

Revised Work Plan for Ambient/Background Study of Dioxins and Furans at the Pacific Gas and Electric Company Topock Compressor Station, Needles, California

PREPARED FOR: Pacific Gas and Electric Company (PG&E)
PREPARED BY: CH2M
DATE: March 2, 2017
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This technical memorandum presents the work plan for an ambient/background study of polychlorinated dibenzo-*p*-dioxins and polychlorinated dibenzofurans (“dioxins and furans”) at the Pacific Gas and Electric Company (PG&E) Topock Compressor Station (TCS), located in Needles, California.

In a letter dated November 9, 2016, the U.S. Department of the Interior (DOI) provided conditional approval of the Resource Conservation and Recovery Act Facility Investigation (RFI)/Remedial Investigation (RI) Plan to Address Data Gaps Identified During Work Plan Implementation for the TCS, DG-WP-03 (herein referred to as DGWP-3) (CH2M, 2016). As part of their conditional approval, DOI directed PG&E to establish ambient/background values for dioxins and furans on federal land to assist with future risk assessment/risk management decision making. The lack of a dioxin and furan ambient/background study was also noted in comments on DGWP-3 from the Fort Mojave Tribe. This work plan was initially submitted to DOI on December 20, 2016 and has been revised per DOI direction received in a February 28, 2017 letter (see Attachment 1).

DOI listed the following criteria to be considered in the ambient/background study for dioxins and furans:

- Sample locations shall be based on the previous soil ambient/background sampling plan to the extent possible although the addition of new locations may be necessary.
- While previous ambient/background sampling efforts focused on geologic variations to assess inorganic concentrations, this effort should focus on areas unimpacted by PG&E operations to assess ambient/background concentrations of dioxins and furans due to outside sources.
- The sampling should focus on surface to near-surface sample depths (less than 1 foot).
- Access to sample locations shall utilize areas already disturbed by previous grading and other mechanized activities to the extent practicable; and access beyond disturbed areas, as determined necessary, should be limited to foot access only.
- The performance of all field activities shall be executed in such a way as to avoid and/or minimize adverse effects to biological, cultural, and historic properties to the maximum extent practicable, and be consistent with the Programmatic Agreement and Programmatic Biological Assessment.

DOI requested development of a separate work plan for the ambient/background study of dioxins and furans. This technical memorandum presents the work plan to collect soil samples for the ambient/background study, and incorporates the criteria presented in the DOI letter (DOI, 2016).

This work plan will be implemented in March 2017, concurrent with DGWP-3 implementation and data analysis. The data identified in this work plan will be used to estimate ambient/background values for dioxins and furans; the results will be presented in a forthcoming ambient/background study technical memorandum.

Previous Ambient/background Study

Ambient or ambient/background concentrations of inorganic chemicals in soils were estimated in several earlier studies (prior to 2006) for various portions of the property around the PG&E TCS in Needles, California. A formal ambient/background study was conducted in 2008 in accordance with the RFI/RI Soil Investigation Work Plan, Part A (CH2M, 2006), to augment the existing ambient/background data set, and to establish ambient/background concentrations of inorganic constituents and polycyclic aromatic hydrocarbons (PAHs). Samples were collected from various lithologic and geomorphic settings and soil types in the vicinity of the compressor station, but in areas that were not expected to be impacted by compressor station activities. Data from these different lithologic units were assessed statistically to evaluate if there were differences between the units requiring different values for each lithologic unit. Statistical differences between the lithologic units were not sufficient to require separation or partitioning of the data; therefore, data were combined into one large data set that was used to generate the ambient/background values.

Ambient/background values were developed for inorganics but not PAHs, since PAHs were not detected above laboratory reporting limits. Dioxins and furans were not analyzed during these events. This lack of a ambient/background study of dioxins and furans has resulted in the use of conservative ecological comparison values to assess detected concentrations of dioxins and furans in soil collected as part of the implementation of the *Soil RCRA Facility Investigation/Remedial Investigation Work Plan* (CH2M, 2013).

Dioxins and Furans Ambient/background Study

The occurrence of dioxins and furans is typically associated with the burning or combustion of organic materials such as trash, wood/trees, and petroleum fuels. Potential sources of dioxins and furans in the vicinity of the TCS may include historical industrial activities such as fire suppression exercises and burning of garbage. Other sources may include unauthorized dumping and burning; regional wildfires; combustion of diesel and leaded gas; and exhaust from cars, trucks, and trains.

Assessing ambient/background concentrations of dioxins and furans will assist with data gap evaluation and future risk assessment/risk management decision making. The following sections present the proposed sampling program and methods for calculating ambient/background values for dioxins and furans in soil.

Proposed Sampling Program

The proposed ambient/background sample locations are in areas not expected to be impacted by compressor station activities. Many of the proposed locations are in and around areas that may be affected by regional anthropogenic sources (trash dumping and/or burning, railroad and highway exhaust, and wild fires). Several other locations are also on federal land away from the known potential sources and a few locations are located in stormwater runoff pathways of potential sources. Because dioxins and furans in these areas are primarily aerially deposited, sample locations were placed in areas outside of washes or arroyos where surface soils can be frequently reworked.

