

**OILFIELD PRODUCED WATER SUMPS  
CENTRAL VALLEY WATER BOARD WORKPLAN  
14 November 2014**

**SUMMARY**

This document is intended to provide an approach for addressing oilfield production water disposal sumps (hereafter referred to as produced water ponds or ponds) within the jurisdiction of the Central Valley Water Board (CVWB). Included are the tasks to be completed through December of 2016 (25 months) with estimates of the items to be completed and level of effort. Implementation of this approach would address the backlog of tasks to properly regulate these discharges of oilfield produced waters to land that impact groundwater quality. Full implementation of enforcement orders and continuing regulation of remaining land discharges will require a long-term commitment of resources.

Table 1 below provides a summary of known produced water ponds. Additional ponds may be identified through the inventory activities described below.

Table 1

Produced Water Pond Summary

Within the Central Valley Water Board

Regulatory Status	Operational Status	Number of Facilities	Number of Ponds
Permitted (WDRs)	Active	72 <sup>1</sup>	544
No WDRs	Active	129	194
No WDRs	Inactive <sup>2</sup>	81	130
Total		282	868

1. These facilities are covered by 53 sets of individual WDRs and 3 General Orders (14 enrollees).
2. It is assumed (based on limited observations) that 50% of inactive facilities will have a future discharge that will require regulatory coverage.

It is anticipated that some of the currently permitted and some of the non-permitted facilities will not be able to comply with current requirements established in the Water Board's basin plans, policies, and regulations. Therefore, enforcement orders may be required to address these deficiencies, including prohibiting the use of ponds, remediation of polluted groundwater and the impositions of civil liabilities.

Tasks to be completed through December 2016 are presented below and are in line with an attached Gantt Chart showing the schedule for each task in this project (Attachment 1).

## REGULATORY APPROACH

### PRODUCED WATER POND INVENTORY

CVWB staff is currently conducting a systematic inventory of all the produced water ponds within the Central Valley to identify the location and status of these land discharges. This is being done by evaluating information supplied by the Division of Oil, Gas, and Geothermal Resources (DOGGR), review of aerial photographs, and field verification. The systematic approach involves prioritizing areas within the valley to ensure produced water ponds located in areas of underlying good quality groundwater are identified first. The CVWB has nearly completed its inventory work within the high priority areas, but significant additional work is underway to complete this task by the end of January 2015.

*Resource Needs:* Time period to complete this task December 1, 2014 through December 31, 2015. Approximately 200 hours of staff time will be required. This can be addressed through existing CVWB staff resources (previous oilfield staff supplemented with recent SB4 funding).

### FIELD INSPECTIONS

*Permitted facilities:* The 544 produced water ponds at currently permitted facilities are routinely inspected to assess compliance with (WDRs). During the past six months CVWB staff has inspected 213 ponds. These ponds have a history of inspections and will be inspected on their regular schedule. Additional inspections are not anticipated to be needed to address their regulatory status or update waste discharge requirements (WDRs).

*Unregulated facilities:* Inspections of ponds located at unpermitted facilities need to be conducted prior to the Board issuing any requests for information or enforcement orders.

- During the past six months CVWB staff has inspected 25 produced water ponds located at 11 facilities.
- The remaining 299 produced water ponds at 199 facilities still need to be inspected.

*Resource Needs:* Time period to complete this task December 1, 2014 through March 2, 2015. Approximately 1600 hours of staff time will be required. This includes conducting inspections and writing inspection reports. This equates to approximately 4 PYs during this three month period. Additional staff resources will be required to conduct this task. This can be done through reallocation of resources from other programs within the CVWB and use of State Board staff.

