



**Pacific Gas and
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June 23, 2005

Norman Shopay
Department Toxic Substances Control
700 Heinz Avenue, Suite 200
Berkeley, CA 94710

Cathy Wolff-White
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Subject: Background Sampling and Depth Profile Results and Plan for Additional
Response Activities, Spill Event on April 10, 2005 at IM2 Batch Plant, PG&E
Topock Compressor Station, Needles, California

Dear Mr. Shopay and Ms. Wolff-White:

This letter transmits the results of the background and depth profile sampling at the MW-20 Bench. Based on the revised statistical estimates of background, additional cleanup in the area where the spill originated (about 15-feet by 30-feet) is proposed. This area contains confirmation sample results that continue to exceed background estimates for the MW-20 bench.

PG&E will prepare to complete the work during the week of June 27 after DTSC and BLM have reviewed and approved the plan.

Sincerely,

Rich McCurdy for
Rich McCurdy / PG&E

cc: Kate Burger/DTSC
Fred Zanoria/DTSC
Karen Baker/DTSC
Aaron Yue/DTSC

Background Depth Profile Results and Plan for Additional Response Activities

Spill Event on April 10, 2005 at IM No. 2 Batch Plant

Pacific Gas and Electric Topock Compressor Station, Needles, California

On April 10, 2005, a spill of clarifier sludge occurred at the Interim Measure No. 2 (IM2) batch treatment plant located on the MW-20 bench at the Pacific Gas and Electric Company's (PG&E) Topock site. A work plan was prepared that summarized the spill event, initial cleanup activities, and proposed confirmation sampling plan. The work plan was reviewed by California Department of Toxic Substances Control (DTSC) on April 21, 2005 and finalized on April 25, 2005 (CH2M HILL, 2005a). The results of the initial cleanup and confirmation sampling were summarized in a memorandum issued on April 29, 2005 (CH2M HILL, 2005b).

The cleanup of affected soils is partially complete. An area of potentially affected soils is still present in the area around the phase separator where the spill originated. On May 26, 2005, PG&E submitted a sampling plan to DTSC and the U.S. Bureau of Land Management (BLM) to collect additional background samples across the MW-20 bench and depth profile samples from the spill area where higher concentrations of total chromium (Cr[T]) remain (CH2M HILL, 2005c). These samples were collected on May 25, 2005 after obtaining DTSC's and BLM's approval.

This document summarizes the results of the background and depth profile sampling and proposed additional cleanup activities to restore the remaining affected area to pre-existing conditions.

Current Status of Cleanup Activities

The results of the initial cleanup and confirmation sampling were summarized in a memorandum issued on April 29, 2005 (CH2M HILL, 2005b). Additional soil removal and confirmation sampling was completed between April 28 and April 30, 2005. Table 1 summarizes the current set of analytical results. Figure 1 shows the confirmation sample locations.

DTSC concurred that confirmation samples in the Valve Vault No. 1 excavation and near extraction well TW-2S were within the range of background data for Cr(T). Hexavalent chromium was not detected above the reporting limit. The DTSC approved backfilling of the valve vault excavation so that IM3 construction could proceed without further delay.

The results also indicate that potentially affected soil may still be present in the area around the phase separator area where the spill originated. Total chromium detected in confirmation samples from this area ranged from 31 milligrams per kilogram (mg/kg) to

54 mg/kg. Hexavalent chromium was not detected at the reporting limit, which was approximately 0.4 mg/kg.

Background Sampling on MW-20 Bench

Background soil samples were collected on May 25, 2005 from 10 locations on the MW-20 bench. (See attached Figure 2.) Sample locations were field located with the DTSC to be outside the footprint of the IM2 facility and away from IM3 construction. Each soil sample was tested for total chromium by method 6010b. Table 2 summarizes the background soil sample results.