Several soil ambient/background sample locations from the *Soil Ambient/background Investigation at the Pacific Gas and Electric Company Topock Compressor Station, Needles, California* (CH2M, 2009) appear to be appropriate for use in the dioxins/furans ambient/background study. Previous sample locations BKG-1, BKG-6, BKG-7, BKG-13, and BKG-17 located on federal land are proposed for use in this study. Archived soil samples from these locations are available and will be analyzed for dioxins and furans analysis only. Proposed sample locations and rationale are presented in Table 1. Figure 1 shows the proposed sample locations.

Table 1. Proposed Sample Locations and Rationale

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Sample Location	Previous or New Sample Location	Rationale
BKG-1	Previous	Archived ambient/background sample
BKG-6	Previous	Archived ambient/background sample
BKG-7	Previous	Archived ambient/background sample
BKG-8	Previous	Archived ambient/background sample
BKG-9	Previous	Archived ambient/background sample
BKG-10	Previous	Archived ambient/background sample
BKG-11	Previous	Archived ambient/background sample
BKG-12	Previous	Archived ambient/background sample
BKG-13	Previous	Archived ambient/background sample from area near former Route 66
BKG-17	Previous	Archived ambient/background sample from area near former Route 66
BKG-18	New	Area near Interstate 40
BKG-19	New	Area between railroad and Interstate 40
BKG-20	New	Area near Interstate 40
BKG-21	New	Area near railroad
BKG-22	New	Area near railroad (low energy wash)
BKG-23	New	Area near Interstate 40 (low energy wash)
BKG-24	New	Area near former dump
BKG-25	New	Area near former dump
BKG-26	New	Area near former dump
BKG-27	New	Area between railroad and Interstate 40
BKG-28	New	Area near railroad
BKG-29	New	Area near railroad
BKG-30	New	Area near railroad
BKG-31	New	Area near former dump
BKG-32	New	Near or in the former wildfire area

Table 1. Proposed Sample Locations and Rationale

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Sample Location	Previous or New Sample Location	Rationale
BKG-33	New	Near or in the former wildfire area
BKG-34	New	Near or in the former wildfire area
BKG-35	New	Near or in the former wildfire area
BKG-36	New	Near or in the former wildfire area
BKG-37	New	Near or in the former wildfire area and near former Route 66
BKG-38	New	Area near Interstate 40 and Havasu National Wildlife Refuge
BKG-39	New	Area near Interstate 40 and Havasu National Wildlife Refuge
BKG-40	New	Area near Interstate 40 and Havasu National Wildlife Refuge
BKG-41	New	Area in Havasu National Wildlife Refuge (upper Bat Cave Wash)
BKG-42	New	Area near Interstate 40 and Havasu National Wildlife Refuge
BKG-43	New	Area near Interstate 40 and Havasu National Wildlife Refuge
BKG-44	New	Area in Havasu National Wildlife Refuge
BKG-45	New	Area away from known potential sources
BKG-46	New	Area away from known potential sources
BKG-47	New	Area near former Workman's Roadhouse

Discrete soil samples will be collected from the proposed sample locations at 0 to 0.5 foot below ground surface using hand tools following sampling protocols in the RFI/RI Soil Investigation Work Plan (CH2M, 2013). Soil samples will be analyzed for dioxins, furans, and PAHs. PAHs were not detected during the previous soil ambient/background investigation (CH2M, 2009); however, most locations were not in areas of potential sources. PAHs are proposed for this study because they can be formed via similar anthropogenic mechanisms as dioxins and furans. PAHs have been detected at low concentrations in most RFI/RI soil investigation units; a revised and more robust ambient/background study may benefit future risk assessment/risk management decision making for PAHs as well as dioxins/furans.

The proposed ambient/background soil sample locations were also compared to planned sampling locations associated with the pending groundwater remedy construction project to determine if future samples could be minimized. Ambient/background sample locations BKG-34, BKG-36, and BKG-47 overlap with the groundwater remedy revegetation and mitigation planting efforts. BKG-34 and BKG-36 are located in riparian habitat revegetation area RHR-6. BKG-47 is located near upland habitat revegetation area UHR-1. To assist with the revegetation and planting in these areas, the following soil quality tests will be performed on the soil samples collected at BKG-34, BKG-36, and BKG-47: saturation percentage, soluble salts, excess lime, sodium, calcium, magnesium, chloride, boron, carbonate, bicarbonate, pH, sodium adsorption ratio, exchangeable sodium percentage, organic matter, estimated nitrogen release, phosphorus (Weak Bray and Sodium Bicarbonate-P), extractable cations, hydrogen, sulfate-S, cation exchange capacity, percent cation saturation, nitrate-nitrogen, copper, iron, manganese, and zinc.

Dioxins and furans will be analyzed using U.S. Environmental Protection Agency (EPA) Method 8290. PAHs will be analyzed using EPA Method 8270SIM. Data will be validated according to the PG&E Program Quality Assurance Project Plan (CH2M, 2012).

