

## Work Variance Request Form

Groundwater Remedy Phase 1 Construction, PG&E Topock Compressor Station, Needles, California

### PG&E TOPOCK GROUNDWATER REMEDIATION PROJECT

#### Work Variance Request #5 – Phase 1 Construction of the Remedy Produced Water Conditioning System

Request Prepared By: PG&E

Date Submitted: 7/3/19

Variance Request No.: 5

Location: Inside Topock Compressor Station

Request Approval From: DTSC and DOI

Date Approval Required: July 2019

Map Area: N/A

Landowner/Land Manager: PG&E

Land Owner Parcel No: 650-161-08

Current Vegetative Cover/Land Use: None

Existing Sensitive Resource? ☒ No ☐ Yes, Specify:

Variance From: ☐ Mitigation Measure ☐ Work Plan/Procedure ☐ Response to Comments

☒ Drawing ☐ Permit Condition ☐ Other

#### Detailed Description of Variance and Justification (Attach additional information if necessary):

Attachments: ☐ Photo ☒ Construction Drawing ☐ Aerial Photo Mark-Up ☐ Correspondence ☐ Other

#### Potential Impacts of Variance:

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Air Quality          | <input type="checkbox"/> Hazardous Materials         | <input type="checkbox"/> Aesthetic       |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Noise                       | <input type="checkbox"/> Water Resources |
| <input type="checkbox"/> Soils                | <input type="checkbox"/> Paleo Resources             |  |
| <input type="checkbox"/> Cultural Resources   | <input type="checkbox"/> Hydrology and Water Quality |  |

#### Description and Justification:

PG&E proposes to phase the construction of the full Remedy Produced Water Conditioning (RPWC) system. Phase 1 construction will involve installation of the infrastructure necessary to process remedy-produced wastewater from the maintenance of the Phase 1 In-situ Remediation Zone (IRZ) wells and piping along National Trails Highway (NTH), purge water from sampling of monitoring wells, equipment decontamination wastewater, and rainfall that collects in remedy facility secondary containment. Phase 2 construction will involve infrastructure necessary to process produced water the additional remedy components built during Phase 2.

There is no change to the functionality of the RPWC system in this request, i.e., the system will be capable of removing solids and adjusting pH as designed within the Topock Compressor Station (TCS). There is no request for additional footprint, outside of what has already been approved in the final design. A detailed justification along with background information is provided on pages 3 and 4 of this WVR.

This WVR addresses the following:

1. **Construct Phase 1 of the RPWC system within the approved footprint of the influent tank farm** – The influent tank farm footprint in the final design has space for four 20,000-gallons frac tanks and associated valves and pumps. In Phase 1, PG&E proposes to install two frac tanks for influent wastewater, one frac tank for conditioned wastewater, two cartridge filters, one phase separator, chemical containers, and associated valves, pumps, piping, and instrumentation within this footprint. To protect the filters, phase separator, and chemical containers, shade fabric may be placed in the tank farm. See Drawing M-11-01.

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#### Work Variance Request #5 – Phase 1 Construction of the Remedy Produced Water Conditioning System

##### Description and Justification (continued):

2. **Install a smaller (3,000 gallons) Remedy Freshwater Tank for Phase 1 within the approved footprint of remedy pipelines B and F** – PG&E proposes to install a 3,000-gallon Remedy Freshwater Tank within the approved footprint of remedy pipelines B and J, and not in a separate location as depicted in the final design. See Drawing C-10-01. This change will allow all of the operational activities to be in one location. In addition, PG&E proposes to change the tank material of construction from steel to HDPE. The freshwater tank will be installed on a graded aggregate base pad with bollards or similar barriers to prevent vehicle impacts in the area. The freshwater tank will not be taller than the nearby frac tanks.

There are no additional impacts to biological, historical, and cultural resources not already evaluated as a result of phasing the construction of the RPWC system.