TABLE 2
Background Soil Analytical Results from MW-20 Bench – May 2005

Sample Location	Sample Date	Depth Interval (ft bgs)	Total Chromium (mg/kg)
BG-1	5/25/2005	0 to 1	13.9
BG-2	5/25/2005	0 to 1	31.0
BG-3	5/25/2005	0 to 1	15.8
BG-4	5/25/2005	0 to 1	25.0
BG-5	5/25/2005	0 to 1	21.1
BG-6	5/25/2005	0 to 1	9.69
BG-7	5/25/2005	0 to 1	13.8
BG-8	5/25/2005	0 to 1	12.4
BG-9	5/25/2005	0 to 1	15.0
BG-10	5/25/2005	0 to 1	11.2

ft bgs: feet below ground surface
mg/kg: milligrams per kilogram

Background Data Evaluation

The background samples collected from across the MW-20 bench were used to refine the background threshold concentration estimate for total chromium. The previous estimate was completed using a set of 12 samples collected in 2002 as part of pump test completed on the MW-20 bench (E&E, 2002). These samples were collected at six locations before and after the pump test, where a temporary containment berm and storage tank were placed to confirm that no leaks or spills occurred (approximately 30 foot by 70 foot footprint).

The 10 background samples (BG-1 through BG-10) collected in May 2005, and an average value of 13.0 mg/kg for the 12 samples taken in 2002 were used to calculate a background level for Cr(T) across the entire MW-20 bench. The average concentration of 13.0 mg/kg for the 2002 data was used to maintain the spatial distribution of data across the MW-20 bench

and it compares favorably to sample BG-7 (13.8 mg/kg) collected in the same vicinity. Table 3 summarizes the background statistics.

TABLE 3
Background Concentrations of Cr(T) in Soil, MW-20 Bench

Distributional Assumption	Number of Background Samples¹	p-value for Normality	p-value for Lognormality	Upper Tolerance (95/95) Limit (mg/kg)	Parametric Best Estimate of 95th Percentile (mg/kg)	Maximum Concentration (mg/kg)
Normal	11	0.040	0.385	34.9	27.2	31
Lognormal	11	0.040	0.385	41.9	27.8	31

¹The background data set included 10 background samples collected in May 2005 (see Table 2) and the average of 12 samples collected in 2002 (13.0 mg/kg).

DTSC guidance (DTSC, 1987) discusses the use of an estimate of the 95th percentile (of the background population) as a background threshold value. While a background threshold value of 27.2 mg/kg may be an appropriate approximation, it is quite possible that occasional site exceedances of this threshold would naturally occur at a rate exceeding 5 percent. The 95 percent upper tolerance limit (UTL), which is the 95 percent upper confidence limit of the 95th percentile, was calculated to be 34.9 mg/kg (a conservative estimate using an assumption of normality while the lognormal approach produced a UTL of 41.9), and the maximum concentration of Cr(T) of 31.0 mg/kg was detected in the background data set. Thus, occasional exceedances are expected and should be put into context before planning further cleanup activities.

Proposed Additional Cleanup

Based on the background sample results for Cr(T) from May 2005, additional excavation around the phase separator container area is appropriate (approximately a 15- by 30-foot area, as outlined on Figure 1). This area contains confirmation sample results that continue to exceed background levels calculated for the MW-20 bench.

Depth profile samples were collected at two locations (CS-6 and CS-8) in May 2005 to assess the depth of additional excavation that is appropriate in this area. Table 4 summarizes the depth profile results.

TABLE 4
Background Soil Analytical Results from MW-20 Bench – May 2005

Sample Location	Sample Date	Depth Below Current Excavation Surface (ft bgs)	Total Chromium (mg/kg)
CS6-1	5/25/2005	1	39.8
CS6-2	5/25/2005	2	41.4
CS6-3	5/25/2005	3	34.1
CS6-4	5/25/2005	4	35.2
CS8-1	5/25/2005	1	26.1
CS8-2	5/25/2005	2	36.8

Based on the depth profile results, PG&E proposed to remove potentially affected soils to a depth of over 4 feet (i.e., over-excavate to 5 to 6 feet) within the vicinity of the sample location CS6 and over 2 feet (i.e., over-excavated to 3 to 4 feet) around the perimeter of the excavation. The excavation would be completed with an excavator and small bobcat (if needed). A cultural resource monitor will be onsite during the excavation activities. The work will be coordinated so that the contaminated soils can be placed directly onto tractor-trailers and taken offsite the same day (e.g., no extra roll-off bins). This would result in approximately 80 loose cubic yards of soil excavated, assuming an average depth of 4 feet.

