Caltrans Construction Stormwater Pollution Prevention Training

Management of Construction Site Dewatering Operations
Module 4

CTSW-OT-07-171.15.1

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Module 4

Management of Construction Site Dewatering Operations District 1

Management of Construction Site Dewatering Operations District 2

Management of Construction Site Dewatering Operations District 3

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Management of Construction Site Dewatering Operations District 12

Introduction: About Me

- Who am I?
- What is my background?
- What is my stormwater background?
- What is my dewatering experience?

Introduction: About You

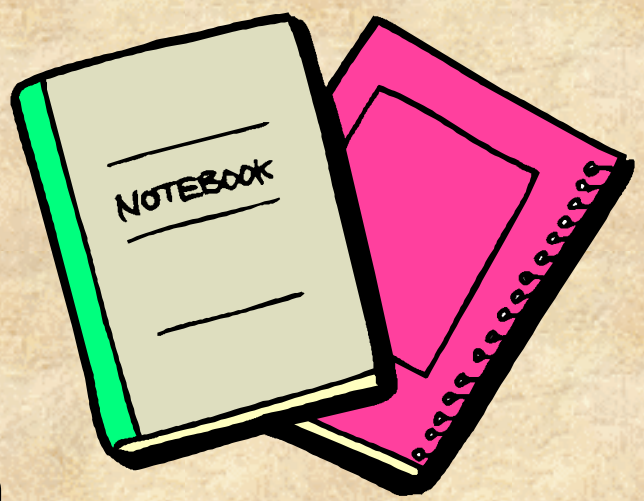
- Who are you?
- What is your stormwater background?
- What dewatering management experience have you had?
- What do you want to learn from this class?

Introduction: Course Administration

- Sign-in/Attendance Forms
- Breaks
- Restrooms
- Emergency Exits
- Classroom Etiquette

Introduction: Course Materials

- **Field Guide to Construction Site Dewatering**



- **Course Handouts**
  - Flow Chart
  - List of Acronyms
  - PowerPoint Presentation
  - NS-2 Dewatering Operations BMP

Introduction: Department's Goal

Achieve compliance with National Pollutant Discharge Elimination System (NPDES) requirements for construction site dewatering operations statewide.

Introduction: Course Focus

- **Reviews District-specific requirements**
- **Addresses field staff responsibilities:**
  - Resident Engineers
  - Structures Representatives
  - Stormwater Inspectors
  - Inspectors
- **Presents practical solutions to real-world challenges**

Introduction: Learning Outcomes

After successful completion of the course, you should be able to:

- Determine if a dewatering operation is required
- Determine if a permit is required for a dewatering operation
- Understand the Contractor's roles and responsibilities
- Understand the Department's roles and responsibilities

Introduction: Learning Outcomes (Cont.)

After successful completion of the course, you should be able to:

- Understand the general process of dewatering under an RWQCB NPDES permit
- Understand the process for dewatering under the Caltrans permit
- Determine if the Contractor is in compliance with applicable permits
- Determine the appropriateness of various dewatering treatment technologies

Course Outline

- **Water Pollution Control Overview**
- **Introduction to Dewatering Operations Management**
- **Selecting Appropriate Dewatering Management Options**
  - Dewatering Options not Requiring a Permit
  - Dewatering Under the Caltrans Statewide NPDES Permit
  - Dewatering Under a RWQCB Permit

Course Outline (Cont.)

- Roles and Responsibilities
- Technologies for Treating Groundwater
- Wrap-Up

Water Pollution Control Overview

Review of Key Terms

- Stormwater/Non-Stormwater
- Water Body/Water of the State/Water of the U.S.
- Effluent vs. Receiving Water
- Pollutant
- Vector Control

Stormwater/Non-Stormwater

- **Stormwater:** Water that is on site that comes from rain or snow melt.

- **Non-stormwater:** Water that is on site that comes from everything but rain or snow melt (vehicle washing, dust control, irrigation, water line flushing, groundwater, etc.).

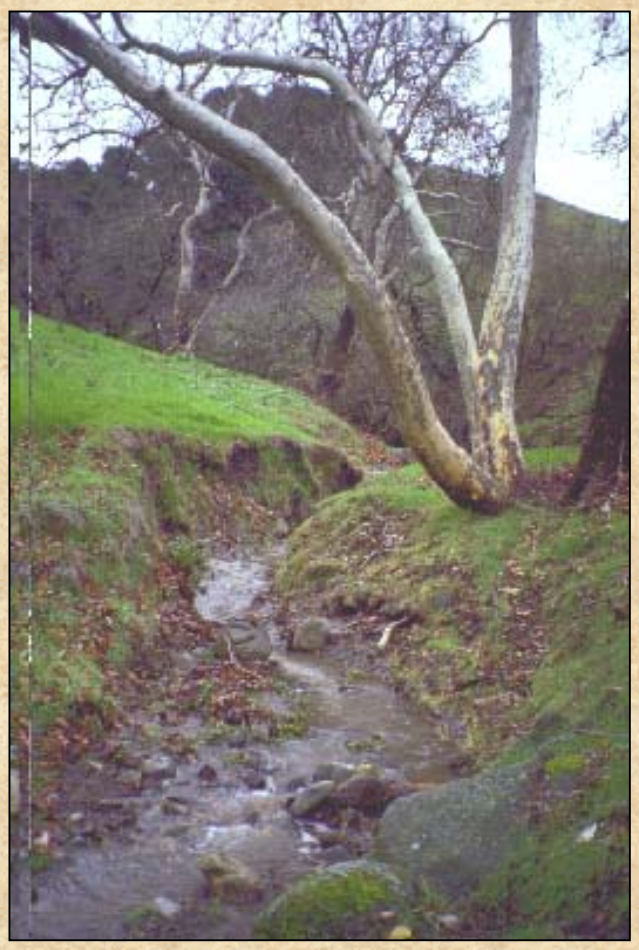
Water Body/Water of the State/Water of the U.S.