Evaluation Methods for Estimating Ambient/background Concentrations of Dioxins and Furans in Soil

The validated dioxins and furans data will be used to calculate toxicity equivalent (TEQ) values for human/mammal and bird receptors, and ambient/background values will be calculated for each. For TEQ calculations, results less than the detection limit (ND results) for any of the 17 congeners will be addressed in three ways: the ND result will be represented as zero, half (1/2) of the detection limit, and the full detection limit. Should substantive differences be encountered between these three approaches the Agencies and PG&E shall consider whether additional evaluations need to be conducted to determine whether the differences could meaningfully affect risk assessment conclusions, and to determine whether additional statistical biases could be contributing factors. For comparative purposes, ambient/background threshold values (BTVs) will be calculated using all three approaches for estimating TEQ values. If there are no substantive differences, then only the BTV calculated using TEQ values calculated using half the detection limit for ND results will be used to calculate a BTV. BTV values derived using the other two approaches will be considered as part of an uncertainty evaluation. Review of the distribution of TEQ values and an outlier assessment will precede derivation of BTVs. The following section describes the data review, outlier analysis, and calculation of BTVs.

Distributional Assessment and Outlier Analysis

An outlier analysis will be performed on the TEQs to determine if individual results appear unusual and should be excluded from the ambient/background data set. In addition, if this analysis demonstrates a pattern for specific samples, one or more samples or sample locations may be excluded from the data altogether. The mathematical outlier tests will not be the only criteria in determining whether or not a result is excluded, but any results identified as mathematical outliers will undergo additional scrutiny, and justification for retaining or excluding them from the data set will be provided in the forthcoming dioxins and furans ambient/background study technical memorandum.

Outlier tests are based on an assumption that the remaining TEQ concentrations adhere to approximately a normal distribution (after any potential outliers are excluded). When the test of normality for the non-outlier concentrations does not support the assumption of normality, the data will be transformed (EPA, 2002) using a variety of transformations. These can include the square root, cubic root, and natural logarithmic transformations. The logarithmic transformation is a common transformation for environmental concentrations, while the square root and cubic root transformations offer options appropriate for intermediate levels of skewness in the data. The transformation that best meets the normality assumption (i.e., largest p-value for the Shapiro-Wilks goodness of fit test) will be the basis for assessment of multiple outliers. The distribution of the data set will be tested for normality both during the outlier test and prior to calculating the ambient/background threshold value.

In addition to the formal statistical distribution tests, probability plots of the data provide an additional assessment of the distribution and can highlight potential outliers. Probability plots graph the measured concentrations against those expected if the data (or the transformed data) are normally distributed. As such, the sample concentrations follow a straight line when the data resemble a normal distribution. Probability plots can be helpful in understanding whether the data should be evaluated as measured (i.e., calculated TEQs) or transformed prior to the statistical evaluations.

In accordance with EPA (2000) guidance, the mathematical outlier test method depends on the number of samples. Since there will be more than 25 samples, Rosner's test for multiple outliers is most appropriate. This test directly handles multiple potential outliers with the potential for two or more

outliers to mask identification of outliers since they may be close in concentration. Rosner's test will evaluate up to 10 potential outlier TEQ values at the standard 0.05 significance level.

Summary Statistics and Ambient/background Threshold Calculations

After the outlier analysis is completed and the ambient/background data set is established, summary statistics for each TEQ will be calculated. Summary statistics will include the mean, median, standard deviation, frequency of detection, and goodness of fit test results for normality, gamma, and lognormality. These summary statistics support selection of the BTV for each TEQ.

The BTV will be calculated as the 95/95 upper tolerance limit (UTL); that is, an upper bound (with 95 percent confidence) on the 95th percentile of ambient/background sample concentrations. The calculation method for a UTL depends on the distributional assumption. Following EPA guidance and ProUCL software (EPA 2016), TEQ values will be evaluated for adherence to normal, gamma, and lognormal distributions. If the TEQs as calculated or transformed do not follow any of these distributions then the UTL will be calculated using a non-parametric method. The BTV will be selected based on the distribution tests and recommended UTL calculation methods provided in the ProUCL output, in conformance with EPA recommendations.

Because BTVs are typically estimates of an upper percentile (for example, the 95th percentile), it is expected that some site concentrations will exceed this threshold even when site conditions are similar to ambient/background. Guidance from the California Department of Toxic Substances Control suggests using the Wilcoxon Rank Sum (WRS) test as a supplemental evaluation of whether site concentrations are significantly higher relative to ambient/background concentrations than random variability could explain. In situations where site sample concentrations exceedance the BTV, the WRS test provides an assessment of whether these samples are consistent with ambient/background (i.e., as many or fewer than would be expected to exceed from ambient/background conditions), and statistically address whether there is evidence of an overall increase in concentrations at the site as compared with ambient/background concentrations.

References

CH2M HILL (CH2M). 2006. *RCRA Facility Investigation/Remedial Investigation Soil Investigation Work Plan Part A, PG&E Topock Compressor Station, Needles, California*. November 16.

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_____. 2016. *Topock Soil RFI/RI – Plan to Address Data Gaps Identified During Work Plan Implementation, DG-WP-03*. September 21.