Confirmation samples would be collected from CS6, CS7, CS8, CS10, CS15, and CS16. (See Figure 1.) Samples would be tested for Cr(T) by Method 6010b. Samples will be tested on an expedited schedule (24 to 48 hours).

Other metals that were previously analyzed will not be tested as part of this final cleanup effort. Chromium (IV) was not detected at the reporting limit at any confirmation sample location. Arsenic and selenium were detected at levels slightly above site background values, but appear to be consistent across the dataset and are not being used to determine that cleanup is complete. Other metals that were detected in the sludge, including antimony, barium, copper, lead vanadium, and zinc, already appear to be within site background levels.

The sample results for Cr(T) will be screened against the background statistical comparisons presented in Table 3, and BLM and DTSC will be consulted to determine if the excavation can be backfilled and cleanup can be considered complete. Based on the depth profile samples, it is anticipated that Cr(T) levels will be within the calculated 95 percent UTL of 34.9 mg/kg, and approach concentrations near the maximum background concentration of 31.0 mg/kg or calculated background threshold value of 27.2 mg/kg.

The excavation will be backfilled with excess soil generated from excavating the nearby Valve Vault No. 1 that is currently stockpiled on the MW-20 bench. Additional excess soil from the IM3 treatment plant will be used if needed to complete the backfill. If necessary,

base material (sand or gravel) may be imported to level the ground surface to construct secondary containment for the phase separator container.

Schedule

PG&E intends to complete the additional soil removal the week of June 27 with DTSC's and BLM's approval. It is expected that the open excavation can be backfilled in an expeditious manner after initial review of the confirmation sample results. This would allow the area to be restored before setting IM3 brine storage tanks prior to starting the IM3 treatment plant. The IM3 storage tanks are currently scheduled to be placed the week of July 4 (early start) after factory painting is complete.

As described in the original work plan, a report will be prepared once the cleanup activities are complete and data are validated to document the spill event and cleanup efforts. The report will also include a discussion of biological and cultural resource concerns associated with the spill for the project record.

References

CH2M HILL. 2005a. *Confirmation Sampling Work Plan, Spill Event on April 10, 2005 at IM No. 2 Batch Plant, PG&E Topock Compressor Station, Needles, California*. April 22.

CH2M HILL. 2005b. *Preliminary Results of Confirmation Sampling and Plan for Additional Response Activities, Spill Event on April 10, 2005 at IM No. 2 Batch Plant, PG&E Topock Compressor Station, Needles, California*. April 29.

CH2M HILL. 2005c. *Background Sampling and Depth Profile Sampling Plan, Spill Event on April 10, 2005 at IM No. 2 Batch Plant, PG&E Topock Compressor Station, Needles, California*. May 26.

Department of Toxic Substances Control (DTSC). 1987 *Selecting Inorganic Constituents as Chemicals of Potential Concern at Risk Assessments at Hazardous Waste Sites and Permitted Facilities*, Sacramento, CA.

Ecology and Environment, Inc. (E&E). 2002. *Hydrogeologic Testing Results, Pacific Gas and Electric Company Topock Compressor Station, Needles, California*. April 1.