### RESPONSE TO INSPECTIONS – UNREGULATED FACILITIES

Facilities that are unregulated and found to have operating produced water ponds must be regulated under WDRs adopted by the Board. This is done by the discharger submitting a Report of Waste Discharge (RWD) to the Board. This involves a very detailed and time consuming effort by the facility and Board staff and may delay the facility from implementing measures to protect water quality,

including shutting ponds down (i.e., cease discharge). To avoid any delays in placing these facilities under some form of regulation by this Board, CVWB staff is proposing to utilize its enforcement authorities to issue Cleanup and Abatement Orders (CAOs). A general CAO is not envisioned because of the need for site-specific findings; however, to expedite this effort, CVWB staff will create a template with the basic components to assist staff in preparing the documents. The orders will lay out a time schedule for completion of tasks including, but not limited to, collecting information regarding the ponds including site conditions and characteristics, groundwater quality assessment including depth to groundwater, quality of groundwater, assessment of potential or actual impacts to groundwater, submittal of a RWD or Notice of Intent (see permitting discussion below) and, if needed, an estimate of when termination of discharge would occur. The time schedule will be based on the location of the facility, site conditions and groundwater quality and will be reasonable for the amount of work to be completed. Each CAO will be in effect until the facility is either put under WDRs or until no further regulatory coverage is needed (i.e., discharge ceases and any needed remedial activity is completed).

*Resource Needs:* Time period to complete this task February 2, 2015 through November 30, 2015. Sites will be prioritized based on inspection findings and locations. We estimate sending CAOs to 100 facilities. Approximately 5000 hours of staff time will be required. This equates to approximately 9 PYs during this four month period to conduct this work. Additional staff resources will be required to conduct this task.

#### **PERMITTING APPROACH**

The proposed permitting strategy is designed to address both currently permitted facilities that need updated WDRs and unregulated facilities that require a permit to operate. CVWB staff is proposing three new General Orders (GOs) for existing facilities to cover the range of potential water quality conditions:

GO 1 – Low threat - facilities with discharges that meet the basin plan maximum salinity limits of 1,000 umhos/cm electrical conductivity, 200 mg/l chloride, and 1 mg/l boron;

GO 2 – Moderate threat - facilities that have discharges exceeding the salinity limits of GO 1 but will not substantially affect water quality nor cause a violation of water quality objectives;

GO 3 – No threat - facilities that overlie areas with naturally occurring poor quality groundwater that do not have probable beneficial uses and are not specifically identified in the basin plans as not being assigned such uses. The GO would provide a time schedule, not to exceed 5 years from adoption of the GO, to allow completion of basin plan amendments required to de-designate beneficial uses where data and conditions support such actions.

All of the GOs adopted by the Central Valley Water Board will have appropriate findings and will require submittal of a Notice of Intent (NOI) providing information that would allow Board staff to determine the site is eligible for coverage under the applicable GO and to ensure compliance with the State Board's Anti-Degradation Policy. The NOI is equivalent to a RWD. Monitoring and Reporting Programs (MRPs) will be established for each GO.

These orders would only be for existing facilities and CEQA requirements could be met with the existing facility exemption (lawyers will need to confirm).

Facilities that are suitable to remain in operation, but do not meet the criteria to be covered by one of the three proposed GOs, will be considered for coverage under individual WDRs.

During development of the GOs, CVWB staff will meet with stakeholders, both industry and environmental groups, to seek their input. CVWB staff will circulate administrative drafts of the GOs and accept comments at a CVWB public workshop that will be held in Kern County. Following the workshop, staff will prepare tentative orders for consideration by the CVWB at a public hearing.

Once the orders are ready for adoption, we will be working on the process of enrolling facilities under the orders through review of Notices of Intent (NOIs) and issuance of Notices of Applicability (NOAs).

*Resource Needs:* Time period to complete development and adoption of general orders is June 1, 2015 through May 31, 2016. Approximately 1500 hours of staff time will be required. Time period to complete review of NOIs and issuance of NOAs is from May 2, 2016 through December 31, 2016. Approximately 3,000 hours of staff time will be needed.

#### **ENFORCEMENT APPROACH**

Enforcement actions are anticipated for existing facilities that cannot comply with conditions of their WDRs or for unregulated facilities that do not comply with Board directives. Options include Cease and Desist Orders (CDOs) for facilities with WDRs, Cleanup and Abatement Order (CAOs) or information orders under Section 13267 of the Water Code for any of them, and the issuance of Administrative Civil Liabilities (ACLs). The appropriate order will be case specific. It is anticipated that many of these orders will be controversial and petitioned by dischargers. While we do not know the number of enforcement orders needed at this time, for the purposes of estimating resources detailed later in this document, it is assumed 40 enforcement actions will be taken by staff.