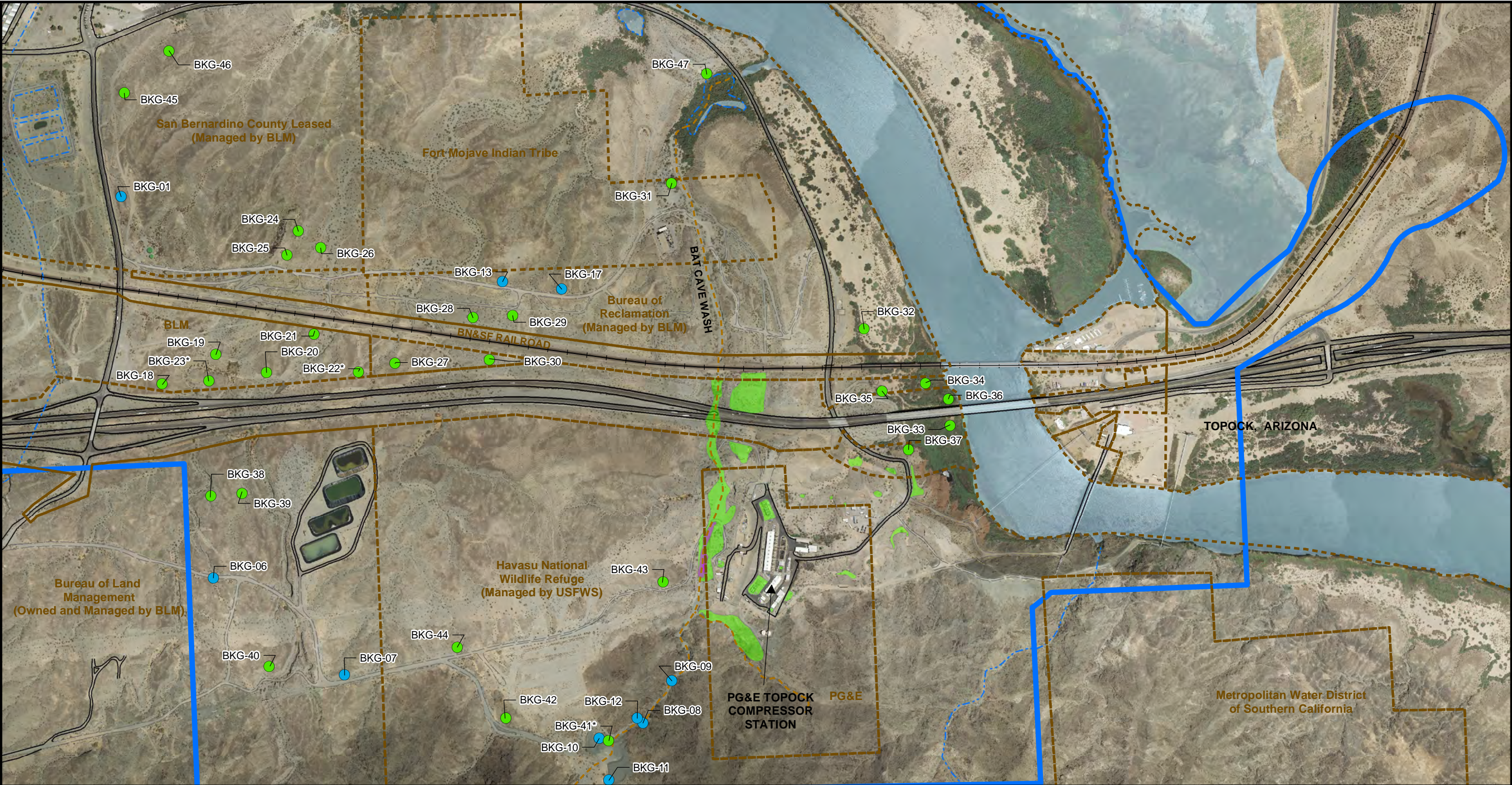
U.S. Department of the Interior (DOI). 2016. Letter regarding "Topock Soil RFI/RI – Plan to Address Data Gaps Identified During Work Plan Implementation, DG-WP-03, September 21, 2016, for the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California." November 9.

U.S. Environmental Protection Agency (EPA). 2000. *Data Quality Objectives Process of Hazardous Waste Site Investigation*. January.

_____. 2002. *Guidance for Comparing Ambient/background and Chemical Concentrations in Soil for CERCLA Sites*. September.

_____. 2016. ProUCL Software version 5.1. June. Available at <https://www.epa.gov/land-research/proucl-software>.

Figure



Legend

2008 Soil Background Location	Bat Cave Wash Channel
Proposed Background Sample Location	Solid Waste Management Unit (SWMU)
	Area of Concern (AOC)
	Area of Potential Effects

* Sample locations BKG-22, -23, and -41 will be determined in the field at the time of sampling.

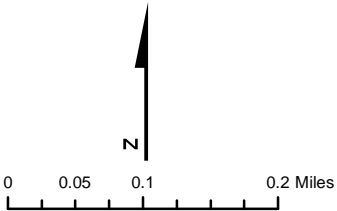


Figure 1
Ambient/Background Soil Sample Locations
Revised Work Plan for Ambient/Background Study of
Dioxins and Furans Pacific Gas and Electric Company
Topock Compressor Station, Needles, California

Attachment



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
FISH AND WILDLIFE SERVICE
BUREAU OF RECLAMATION



ELECTRONIC SUBMISSION

February 28, 2017

Curt Russell
Pacific Gas & Electric Company
Topock Site Manager
P.O. Box 337, Needles, CA
92363

Subject: Topock Soil RFI/RI - Work Plan for Background Study of Dioxins and Furans at the Pacific Gas and Electric Company Topock Compressor Station, Needles, California, December 20, 2016, for the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Dear Mr. Russell:

The United States Department of the Interior (DOI), on behalf of the Bureau of Land Management (BLM), the U.S. Fish and Wildlife Service, and the Bureau of Reclamation (collectively referred to as "DOI"), has completed the review of the *"Work Plan for Background Study of Dioxins and Furans at the Pacific Gas and Electric Company Topock Compressor Station, Needles, (D/F background work plan) for the Pacific Gas & Electric (PG&E) Topock Compressor Station Project.* The D/F background work plan was prepared by CH2M for PG&E and is dated December 20, 2016. The plan was submitted to address one of the identified data gaps specific to Federally-managed land as specified in DOI's November 9, 2016 conditional approval of Data Gap Work Plan 3.

