Field Guide to Construction Dewatering

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PDH: 3

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List of Abbreviations

§	section
ATS	Active Treatment Systems
BAT	Best Available Technology
BCT	Best Conventional Technology
BMP	Best Management Practice
BOD	Biochemical Oxygen Demand
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
CWA	Clean Water Act
DSA	Disturbed Soil Area
DSWC	District NPDES Stormwater Coordinator
EPA	U.S. Environmental Protection Agency
ft	feet
ft^2	square feet
gpm	gallons per minute
MEP	Maximum Extent Practicable
min	minute
mm	millimeter
MS4	Municipal Separate Storm Sewer System
NAL	Numeric Action Limit
NEL	Numeric Effluent Limit
NPDES	National Pollutant Discharge Elimination System
RE	Resident Engineer
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	California State Water Resources Control Board
TSS	Total Suspended Solids
WPCP	Water Pollution Control Program
WQF	Water Quality Flow
WQV	Water Quality Volume
yd^3	cubic yard

Section 1
Introduction

This course provides information necessary to manage dewatering operations on Caltrans construction sites in compliance with federal and State waterquality regulations.

1.1 Overview

The purpose of this Course is to inform and guide intended users in selecting, implementing,and monitoring construction site dewatering operations. Intended users of this Course include Resident Engineers, Caltrans employees, and Caltrans contractors.

Special situations may warrant variation from the policies and guidelines contained within this Course. This Course is neither a textbook nor a substitute for engineering ortechnical knowledge, experience, or judgment.

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This Course is organized as follows:

Section 1 – Introduction: Provides an overview of what activities are considered dewatering; introduces the National Pollutant Discharge Elimination System (NPDES) permits that regulate dewatering in California; describes which dewatering discharges are regulated; and, identifies the pollutants that are of concern in dewatering discharges.

Section 2 – Selecting a Dewatering Management Option: Provides flow charts that guide the intended user through the process of determining if the dewatering operation is subject to an NPDES permit, Waste Discharge Requirements (WDRs), or waiver, and if so, under which permit or waiver the operation is regulated.

Section 3 – Dewatering Management Details: Identifies the specific regulatory requirements for each specific dewatering option as well as advantages or limitations of selecting a particular dewatering option.

Appendix A – Dewatering Permit Requirements: Presents a summary of NPDES permit requirements or waivers for dewatering discharges in each Regional Board jurisdiction; contains maps of the nine Regional Boards overlaid on the Caltrans District boundaries; and, provides Regional Board contacts for the relevant NPDES permit or discharge waiver.

Appendix B – Sediment Treatment Options: Contains brief descriptions, costs, and considerations for the following treatment technologies: desilting basins, sediment traps, weir tanks, gravity bag filter, sand media filter, pressurized bag filter, and cartridge filter. Also includes a brief description of the use of an Active Treatment System (ATS).

Appendix C – Assessment and Monitoring Forms: Contains forms for assessing dewatering options and recording decision making. Also contains forms for monitoring discharges from dewatering operations.

Appendix D – Regional Board General NPDES Permit and Waiver Requirements: Presents general NPDES permits that regulate dewatering operations in each Regional Board. Also, some Regional Boards have waivers from waste discharge requirements and waivers from report of waste discharge. These waivers are included, where appropriate.

Appendix E –Defined Terms: Includes terms that relate to dewatering operations and permitting.

Appendix F – Endnotes and Relevant Citations: Contains endnotes for the Course. These endnotes contain additional information and citations that intended users may find helpful. Endnotesare indicated in the text with a superscript lower-case Roman numeral. Footnotes are indicated by a superscript Arabic numeral.

1.2 Dewatering Operations Defined

Dewatering operations occur when accumulated precipitation or non-storm water must be removed from a work location so that construction may be accomplished. Figure 1-1 illustrates the construction-site dewatering process. Pollutants may be discharged during dewatering activities and for this reason, a number of NPDES permits regulate the discharge of dewatering waters.