TABLE 1
Preliminary Confirmation Sample Results

Location	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Hexavalent chromium ^b	Total chromium	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Iron
Comparison Values^a																			
Site Background ^c	ND	4.81	425	3.26	ND	9.38	19.2	NA	32.4	8.4	ND	0.542	21.6	0.927	NA	ND	38.7	55.2	23,900
MW-20 bench Background ^d	27.2																		
Samples Collected in Vicinity of TW-2S																			
IM2-CS1-042105								ND	23					0.82					13000
IM2-CS2-042105								ND	14					0.96					12000
Samples Collected in Valve Vault No. 1 Excavation																			
IM2-CS3-042105								ND	17					0.67					13000
IM2-CS4-042805	ND	6.2	290	ND			8.8	ND	16	3.9				ND			27	22	
IM2-CS13-042105								ND	11					0.78					7200
IM2-CS14-042805	ND	5.9	47	ND				11	ND	20	3.0			0.54			26	22	
Samples Collected Around Phase Separator																			
IM2-CS5-043005	ND	6.4	81	ND			10	ND	15	7.4				1.3			32	23	
IM2-CS6-043005	ND	9.9	340	ND			11	ND	54	4.3				1.5			42	30	
IM2-CS7-043005	ND	6.6	270	ND			7.1	ND	31	3.4				0.94			27	21	
IM2-CS8-043005	ND	8.4	270	ND			10	ND	39	3.9				1.1			32	26	
IM2-CS9-042105								ND	19					0.79					12000
IM2-CS10-043005	ND	6.4	190	ND			11	ND	32	4.5				ND			32	21	
IM2-CS-11-043005	ND	6.1	170	ND			8.5	ND	27	6.1				0.69			31	24	
IM2-CS12-043005	ND	6.2	110	ND			9.9	ND	22	8.5				0.98			31	26	
IM2-CS15-043005	ND	6.7	110	ND			6.4	ND	34	4.0				0.99			28	18	
IM2-CS16-043005	ND	8.4	220	ND			9.7	ND	53	4.3				1.6			34	28	
IM2-CS91-043005 (FD of IMS-CS16-043005)	ND	8.8	220	ND			9.7	ND	42	4.4				1.0			32	29	
Equipment Blank																			
IM2-CSRINSATE-042105	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
IM2-CSRINSATE-043005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sludge Sample																			
042005-IM2-SLG TTLC	11.6	10.7	6.47	7.97	ND	ND	3.88	230	3810	2.33	ND	ND	ND	50.4	ND	ND	8.53	24.4	27600
042005-IM2-SLG TCLP (mg/L)		ND	0.139	ND					0.174	ND	ND			ND	ND				
042005-IM2-SLG STLC (mg/L)									277										

Results are raw laboratory results. The data have not been fully validated and qualified.

Bold and highlighted values indicate exceedances of comparison values.

All sample results are in mg/Kg unless otherwise noted.

ND- Not detected at the RL

^aComparison values shown are most current values. Previous analytical data in areas that were resampled are not shown.

^bReporting Limit (RL) for hexavalent chromium by Method 7199 is approximately 0.4 mg/kg. Final reporting limit may vary after data is validated.

^cSite background concentrations from 0 to 10 feet below ground surface from draft RFI report, Table 10-1 (CH2M HILL, 2005a)