The D/F background work plan was provided to the Consultative Work Group members on December 21, 2016 by DOI. As part of our evaluation, DOI reviewed and considered comments received from the Fort Mojave Indian Tribe (FMIT) and the California Department of Toxics Substances Control (DTSC). A conference call was held with representatives from the FMIT on February 14, 2017 to discuss their comments. DOI

took all comments into consideration and below are responses to the comments and DOI's direction to PG&E regarding revision of the D/F background work plan.

A site walk was held with representatives from PG&E, DOI, BLM, FMIT and the Hualapai Tribe on February 2, 2017. The purpose of the site walk was to review D/F background sample locations and adjust locations based on Tribal input. A separate site walk was held on February 3, 2017 with Dr. Michael Sullivan, consultant to the FMIT. Sample locations were adjusted to avoid cultural resources and desert pavement and to improve accessibility. Additionally, based on the February 14 meeting and in response to FMIT General Comment 1, and Specific Comments 1 and 4, sample locations 22, 23 and 41 were moved into low-energy wash areas. These sample locations were included in the revised draft sample location map provided by PG&E for comment to DOI, the FMIT, and Technical review committee members on February 21, 2017. The wash area sample locations shall be refined in the field, in the presence of Tribal representatives, prior to work plan implementation.

FMIT General Comment 2 requested that the current site soil dataset be used to establish a background D/F dataset. The suggested method to use existing site data to assess potential ambient/background concentrations can be appropriate at certain sites. However, for the purposes of this study, samples will be collected from areas that are outside of potential impact from Compressor Station activities, as well as areas that may be affected by regional anthropogenic sources (trash dumping and/or burning, railroad and highway exhaust, and wild fires). No changes to the work plan are necessary.

In response to FMIT General Comment 3, DOI discussed the use of the findings of the background study with DTSC. Following that discussion, DTSC provided this statement: "DTSC will continue to cooperate with and support the Federal agencies in the PG&E Topock site investigation and cleanup project. Moreover, DTSC will consider all applicable site data that have been gathered and evaluated using scientifically sound techniques during our remedy decision process."

In Specific Comment 3, the FMIT requested sufficient time to review and discuss the D/F background work plan. The original due date for comments was extended during the January 18, 2017 Consultative Work Group Meeting from January 20, 2017 to February 6, 2017 to allow additional time for review of the work plan and to accommodate a site walk. The February 14 2017 conference call between FMIT, DOI, and PG&E, was held to clarify comments and address Agency and Tribal concerns. No comments were received from stakeholders. Additionally, PG&E shall provide a two-week notification of field work to collect samples outlined in the work plan to allow participation by tribal representative in locating the D/F samples in the drainages.

FMIT Specific Comment 4 is noted. No action is required by PG&E.

To address FMIT Specific Comment 5, the reviewers are referred to the work plan (Page 5 paragraph 1) which notes: "The mathematical outlier tests will not be the only criteria in determining whether or not a result is excluded, but any results identified as

mathematical outliers will undergo additional scrutiny, and justification for retaining or excluding them from the data set will be provided in the forthcoming dioxins and furans background study technical memorandum”. Additionally, a congener analysis of the dataset will be considered to assess potential differences or similarities of sources and may be an additional line of evidence for retaining or eliminating a sample from the dataset.

DTSC requested the rationale for including PAHs in the D/F background work plan. Similar to dioxin/Furans, PAHs can also be attributed to regional anthropogenic sources such as trash dumping and/or burning, railroad and highway exhaust, and wild fires. The previous background study sample locations were not located in areas near these potential anthropogenic sources. Therefore, PAHs were included in this background study to assess if there are other non-site related sources.

DTSC noted that the DF work plan only proposes to analyze surface soil samples and not deeper soils, therefore using “ambient” instead of “background” should be considered. Dioxin/furan, and PAH Ambient/background concentrations are often related to aerial deposition thus surface soil samples are appropriate. The title shall be changed to address this concern by using the terms “ambient/background”.

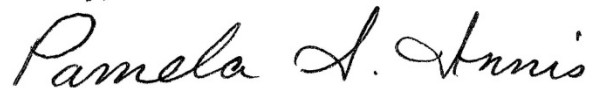
DTSC notes that the work plan does not appear to indicate the path forward should substantive differences be encountered between the three provided approaches for non-detects. Should substantive differences be encountered, the Agencies and PG&E shall consider whether additional evaluations need to be conducted to determine whether the differences could meaningfully affect risk assessment conclusions, and to determine whether additional statistical biases could be contributing factors. This additional follow-on evaluation may also include use of the KM method.