##### Approval Signatures:



7/3/19

PG&E Operations Manager

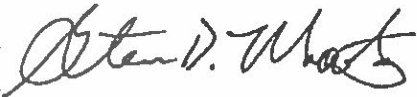
Date



7/22/2019

Approving Agency

Date



7/3/19

PG&E QA Manager

Date



Approving Agency

Date

## **Detailed Justification and Background Information for WVR #5**

The final groundwater remedy is reliant on several dozen wells used for the IRZ, fresh water injection, carbon-amended injection, and groundwater extraction. For all wells, especially for the injection and IRZ wells, regular maintenance such as backwashing and rehabilitation is vital to maintain efficient and effective operations during the 30-year projected life of the remedy. Other types of produced water with smaller volumes will also need to be managed, such as monitoring well sampling and development purge water, equipment decontamination wastewater, and rainfall that collects in remedy facility secondary containment. Collectively, these types of water are called remedy-produced water. Exhibit 3.4-3 of the Final (100%) Basis of Design Report (Final BOD) lists the remedy-produced water by source (activities that generate the wastewater), estimated volume of wastewater, and how the wastewater is intended to be managed in order of preference.

The final remedy has a goal of near-zero consumptive use of water. In order to minimize consumptive use, it is necessary to return as much of the remedy-produced water to the aquifer as possible. The Remedy Produced Water Conditioning (RPWC) system was designed to condition the remedy-produced water to a degree where it would not adversely impact the aquifer or contribute to the fouling of the injection wells or disruption of the natural geochemistry in the aquifer near the injection wells.

The full RPWC system will be constructed in phases. Phase 1 construction will involve infrastructure necessary to process wastewater generated from a) maintenance of IRZ wells installed during Phase 1 construction along National Trails Highway (backwash wastewater and well rehabilitation wastewater), b) IRZ clean-in-place (CIP) events, and c) purge and decontamination water, and rainwater collected in containment. Phase 2 construction will involve infrastructure necessary to process the additional remedy components built during Phase 2.

### **Estimated Volume and Frequency of Generation for Remedy-Produced Water**

As shown in Exhibit 3.4-3 of the Final BOD, the volume of wastewater anticipated to be processed through Phase 1 of the RPWC system is 5.32 million gallons per year (MG/year). Of the 5.32 MG/year, approximately 2.35 MG/year is from well backwash and IRZ CIP, 2.57 MG/year is from well rehabilitation, and 0.4 MG/year is from purge and decontamination water, and rainwater collected in containment.

IRZ well backwash is anticipated to occur weekly for 30 minutes per well when the IRZ is online (IRZ operates for 6 months out of every 24 months). When offline, the IRZ wells will be backwashed weekly if receiving remedy produced water for re-injection, or monthly if not. Approximately 1,000 gallon of wastewater is generated per 30-minute backwash event per well (see Table F-1, Appendix F of the Final BOD), for a total of 24,000 gallons per week or 3,400 gallons per day for all 24 IRZ injection wells (maximum case).

Rehabilitation of each IRZ injection well is anticipated to occur once per 2-year cycle when the IRZ is offline (nominal case) or also once while the IRZ is online (maximum case). Rehabilitation of each IRZ extraction well is anticipated to occur once every 5 years. Approximately 48,000 gallons of wastewater is generated per rehabilitation event per well (see Table F-1, Appendix F of the Final BOD).

IRZ CIP events will be scheduled to coincide with the IRZ being offline; the frequency of the CIP events will depend on the level of fouling and may be as infrequent as once every five years. Approximately 10,000 to 40,000 gallons of wastewater is generated per event (see Exhibit 3.2-4 of the Final BOD).

The above estimates are based on experience with IRZ wells at Hinkley and IM-3 injection wells at Topock. Actual well maintenance regime for the IRZ wells and CIP events at Topock will not be known until actual operation begins.