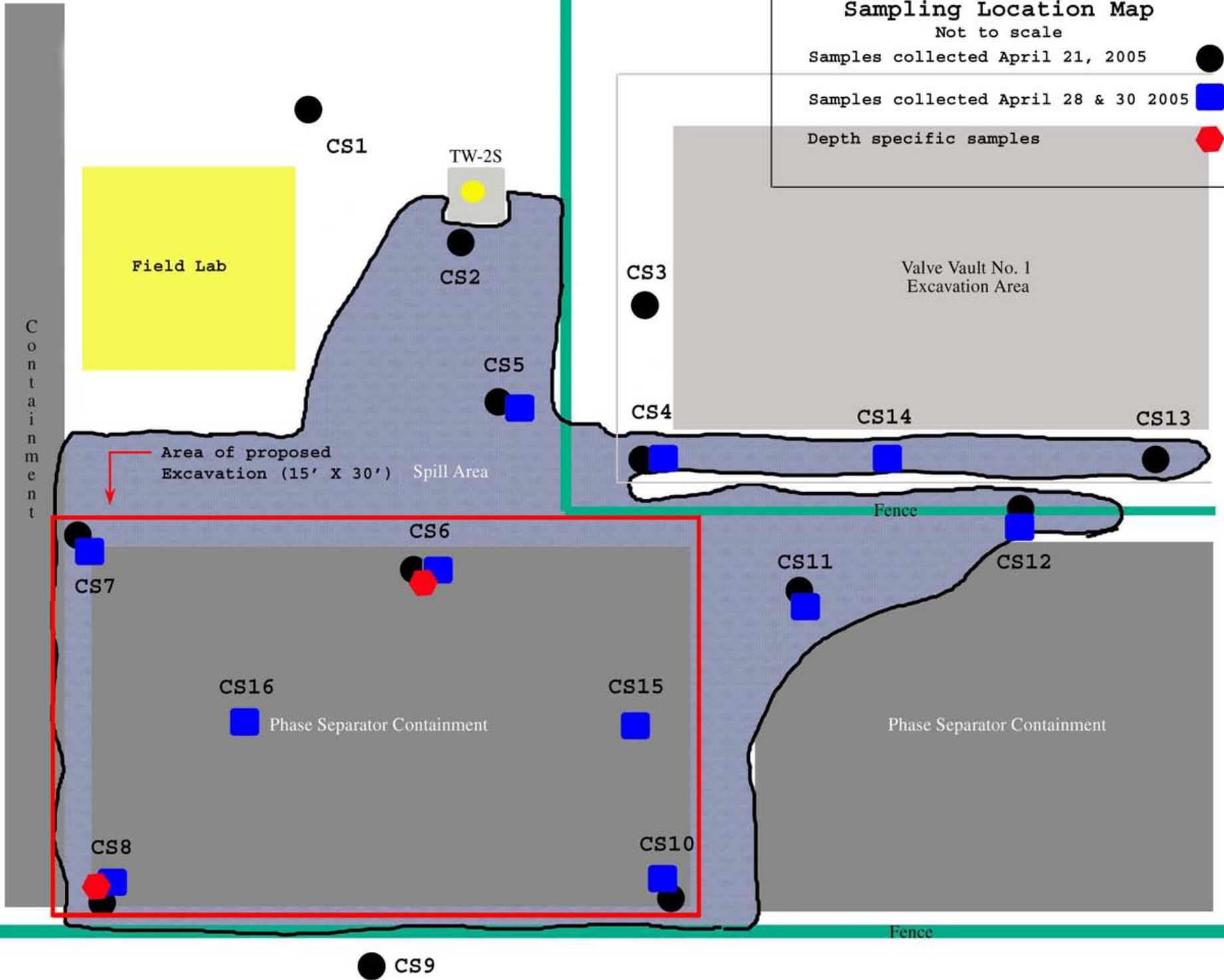
^dCalculated site-specific background concentration for Cr(T) based on the parametric best estimate of 95th percentile using 10 background samples collected in May 2005 from the MW-20 bench and the average concentration from the 2002 RFI data from the MW-20 bench (CH2M HILL, 2005b).