Finally, DTSC requested that the data set be tested for normality. PG&E shall ensure that the distribution of the data set be tested for normality both during the outlier test and prior to calculating the background threshold value.

PG&E proposed the use of archived samples BKG-1, BKG-6, BKG-7, BKG-13, and BKG-17 from the 2008 soil background investigation for dioxins and furans analysis only. As discussed in the February 14 meeting, PG&E shall run additional archived background samples, BKG 8 through 12, from the 2008 soil background investigation. These samples are south of the freeway and the PG&E AOCs and SWMUs and may be more representative of background for the upper area of Bat Cave Wash. The D/F background work plan sample location map shall be updated to include these sample locations.

PG&E shall expedite the revision of the D/F background work plan to minimize impacts to the overall soil investigation and risk assessment schedules and submit it for approval by DOI. If you have any questions, please contact me at (602) 417-9578.

Sincerely,

A handwritten signature in black ink that reads "Pamela S. Innis". The signature is written in a cursive, flowing style.

Pamela S. Innis
DOI Topock Remedial Project Manager

Cc: Nora McDowell, FMIT
Michael Sullivan, Consultant to the FMIT
PG&E Topock Consultative Workgroup (CWG) Members

February 6, 2017

Ms. Pamela S. Innis
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Office of Environmental Policy and Compliance
U.S. DEPARTMENT OF THE INTERIOR
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SUBJECT: Fort Mojave Indian Tribe Comments on the December 20, 2016 Technical Memorandum: *Work Plan for Background Study of Dioxins and Furans at the Pacific Gas and Electric Company Topock Compressor Station, Needles, California*

Dear Ms. Innis:

The Fort Mojave Indian Tribe (Tribe) and its consultant Dr. Michael Sullivan have reviewed the PG&E/CH2M December 20, 2016 Technical Memorandum: *Work Plan for Background Study of Dioxins and Furans at the Pacific Gas and electric Company Topock Compressor Station, Needles, California*, referred herein as the Dioxin Work Plan. A site walk to visit the various sample locations was also performed. The Tribe's comments are presented first as General Comments which address process issues and second as Specific Comments on the Technical Memorandum.

General Comments

1. In general the Tribe supports the determination of regional dioxin/furan background concentrations in soil due to aerial deposition. However, there may be other location characteristics that should be included in order to have the most complete and robust dioxin/furan background dataset. These sample location characteristics include samples from nearby drainages that are below US-40 and/or the railroad. The justification for these characteristics is provided in the following paragraph.

Samples from nearby drainages that are below U.S. Interstate 40 (US-40) should be collected. There are several low-flow/energy drainages that would evaluate the potential contributions of US-40. Internal-combustion-powered transportation vehicles are known sources of dioxin/furan compounds and contribute to the local anthropogenic background concentrations. Since some of the drainage sediment samples from SWUM/AOCs are in drainages that are adjacent and receive drainage from US-40, these same types of sample locations should be included in the dioxin/furan background study. The Tribe has included a map that shows that area where drainage sample locations should be substituted for some of the non-drainage samples. Exact locations can be determined in the field.

2. The Tribe recommends that prior to any additional sampling for dioxin/furan compounds, other methods be tried/evaluated to determine if the current dataset can be used to establish a background dioxin/furan dataset. California Department of Toxic Substances Control (DTSC) has published a policy on the use of site data to determine background concentrations.¹ The evaluation of the current dataset could yield sufficiently robust background dioxin/furan concentrations, thereby eliminating the need for these additional samples. The Tribe has performed a preliminary evaluation of the currently published dioxin data for the Topock Compressor Station (TCS). The results are promising for the estimation of a maximum background dioxin Toxic Equivalent Quantity (TEQ) and an initial estimate of 4.2 nanograms (ng) Dioxin Mammalian TEQ per kilogram (kg) soil (parts per trillion or ppt) was determined. The Tribe requests an opportunity to discuss and explore this option with risk assessors and geologists from both DTSC and the U.S. Department of the Interior (DOI) to evaluate whether this procedure could be used.
3. The Tribes notes the lack of participation by DTSC in this activity to determine background dioxin/furan concentrations. Does this mean that DTSC will not utilize the findings of this study in project decision-making? The Tribe requests that DOI solicit DTSC's commitment to characterizing and utilizing these dioxin/furan background data so all areas of the project site will benefit from this new data.

Specific Comments

1. Page 1, second bullet. The Tribe requests that drainages be a factor in the selection of sample locations. (See General Comment #1 above)
2. Page 1, last paragraph. The field-work phase for DGWP-3 has a set duration and the Tribe requests that sufficient time to review and discuss this dioxin/furan work plan is allowed whether or not this fieldwork can be performed within the DGWP-3 activities. It should be the addressing of Tribal and any Stakeholder concerns, not the DGWP-3 schedule which determines when this field activity will be performed.
3. Page 2, paragraph 2. The Tribe agrees that the use of conservative screening values is not a robust process and leads to erroneous conclusions. As per both DTSC and DOI, the plan is to 1997 use the risk assessment process to make determinations about remedial action for soil. This dioxin/furan soil background data should assist in that process.
4. Page 2, paragraph 5. Drainages and washes are a part of the soil sampling in SWMU/AOCs. In addition, drainages and washes have the potential to collect surficially-deposited chemicals like dioxin/furan. Therefore, the Tribe requests that drainages and washes downgradient (south and east?) of US-40 be included in the dioxin/furan sampling. (See General Comment #1 above)

¹Selecting Inorganic Constituents as Chemicals of Potential Concern at Risk Assessments at Hazardous Waste Sites and Permitted Facilities, HERD, DTSC, Cal-EPA, 1997.