### **Remedy Produced Water Conditioning (RPWC) System Design Criteria and Configuration**

Exhibit 3.4-5 of the Final BOD presents the design criteria for the RPWC system. Of note is that the system is designed to process the largest projected daily production of water of 50,000 gallons per day (during rehabilitation of largest injection well). The designed equalization volume is provided by 4 frac tanks.

To allow for operational flexibility to segregate/manage various produced water streams and to optimize processes in the future, the RPWC system will be configured with two parallel trains: 1) A-side Remedy and 2) B-side Freshwater. Both trains will be equipped initially with identical processes/units, see Figure F-2 of Appendix F or the illustration on page 3-56 of the Final BOD.

Per Exhibit 3.4-3 of the Final BOD, the A-side of the RPWC system will process wastewater generated from the maintenance of IRZ wells, IRZ clean-in-place (CIP), and purge and decontamination water. Therefore, Phase 1 construction of the RPWC system will be the A-side.

As described in the Final BOD, backwash water generated during the maintenance of IRZ wells and from the IRZ pipeline CIP process may be transferred to the MW-20 Bench Backwash Tank (prior to being transferred to the RPWC Influent Tanks) or transferred directly to the RPWC Influent Tanks.

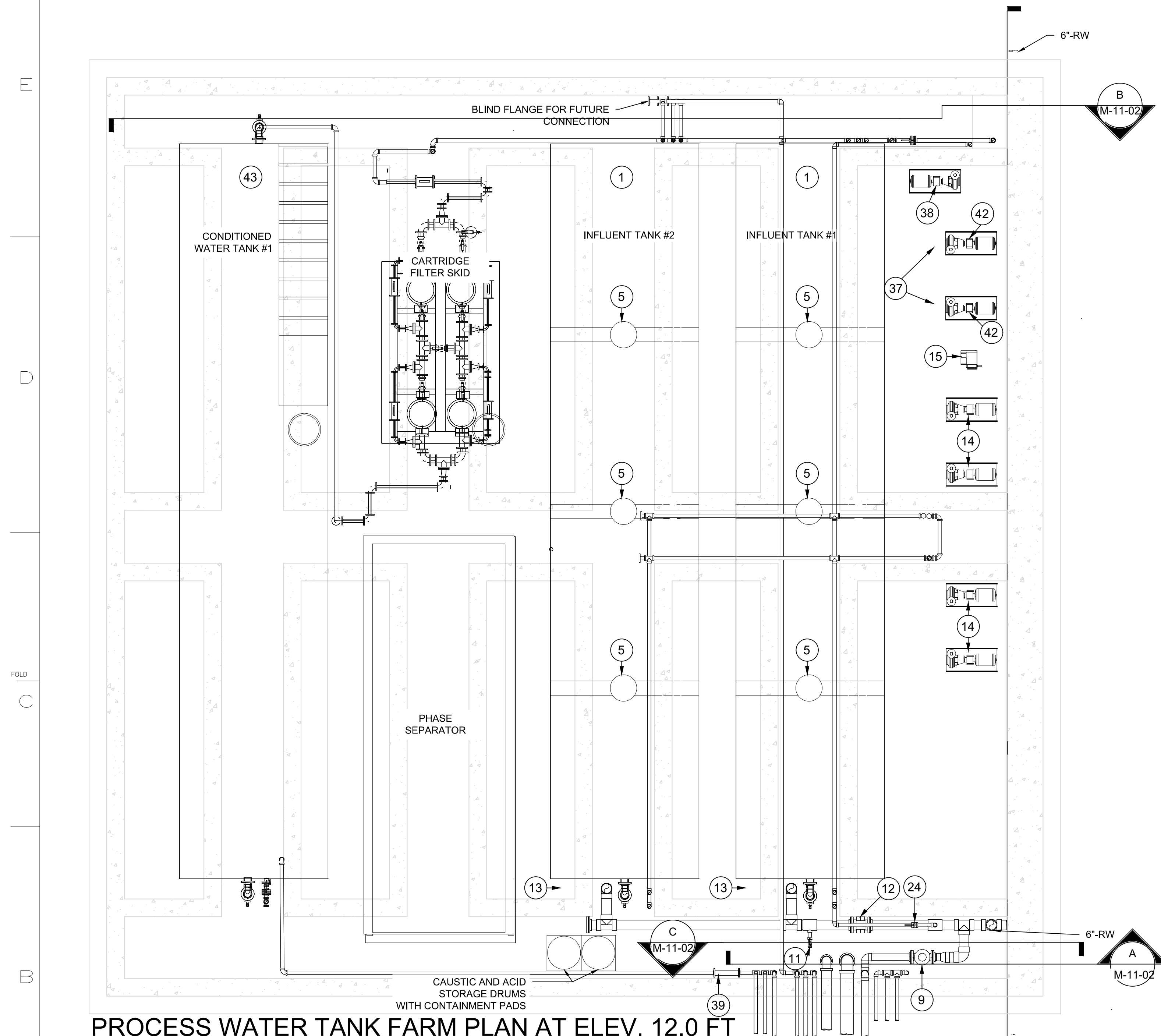
#### **Proposed RPWC System Configuration (A-side Only) for Phase 1**

