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*Master Comprehensive Table of Contents  
for the Final (100%) Submittal  
Final BOD + O&M Manual + C/RAWP*

**Basis of Design Report/  
Final (100%) Design Submittal  
for the Final Groundwater Remedy**

**PG&E Topock Compressor Station  
Needles, California**

Prepared for  
**Pacific Gas & Electric Company**

November 2015

**CH2MHILL®**  
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# 100% BOD Report (Incl. O&M Manual) Contents

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- Ordinary High Water Mark (OHWM) Identification/Mapping Methodology Tech Memo
- Wetlands and Waters of the United States, Final Delineation for the Topock Compressor Station Groundwater Remediation Project
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- A8: Supplemental Baseline Sound Level Measurement Technical Memorandum and Responses to Comments
- A9: Paleontological Resources Management Plan: MMRP Mitigation Measure CUL-3
- A10 Biological Resources Assessments for Moabi Regional Park Areas
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## **C Design Criteria (Including Calculations)**

Main Text

Attachment A: Carbon substrate selection (on CD-ROM only)

Attachment B: Calculations (on CD-ROM only)

- Remedy-produced water pump calculations – Recirculation; conditioned water transfer; filter feed
- Remedy-produced water conditioning process – Eductor calculations
- Remedy-produced water conditioning process – Caustic usage calculations
- Structural calculations for Compressor Station structures
- L-300 pipe load calculations
- Hydraulic analysis of freshwater injection system
- Hydraulic analysis of Inner Recirculation Loop, IRZ Loop, and TCS Recirculation Loop
- Structural calculations for MW-20 Bench and Moabi Regional Park long-term remedy support area structures, and remediation well vaults
- Fire protection plan calculations for Carbon Amendment Building, Operations Building, and Moabi Regional Park Workshop Building
- Sand separator system
- Soluble carbon substrate and emulsified vegetable oil dosing calculations
- Moabi Regional Park CHQ lighting calculations
- Moabi Regional Park CHQ yard piping head loss and tank sizing calculations
- Compressor Station Ponds – Structural calculations
- TEG load calculations for the Compressor Station Ponds

Attachment C: Geotechnical Analysis (on CD-ROM only)

- Geotechnical Data Summary and Proposed Supplemental Geotechnical Investigation
- Selected Boring Logs from RFI/RI Report Volume 2 (CH2M HILL 2009)
- Geotechnical Investigation Report, Topock Compressor Station, Water Treatment Plant (CH2M HILL 2004)
- Geotechnical Investigation, Topock AOC 4 Remediation – Pre-Work Plan Data Collection Activities Technical Memorandum (CH2M HILL 2009)

Attachment D: Remediation Well Design and Field Approach (on CD-ROM only)

Attachment E: Firewater System Analysis (on CD-ROM only)

## **D Plans (Engineering Drawings) (presented under separate cover, and also on the CD-ROM)**

D1: Equipment Lists

D2: Drawings

## **E Specifications (on CD-ROM only)**

## **F Remedy Wastewater Management Technical Memorandum (on CD-ROM only)**

## **G Evaluation of Arched Bridge Structural Integrity and Space Availability to Support Freshwater Supply Pipeline (on CD-ROM only)**

- Topock Bridge (Old Trails Bridge) Assessment (EPNG 10/2011)
- Topock L300-A Arch Bridge Structural Assessment (AECOM 12/2011)