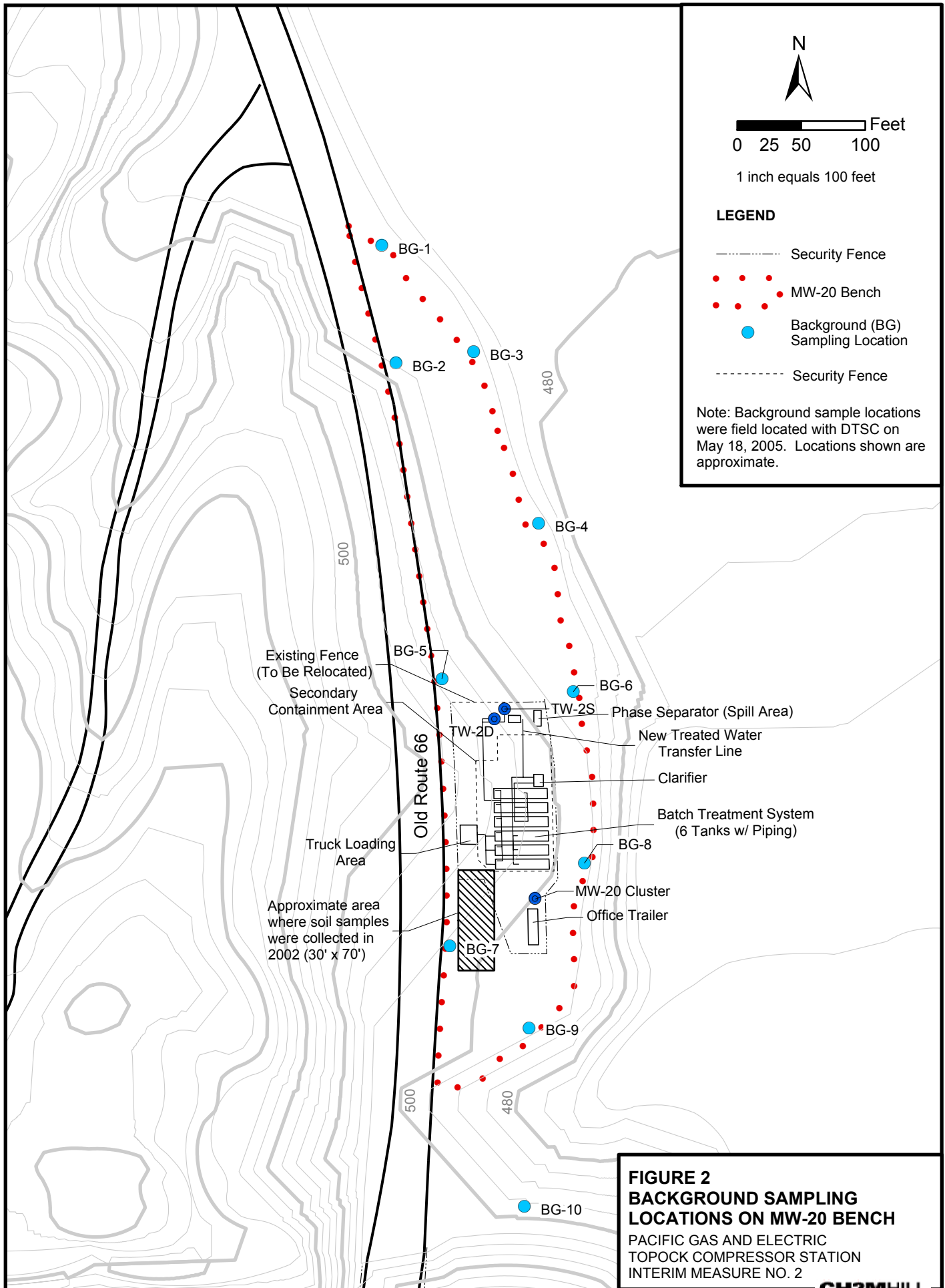
Figure 1
Sampling Location Map
Not to scale

Samples collected April 21, 2005

Samples collected April 28 & 30 2005

Depth specific samples





N

0 25 50 100 Feet

1 inch equals 100 feet

LEGEND

- Security Fence
- MW-20 Bench
- Background (BG) Sampling Location
- Security Fence

Note: Background sample locations were field located with DTSC on May 18, 2005. Locations shown are approximate.

FIGURE 2
BACKGROUND SAMPLING
LOCATIONS ON MW-20 BENCH
 PACIFIC GAS AND ELECTRIC
 TOPOCK COMPRESSOR STATION
 INTERIM MEASURE NO. 2