Per 100% Design Drawing #G-12-01, the RPWC system consists of four key components – an influent tank farm (i.e., four frac tanks and associated valves and pumps in a secondary containment), a remedy building, a conditioned water tank farm associated with A-side (i.e., two frac tanks in a secondary containment), and a conditioned water tank associated with B-side. The remedy building is designed to contain filtration units, phase separators, chemical containers, and associated pumps for both A-side and B-side of the RPWC system.

During Phase 1 construction and for the A-side of the RPWC system, PG&E proposes to install two frac tanks for influent wastewater, one frac tank for conditioned wastewater, two cartridge filters, one phase separator, chemical containers, and associated valves, pumps, piping, and instrumentation within the influent tank farm footprint. With two frac tanks for influent wastewater, there are approximately 10 days of storage capacity at the RPWC Tank Farm for backwash operations when the IRZ is online.

Well rehabilitation and CIP events will be scheduled when the IRZ is offline. During those events, PG&E plans to utilize two of the three frac tanks at the MW-20 Bench for additional storage of influent wastewater (if needed). This will provide the equalization volume of four frac tanks stated in Exhibit 3.4-5 of the Final BOD.

**WORK VARIANCE REQUEST #5**  
**PHASE 1 CONSTRUCTION OF THE REMEDY-PRODUCED WATER**  
**CONDITIONING SYSTEM**



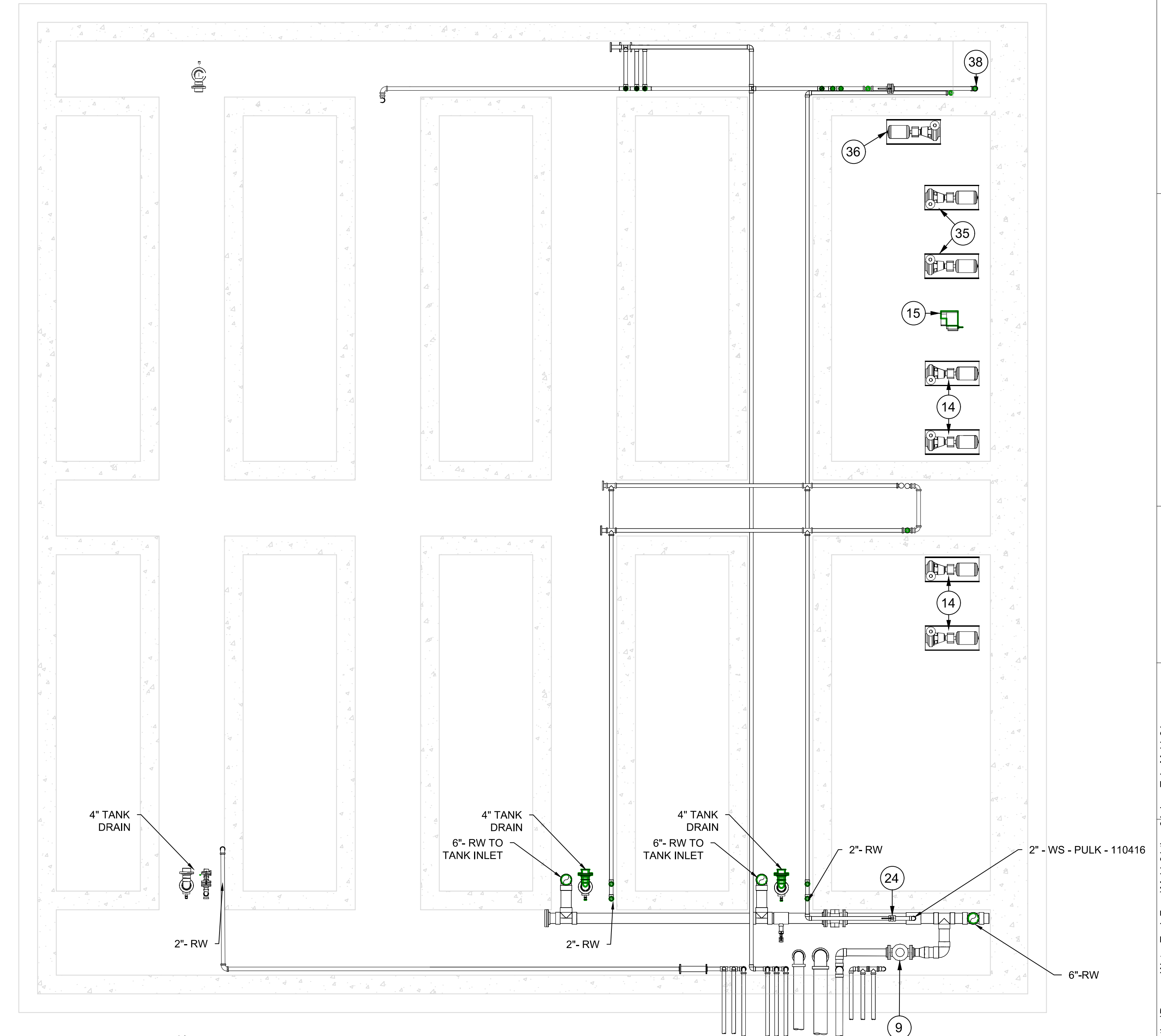
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LEGEND:

⑦ REFERENCE ITEM NUMBER EQUIPMENT SCHEDULE ON SHEET M-11-05.

NOTES:

1. INVERT ELEVATION OF INLET AND OUTLET PIPING IS 624.5'.
2. PROVIDE 4" FIBER AND 4" ELECTRICAL THROUGH THIS AREA.
3. SEE DRAWING S-11-01, 02, 03 FOR STRUCTURAL DETAILS AND C-10-02, C-11-01 FOR CIVIL DETAILS.
4. HOSE BIBB.
5. PIPE SUPPORTS NOT SHOWN. CONTRACTOR TO SUPPORT PIPES IN ACCORDANCE WITH SPEC. 40 05 15.
6. EQUIPMENT TAGS SHOWN ARE UNIQUELY IDENTIFIED WITH THE ADDITION OF THE LOCATION ID CODE OF "RTP01", BEFORE THE NUMERIC CODE.
7. FOR PIPE ID AND ABBREVIATION SCHEDULE, SEE C-00-12


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TOPOCK GROUNDWATER REMEDIATION PROJECT

PROCESS WATER  
TANK FARM PLAN  
GAS TRANSMISSION & DISTRIBUTION  
PACIFIC GAS AND ELECTRIC COMPANY  
SAN FRANCISCO, CALIFORNIA