## **H Updated Cost Estimate (on CD-ROM only)**

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- Attachment C: RTC# 19, 104, 817, 821, 827-833: Revised design for BCW northern and southern crossings
- Attachment D: RTC# 27, 72, 995: Construction and startup sequencing details
- Attachment E: RTC# 135, 267, 300: Additional details on tie-in with Topock-2 and -3
- Attachment F: RTC# 140: Figure 3 of 60% BOD Appendix M and Figure 5 of 90% BOD Appendix M
- Attachment G: RTC# 196: BOD Revised Figure 2.1-1
- Attachment H: RTC# 223: Photo of a 500-1,000-gallon portable tank being pulled by a pick-up truck
- Attachment I: RTC# 296: Additional 12-inch FW pipe (in the event pre-treatment is required)
- Attachment J: RTC# 313: O&M Vol. 2, Sampling and Monitoring Plan, Revised Exhibit 5.3-1
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- Attachment P: RTC# 711: Figures 711-1 and 711-2 Proposed Well Pairs In Model Layers 3 and 4
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- Attachment R: RTC #815: Revised Figures ES-4C (same as Figure 3.4-1 of the 90% BOD, Exhibit 2.7-1 of O&M Manual Volume 1, and Figure 3.1-4 of the C/RAWP)
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- Attachment AA: RTCs #1157, #1186 and #1188: New REMEDY-SOP-10: Sampling of Concrete/Asphalt Demolition Waste
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- Attachment B: RTC #2 - Info for the Refuge's Appropriate Use Analysis/Compatibility Determination
- Attachment C: RTC #39 - Alternate Piping Routes near the ER-6 Area
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**Volume 1: Operation and Maintenance Plan**

**Volume 2: Sampling and Monitoring Plan**

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**C Select Equipment O&M Manuals (provided on CD-ROM Only)**

- Extraction, injection, freshwater supply, and freshwater injection well pumps (Grundfos)
- Hose pumps (Bredel)
- Sand separator (Lakos)
- Centrifugal pumps (Fybroc)
- Centrifugal pumps (AMT)
- Chemical metering pumps (LMI)
- Sump pumps (Goulds)
- Air-operated diaphragm pump (ARO)
- Seal water system (Goulds)
- Cartridge filters (Harmsco)
- Air compressor (Gardner)
- Flow control valves (ASR)
- Transformers (Cooper)
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 Business Owner/Operator Identification..... 2  
 CUPA Form Emergency Response/Contingency Plan..... 3  
 Employee Training Plan..... 6  
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**Attachments**

1 Facility Site Plan and Emergency Evacuation Map(s)  
 2 Hazardous Materials Inventory — Chemical Description  
 3 Hazardous Waste Inventory Statement  
 4 Agreements with Emergency Response Agencies  
 5 Emergency Response Procedure: Hazard Mitigation/Prevention/Abatement [19 CCR §2731(e)]  
 6 Emergency Response Procedure: Earthquake Vulnerability [19 CCR §2731(c)]  
 7 Hazardous Waste Generators – Miscellaneous Forms  
 8 Facilities Inspection Checklists

**2: HMBP for Topock Compressor Station Contents:**

Facility Information Business Activities..... 1  
 Business Owner/Operator Identification..... 2  
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**F Fuel SOP (provided on CD-ROM Only)**

**G PG&E Topock Coagulant Screening Report (provided on CD-ROM Only)**

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(on CD-ROM only)**

**N Summary of Findings from Implementation of Alternative Freshwater Sources Evaluation  
(on CD-ROM only)**

- Summary of Findings Associated with the Evaluation of Alternative Freshwater Sources in the Topock Remediation Project Area
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- Remedy-SOP-10 – Sampling of Concrete/Asphalt Demolition Waste
- RTP-SOP-01 – System “Hot” Startup and Shutdown
- RTP-SOP-08 – Off-site Trucking of Remedy-produced Water
- RTP-SOP-10 – Disposal of Produced Water in Evaporation Ponds via the TCS Wastewater Tank Discharge Connection
- IRZ-SOP-01 – MW-20 Bench System Startup
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**C PG&E Program Quality Assurance Project Plan and Addendum (on CD-ROM Only)**

*See BOD Report Appendix L, O&M Manual, Volume 2, Sampling and Monitoring Plan, Appendix B, PG&E Program Quality Assurance Project Plan and Addendum, for Table of Contents  
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**W Technical Memorandum: Proposed Use of Certain Areas for Construction, Staging, and Soil Storage at PG&E Topock Compressor Station (on CD-ROM Only)**

**X Responses to Comments on the C/RAWP Dated September 8, 2014 (on CD-ROM Only)**

*See BOD Report Appendix I, Responses to Comments on the Basis of Design Report/Preliminary (30%), Intermediate (60%), and Pre-Final (90%) Design Submittals, for Table of Contents [beginning on page 17]*