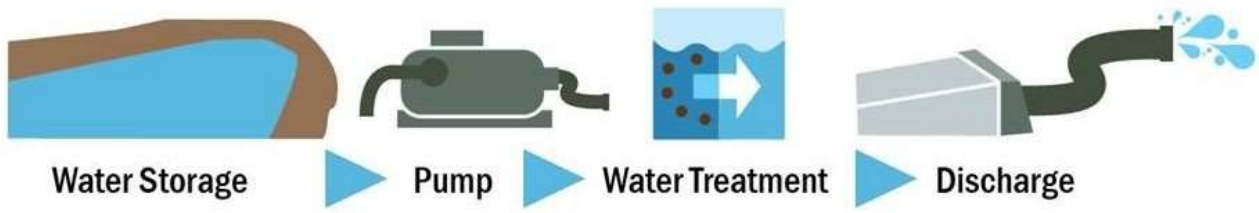

Figure 1-1. General Construction Site Dewatering Process

The Construction General Permit[1] governs water quality compliance for Caltrans construction or demolition activities that occur on project sites having equal to or greater than one acre of land surface disturbance. Waters generated from dewatering activities on these types of construction sites are considered authorized non-storm waters.[i] Typical sources of non-storm water from Caltrans construction site dewatering include groundwater, water from cofferdams, water diversions, and waters used during construction activities that must be removed from a work area.

Dewatering operations may occur during a wide range of activities on Caltrans construction sites including demolition of pavement or structures; grading (including cut and fill slopes); channel excavation; channel paving; trenching and underground drainage; installation of underground drainage facilities; drainage inlet modification; utility trenching; utility installation; structure excavation; bridge or structure construction; miscellaneous concrete work; sound or retaining wall construction; planting and irrigation; and, treatment best management practice (BMP) construction and maintenance.[ii]

The discharge of accumulated precipitation is also governed by the Construction General Permit. Discharge of accumulated precipitation is generally considered a stormwater discharge; however, accumulated precipitation may be commingled with non-storm water or impacted by construction

[1] State Water Resources Control Board, *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activities and Land Disturbances (CAS000002, Order No. 2009-0009-DWQ)*, issued September 2, 2009 (herein, "Construction General Permit").

materials or activities. Commingled accumulated precipitation is considered non-storm water. Because of this, the management of accumulated precipitation is described in the Course.

The Construction General Permit allows any of the nine Regional Water Quality Control Boards (Regional Boards) to regulate dewatering discharges using a general NPDES permit or site-specific permit.[iii] Eight Regional Boards have issued general NPDES permits[iv] that regulate dewatering discharges. One Regional Board has issued WDRs that govern construction dewatering. Three Regional Boards have issued waivers of WDRs or waivers from reports of waste discharge (RWD) for construction dewatering.

On Caltrans construction sites, a dewatering and discharge work plan, meeting appropriate regulatory requirements[v] must be prepared before dewatering operations occur.[vi]

1.3 Permits and Regulations that Apply to Dewatering Operations

Dewatering operations are governed by federal and California law as implemented through California regulations. Although not specifically described by this course, two types of permits may alsoapply on construction sites: groundwater extraction associated with cleanup of volatile organic and petroleum compounds and utility vault dewatering (see Section 1.3.6).

1.3.1 Federal Regulations

Federal regulations for controlling discharges of pollutants from municipal separate storm sewer systems (MS4s), construction sites, and industrial activities were incorporated into the NPDES permit process by the 1987 amendments to the Clean Water Act (CWA) and by the subsequent 1990 promulgation of federal stormwater regulations by the U.S. Environmental Protection Agency (EPA). The EPA regulations require construction and stormwater discharges to comply with an NPDES permit. In California, the EPA delegated its NPDES permitting authority to the State Water Resources Control Board (SWRCB).

1.3.2 California Regulations

California and the federal government define jurisdictional waters differently.[vii] This has important implications for the management of dewatering discharges. Federal regulations only govern discharges to Waters of the United States. Waters of the United States are surface waters and discharges to those waters are governed by an NPDES permit. The SWRCB and the associated Regional Boards implement the NPDES permit program in California.

California has a broader definition of waters subject to its jurisdiction. California regulates discharges to both surface waters and groundwater. California uses WDRs to regulate discharges that may impact groundwater. Thus, discharges solely to land are typically regulated using WDRs.

In addition to using WDRs or NPDES permits to regulate discharges, a Regional Board or the SWRCB may issue a waiver from WDRs or RWD for certain discharges. Region 5, Region 8, and Region 9 currently have such waivers and these waivers mostly regulate discharges to land. Additionally, the statewide low-threat discharge WDRs, discussed later, applies to certain discharges to land.

1.3.3 Caltrans MS4 Permit

The current Caltrans MS4 Permit does not regulate Caltrans construction sites having a land disturbance area greater than or equal to one acre.[viii] For these sites, the Caltrans permit only "impose[s] electronic filing, notification, reporting, and contractor requirements for certain construction projects, and imposes limitations on types of materials that may be used during construction which may have an impact on post-construction discharges."[ix] Caltrans construction sites having land disturbance area less than one acre are regulated by the Caltrans MS4 Permit and must implement appropriate BMPs.[x]

Purchase this course to see the remainder of the technical materials.