*Resource Needs:* Time period of this task February 2, 2015 through December 31, 2016. Approximately 3,200 hours of staff time will be required.

#### **Technical and Monitoring Report Review**

In addition to preparing and adopting/issuing WDRs, CAOs, or other enforcement orders, there will be a significant number of technical reports required from dischargers to identify conditions at their site and also periodic monitoring reports to comply with monitoring and reporting programs included in the orders. This will be long term work that is ongoing with facilities currently permitted, but will increase substantially as orders are updated. Much of this work will persist beyond the completion of this project.

*Resource Needs:* This estimate is for resources beyond what are currently being expended. Time period for this task are estimated to commence on September 1, 2015 and continue beyond the end date of this project on December 31, 2016. Approximately 6,800 hours of staff time will be required.

## RESOURCE NEEDS

CVWB staff has estimated the resource needs required to address existing oil field produced water ponds taking into account our existing resources and other critical issues in the oilfields that must continue to be addressed. Historically we had 1.5 to 2 PYs assigned to oilfield issues that were funded through discharger fees. With the passage of SB4 the CVWB added four new staff (hired in September and October of 2014 and the last one reported to work on 3 November. In addition, their direct supervisor is a Senior Engineering Geologist funded through discharger fees.

Responsibilities for the previous 2 PYs and now for the additional 4 PYs staff include:

- Inspections of permitted and unpermitted facilities.
- Permitting of discharges to land of produced water and the task of bringing unregulated facilities under regulation or taking enforcement action as needed. This includes review of information needed to put a discharger under a GO or to prepare individual WDRs.
- Addressing drilling mud pits which include current use of a statewide general order and enforcement activities. These activities have consumed most of our staff resources for oilfields this past year.
- Compliance and enforcement activities of permitted facilities which include review of technical reports such as groundwater assessment reports and periodic monitoring reports.
- Overseeing proper closure of facilities for discharges that are discontinued. This includes review of closure plans, oversight of closure activities, and long term maintenance and monitoring if waste constituents are left in place.
- Investigation and assessment of underground injection control (UIC) activities which has taken a significant amount of resources since March of this year.
- Investigating complaints followed by appropriate enforcement activities.
- SB 4 activities by the CVWB have been to support SWRCB staff since the beginning of 2014 and transitioning much of the work to CVWB with hiring of new staff is occurring.
- Outreach activities that include presentations to stakeholders that want to be informed of our activities, addressing media inquiries, and other issues as they arise.

Table 2 below provides an estimate of the number of hours needed to address outstanding produced water pond issues between now and the end of calendar year 2016. A Gantt Chart showing time lines is attached for convenience of viewing the overlapping schedules for each task (Attachment 1).