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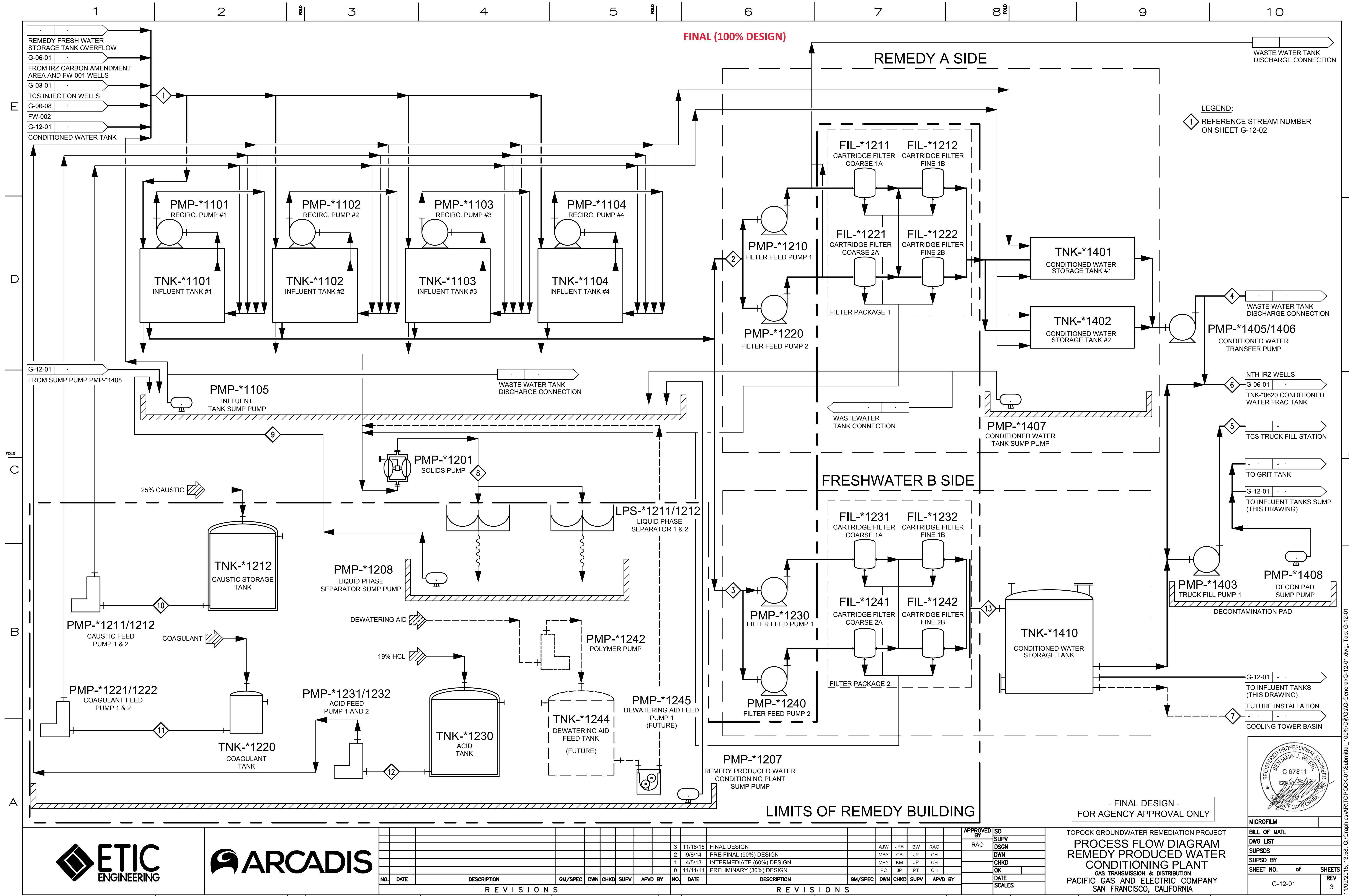
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## Future Activity Allowance Determination Matrix for Work Variance Request (WVR)