5. Page 5, paragraph 2. While the statistical outlier evaluation is interesting, it is the selection of the background sample locations that should be the primary criteria for inclusion of background data. The dioxin/furan work plan acknowledges that the elimination of outliers results in a low-biased background comparison concentration. When the evaluation and selection of a sampling location determines that the location is background, then the data should be included. There is an additional evaluation tool that could be used to determine that an outlier is really part of the background dataset. This tool is congener analysis. If the congener ratios in an outlier sample are similar to those ratios in the other background samples, then that is further evidence that that outlier sample should remain in the background dataset.

The Tribe appreciates the opportunity to provide input into the need and location of proposed dioxin/furan background soil samples. The Tribe looks forward to its comments being addressed in the final background soil sampling work plan and is ready to discuss these comments further with you.

Sincerely,
And on behalf of the Fort Mojave Indian Tribe



Michael J. Sullivan, Ph.D., CIH, REHS
Consultant to the Fort Mojave Indian Tribe
Professor of Environmental and Occupational Health
California State University at Northridge

cc:

Timothy Williams, Chairman, FMIT
Shan Lewis, Vice-Chairman, FMIT
Linda Otero, Director, ACS, FMIT
Nora McDowell, FMIT
Leo Leonhart, Technical Consultant, Hargis + Associates
Courtney A. Coyle, Legal Counsel, FMIT
Jason West, Field Manager, BLM
Karen Baker, DTSC
Aaron Yue, DTSC
Ana Mascarenas, MPH, Assistant Director EJ and Tribal Affairs, DTSC
Tribal Representatives: CRIT, Cocopah Tribe, Hualapai Tribe, Chemehuevi Tribe
TRC Members: C. Schlinger, M. Eggers, B. Prucha, E. Rosenblum

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Innis, Pamela <pamela_innis@ios.doi.gov>

RE: SUBMITTAL: Topock Soil RFI/RI - WP for Dioxin/Furan Background Study

1 message

Marcos, Jose@DTSC <Jose.Marcos@dtsc.ca.gov>
To: "pamela_innis@ios.doi.gov" <pamela_innis@ios.doi.gov>
Cc: "Yue, Aaron@DTSC" <Aaron.Yue@dtsc.ca.gov>

Wed, Jan 25, 2017 at 10:36 AM

Hello Pam,

DTSC has the following observations regarding the draft workplan:

1. Analysis and evaluation of PAHs are included in the workplan however, this was not requested in the original DOI letter. The rationale for including PAHs is not clear given that the previous background evaluation for the site included, but did not detect PAHs above the laboratory reporting limits.
2. Since the workplan only proposes to analyze surface soil samples and not deeper soils, using "ambient" instead of "background" should be considered.
3. The workplan proposes to evaluate non-detect results by representing them as zero, half the detection limit and the full detection limit; and if no substantive differences are observed, results from using half the detection limit will be utilized. The workplan does not appear to indicate the path forward should substantive differences are encountered between the three approaches. USEPA recommends using the KM method in the evaluation. Also, the spreadsheets/calculators developed by USEPA may be useful in this evaluation. (See links for reference:

<https://clu-in.org/conf/tio/TEQ/>

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=0ahUKEwi_wuiH593RAhVxkIQKHV5bDvkQFggaMAA&url=https%3A%2F%2Fwww.epa.gov%2Fsites%2Fproduction%2Ffiles%2F2015-09%2Fbasic_calculator_-template.xls&usg=AFQjCNG9SRK71ftP_RNqIQgqA0uaPRolw

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4. The workplan states that outlier tests are based on the assumption that the remainder of the sample set follows a normal distribution. Please verify that the data set will be tested for normality.

We hope that the observations will assist you in your review of the workplan. If you have any questions, please do not hesitate to contact us. Thanks.

From: Innis, Pamela [mailto:pamela_innis@ios.doi.gov]