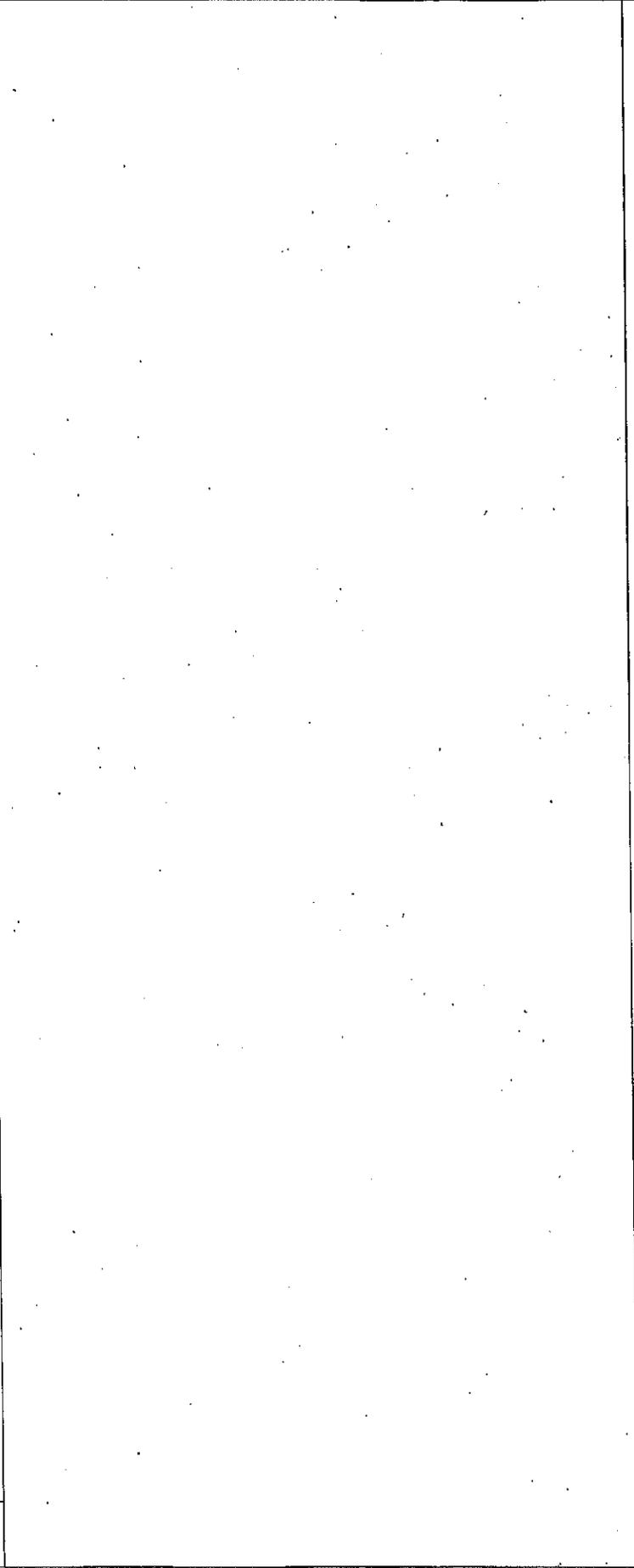
**Table 2**  
**Staff Resource Estimates (in hours)**

Item	Number of Items	Hours/Item	Schedule	Total Hours
Inventory	1	200	12/1/14 – 1/1/15	200
Inspections	200	8	12/1/14 – 3/2/15	1,600
Cleanup and Abatement Orders	100 <sup>1</sup>	50	2/2/15 – 11/30/15	5,000 <sup>2</sup>
General Orders	3	500	6/1/15 – 6/1/16	1,500 <sup>2</sup>
NOIs and NOAs	100	30	5/2/16 – 12/31/16	3,000
Technical Report Review <sup>3</sup>	200	30	9/1/15 – 12/31/16	6,000
Monitoring Reports <sup>4</sup>	100	8	6/1/16 – 12/31/16	800
Enforcement Orders	40	80	2/2/15-12/31/16	3200 <sup>2</sup>
Total				21,300 <sup>5</sup>

1. Estimating approximately half of the unregulated facilities are found during the inspections to be permanently inactive or do not have water production ponds.
2. It is anticipated that significant additional resources may be needed after 1 January 2017 during petitions to State Board and potential court actions.
3. Reports required by the GOs or enforcement orders such as groundwater monitoring work plans.
4. Information provided to comply with the General Orders.
5. This does not include supervisory review and management or legal review.

In addition to the staff resource needs identified in Table 2, significant workload for the State Board legal staff (Office of Chief Counsel and Office of Enforcement) is expected.

ID	Task Name	Start	Finish	2015												2016												2017											
				Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar							
1	Inventory	Mon 12/1/14	Thu 1/1/15	200 hrs.																																			
2	Inspections	Mon 12/1/14	Mon 3/2/15	1,600 hrs.																																			
3	Cleanup & Abatement Orders	Mon 2/2/15	Mon 11/30/15	5,000 hrs.																																			
4	General Orders	Mon 6/1/15	Wed 6/1/16	1,500 hrs.																																			
5	NOIs & NOAs	Mon 5/2/16	Fri 12/30/16	3,000 hrs.																																			
6	Technical Report Review	Tue 9/1/15	Fri 12/30/16	6,000 hrs.																																			
7	Monitoring Reports	Wed 6/1/16	Fri 12/30/16	800 hrs.																																			
8	Enforcement Orders	Mon 2/2/15	Fri 12/30/16	3,200 hrs.																																			



Task Split Progress  
 Milestone Summary Project Summary  
 External Tasks External Milestone Deadline  
 Project: Produced Water Sump Work  
 Date: Wed 11/26/14  
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