Work Variance Request No. 5

Date: 7/3/19

Future Activity Allowance is an activity that is not considered in the remedy design but necessary to support the project objectives. Future Activity Allowance is a Material Deviation which is defined in the final groundwater remedy design as: Material Deviation means a change or correction required to prevent a condition that would (1) render the approved design non-compliant with codes, regulations, and /or engineering standard of practices, (2) render planned well locations and/or constructions fail to meet the project objectives, (3) cause significant schedule delay, and/or (4) cause a significant increase in costs. (CH2M Hill, 2015)

According to the SEIR Project Description, "The inclusion of the Future Activity Allowance is not intended to account for minor adjustments (work variances) of the remedy design during construction resulting from field conditions. DTSC's objective for the inclusion of the Future Activity Allowance is to consider the potential impacts of needing to take additional but previously unforeseen activities that were not contemplated as part of the Final Remedy Design but are activities that would improve the performance of the remedy, or are necessary to gather additional information on the remedy performance, and/or aid in the transition of the active remedy to monitored natural attenuation." (ESA, 2017)

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1. Are all components of the WVR in the approved final design as reviewed in the SEIR?

☒ Yes ☐ No

2. Are all components of the WVR staying within an infrastructure alignment in the approved final design?

☒ Yes ☐ No

If answers to both 1 and 2 are Yes, STOP – action is not Future Activity Allowance

3. For components not in approved final design, will the WVR require new access not identified for use in the final design and create new ground disturbance beyond those anticipated in final design?

☐ Yes ☐ No

If answer is No, STOP – action is not Future Activity Allowance. If Yes, proceed...

4. For components not in approved final design and require new access or new ground disturbance, will the ground disturbing activity be outside the 2018 SEIR project boundary?

☐ Yes ☐ No

If answer is Yes, STOP – action is subject to additional CEQA evaluation. WVR approval will be considered after DTSC completes CEQA determination.

5. For WVR requiring new access and/or new ground disturbance, but project components are in approved final design and within the 2018 SEIR project boundary, is the variance necessitated by field conditions which are outside the control of the operator (e.g. refusal during drilling, unstable ground, existing design jeopardizes health and safety, modification to avoid archaeological resource, existing design does not conform to engineering standards, etc.)?

☐ Yes ☐ No

If answer is No or otherwise explained in Section 7 below, action is Future Activity Allowance, follow Communication Protocol for Future Activities Allowance, Exhibit 3 to the Statement of Decision and Resolution of Approval. If the answer is Yes, action is Future Activity Allowance, and DTSC will work with



Tribes to meet the time sensitivity of the WVR. Regardless of response, because of new access and/or new ground disturbance, WVR action may be subject to Federal Consultation. Inquire with BLM to determine whether there is a need to follow Consultation during Construction protocol.

6. Does the addition of WVR cause an exceedance from infrastructure limits specified in the 2018 certified Final SEIR (Table 3-1 for well boreholes; Table 3-2 for pipeline trenches, electrical/communication conduit, roadway improvements, or sizes of buildings and structures; Table 3-4 for volume of soil disturbance and Table 3-5 for water usage)?

☐ Yes ☐ No


If answer is Yes, STOP – action is subject to additional CEQA evaluation. WVR approval will be considered after DTSC completes a CEQA checklist to determine if there are new or substantially more significant environmental impacts than disclosed in the 2018 SEIR.

7. Other extenuating circumstances or information for FAA considerations: ☐ No

☐ Yes – provide information and/or justification

Conclusion: WVR No. 5

☒ is not a FAA ☐ is a FAA

Signature of DTSC reviewer:  \_\_\_\_\_

Date: July 22, 2019