Sent: Wednesday, December 21, 2016 8:53 AM

To: Yue, Aaron@DTSC; Addie Farrell; Amanda Barrera; Andee K. Leisy; Ann V Howard; Smith, Austin@Wildlife; Bart Koch; Becky Bramlett; Bennett Jackson, Hualapai; Bernadine Jones; Bobbette Biddulph, ESA; Brandon Melton; Brian Schroth; Carrie Cannon; Carrie Marr; Casey Padgett; Cathy Wolff-White; Charles Wood; Charlie Schlinger; Chase Choate; Guerre, Christopher@DTSC; Christina Hong; Christine Medley; Courtney Ann Coyle; Curt Russell; Danielle Starring; Daryl Magnuson; Dave Fogerson; David Back; David Harper, CRIT; Vigil, David@Wildlife; Dawn Hubbs; Dennis Patch; Dennis Smith; Don E. Watahomigie; Douglas F. Bonamici; Douglas F. Bonamici; Drew Page; Eddie Rigdon, MWD; Edgar Castillo; Eric Fordham; Eric Putnam; Eric Rosenblum; Frank Lenzo; Glen Riddle; Glenn Caruso; Glenn Lodge; Gloria Benson; Alasti, Isabella@DTSC; Eichelberger, James@DTSC; Jamie Eby; Janis Lutrick; Jason West; Jay Cravath; Jay Piper; Jeff Smith; Jennifer Darcangelo; Neuwerth, Jessica@Colorado RB; Jill C. Teraoka; Jill McCormick; Joey Pace; Cortez, Jose@Waterboards; Marcos, Jose@DTSC; Jose Moreno; Juan Jayo; Julie Eakins; Julie Hoskin; June Leivas; Baker, Karen@DTSC; Kathleen Power; Keith Sheets; Kimberley A. Hudson; Kris Dobschuetz; Kristin Mancini; Laura Rocha; Leo S. Leohart; Linda Otero; Liu, Lindia@Colorado RB; Lisa Micheletti-Cope; Hare, Lori@DTSC; Luke Johnson; Margaret R. Eggers; Maria Lopez; Mark Slaughter; VanVlack, Mark@crb; Marshall Cheung; Martin Barackman; Marty Bloes; Mary Ann Roche; Mchaudhuri@mwdh2o.com; Mic Stewart; Michael Anderson; Horn, Michael@Wildlife; Mike Cavaliere; Mitch Kaplan; Monica Strauss, ESA; Nichole S. Osuch; Nora McDowell; Pamela Innis; Patty Mead; Philbert Watahomigie Sr.; Renee Kolvet; Kim, Richard@Wildlife; Robert Cheng, Coachella Valley Water District; Robert H. Prucha; Roland Ferrer, Torres-Martinez; Rollins, Hannah; Ron Escobar, Chemehuevi; Rosanna Mitchell, CRIT; s4bd@pge.com; sandra.flint@hdrinc.com; Serena Panzar; Shakeel Jogia, PE; ShanLewis@fortmojave.com; Sherry Cordova; Sherry J. Counts, Hualapai; Roy-Semmen, Shukla@DTSC; Steve Spangle; Steven Escobar, Chemehuevi; Steven P. McDonald; Steven S Armann; Strohl, Virginia; Sullivan, Kevin M; Sybil Smith; Williams, Timothy@CDSS-Import; Vandenberg, Tom@Waterboards; TopockAR; Nguyen, Thang@Colorado RB; Tang, Victoria@Wildlife; Vincent Slayton-Garcia, REHS; William Hirt; Win Wright; Wuerl, Ben; Garza, Yolanda@DTSC; Yolanda Garza; Yolanda Garza; Garza, Yolanda@DTSC; Yvonne Meeks; Michael Sullivan

Subject: Fwd: SUBMITTAL: Topock Soil RFI/RI - WP for Dioxin/Furan Background Study

Greetings,

PG&E has submitted the draft "*Work Plan for Background Study of Dioxins and Furans at the Pacific Gas and Electric Company Topock Compressor Station*", dated December 20, 2016. The plan was submitted to address one of the identified data gaps specific to Federally-managed land, identified in DOI's November 9, 2016 conditional approval letter for Data Gap Work Plan 3 (attached), which must be addressed to ensure that a complete assessment of dioxins and furans contamination can be done. The work plan provides a process to establish background for dioxins and furans on Federal land through a limited sampling event.

A site walk to observe areas identified in the plan will be scheduled at a later date. A separate notification will be sent for the site walk.

If you have any comments on the document, please send them to DOI by January 20, 2017. DOI will review the comments and take them into consideration prior to approving the work plan. If you have any questions, please do not hesitate to contact me.

Sincerely,

Pamela Innis

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Pamela S. Innis

US Department of the Interior

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----- Forwarded message -----

From: <Mike.Cavaliere@ch2m.com>

Date: Tue, Dec 20, 2016 at 4:25 PM

Subject: SUBMITTAL: Topock Soil RFI/RI - WP for Dioxin/Furan Background Study

To: pamela_innis@ios.doi.gov, YJM1@pge.com

Cc: Carrie_Marr@fws.gov, cguerre@dtsc.ca.gov, AYue@dtsc.ca.gov, Jose.Marcos@dtsc.ca.gov, GCR4@pge.com, mbloes@pivox.com, Christina.Hong@ch2m.com, Aurora.Abbott@ch2m.com, Keith.Sheets@ch2m.com, Jamie.Eby@ch2m.com

Hello Pam,

On behalf of PG&E, this email submits the *Work Plan for Background Study of Dioxins and Furans at the Pacific Gas and Electric Company Topock Compressor Station, Needles, California*. This Work Plan was developed in response to DOI's November 9, 2016 conditional approval letter for Data Gap Work Plan 3 (DGWP-3), which is associated with the Topock RFI/RI Soil Investigation. We request your review and approval of this work plan as soon as possible so we can implement it as early as possible in 2017 in parallel with DGWP-3 field work. The conclusions drawn from data collected as part of this plan are important for the evaluation of data gaps associated with DGWP-3 (and the larger soil investigation data set).

Regards,

Mike Cavaliere, P.G.

CH2M

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