levels at surrounding monitoring wells. Therefore, it is not anticipated that the IM-3 extraction system will need to be shut down during hydraulic testing of the new wells." PG&E should provide further details regarding:

(1) The measures that will be used to ensure constant pumping from wells TW-3D and PE-1 during the aquifer tests.

Response: Operational run time at extraction wells TW-3D and PE-1 was greater than 99% over the months of February and March 2006 (April 2006 data are not yet available). The IM3 extraction

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system will have no planned operational shutdowns during hydraulic testing. In the extremely unlikely event that the IM3 extraction system is not constant and the usefulness of aquifer test data is compromised, testing will be repeated once IM3 operations are again constant.

(2) potential modifications to the aquifer tests if IM 3 pumping is determined to unduly affect the test results

Response: In the unlikely event that this occurs, PG&E will request approval from DTSC to temporarily shut down the IM3 extraction system to conduct aquifer testing.

(3) As requested by GeoTrans, the potential impact of variable IM3 pumping rates on the aquifer test results.

Response: IM-3 pumping rates are normally steady with minor fluctuations. This is not expected to be a concern. Again, if test data are compromised due to variable IM3 extraction rates, testing will be repeated.

Comment 7: The USGS has raised a concern regarding the potential effect of wellbore storage on the ability to observe drawdown in observation wells. When evaluating the first set of constant rate test results, PG&E should determine whether this is an issue and, if so, mitigate the effects by monitoring water levels with packed off transducers. PG&E should identify the logistical issues (e.g., supplier, time to arrive at site) that would be necessary if packers are needed.

Response: Should this issue become evident during the initial testing, packers will be acquired and installed before subsequent tests are conducted. In order to obtain sufficient baseline data prior to the test, packers would need to be installed several days to a week before aquifer testing. PG&E is in the process of identifying suppliers for packers that would be suitable for this purpose.

Comment 8: As requested by GeoTrans, PG&E should provide further discussion regarding

(a) the pre-test monitoring procedures and

Response: All monitoring wells in the vicinity of the test wells will be instrumented with transducers for at least 10 days before the tests begin (most wells have been recording data for months without interruption). Transducers within the expected radius of influence of test wells will be programmed to record data at one-minute intervals for approximately one day prior to the initiation of testing. These transducers will continue recording at 1-minute intervals throughout the entire period of hydraulic testing until full recovery is observed.

(b) the duration of recovery monitoring after completion of the constant rate tests.

Response: Prior aquifer testing indicates that recovery in floodplain wells is likely to occur within a few hours. Water levels in monitoring wells will be monitored on one-minute intervals for at least as long a period as the well was pumped. Transducers will remain in the monitoring wells and continue recording at 30-minute intervals for the foreseeable future.

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

Sincerely,

A handwritten signature in blue ink that reads "Julie Edkins for Yvonne Meeks". The signature is written in a cursive style.

Cc: Kate Burger, DTSC