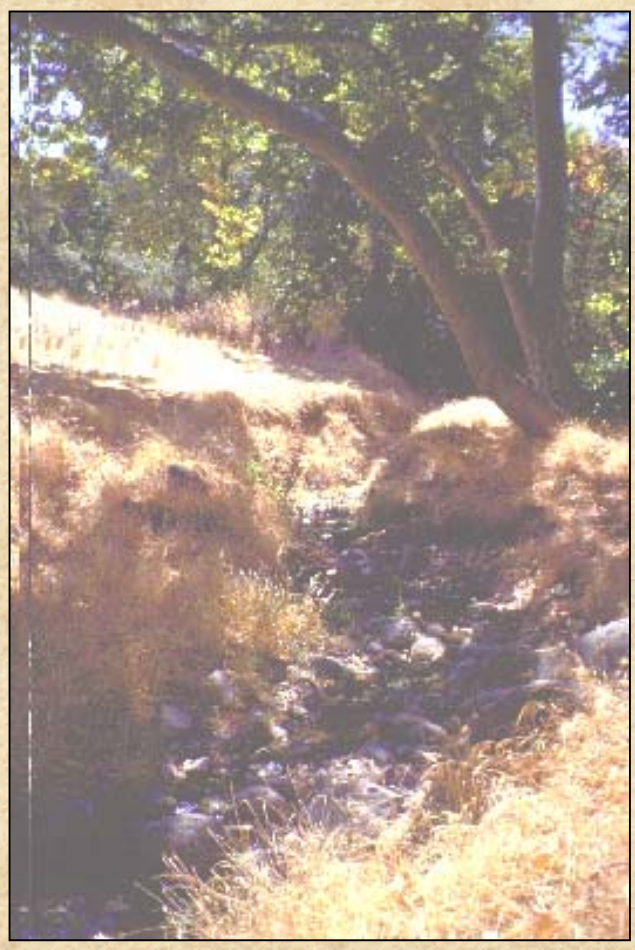
- **Water Body (SWMP):** Includes creeks, rivers, reservoirs, lakes, wetlands, lagoons, estuaries, bays, and the Pacific Ocean, and tributaries thereto.

- **Water of the State (Porter-Cologne):** "… any water, surface or underground, including saline waters, within the boundaries of the State…"
  – includes estuaries, deltas, rivers, creeks (including seasonal or intermittent), wetlands, ponds, grassy swales

Water of the State

- This seasonal creek is a “water of the state,” regardless of when it flows.





Water of the U.S.

- **Water of the U.S. (CWA):** Territorial seas, coastal and inland lakes, rivers, streams, wetlands, and intermittent streams (e.g., some USGS Blue Line Streams)

Effluent vs. Receiving Water

Receiving Water

Effluent = Dewatering Discharge

- Receiving waters include dry stream beds and dry lake beds if they are considered Waters of the State or Waters of the United States.

Sources of Dewatering Effluent

- **Stormwater:** Accumulated precipitation

- **Non-stormwater:** Groundwater, water from cofferdams, water diversions, water used for construction activities, stormwater mixed with other sources of non-stormwater

- **MS4:** Municipal Separate Storm Sewer System – system through which stormwater and non-stormwater discharges into waters of the United States

Pollutant

- **Sediment**: Most common pollutant in construction site dewatering effluent

  Sources: - Disturbed Soil Areas*
  - Clearing/grubbing
  - Roadside Clearing
  - Earth moving
  - Run-on from neighbors

- **Other Pollutants:** Defined by Federal and State laws

  Sources: Construction materials
  Existing site conditions
  In groundwater

* Disturbed soil areas (DSAs) are areas of exposed, erodible soil that are within the construction limits and that result from construction activities.

Vector Control

- **Vector**:

  Any insect, rodent or other animal of public health significance capable of harboring or transmitting causative agents of disease to humans.

- **Dewatering Concern**:

  Mosquito breeding in construction-generated ponded waters.

- **Caltrans Policy:**

  Basins shall be designed to drain within 72 hours following storm events (Caltrans Storm Water Quality Handbooks).

Team Competition #1:
Water Pollution Control Overview

SEE ANSWER KEY

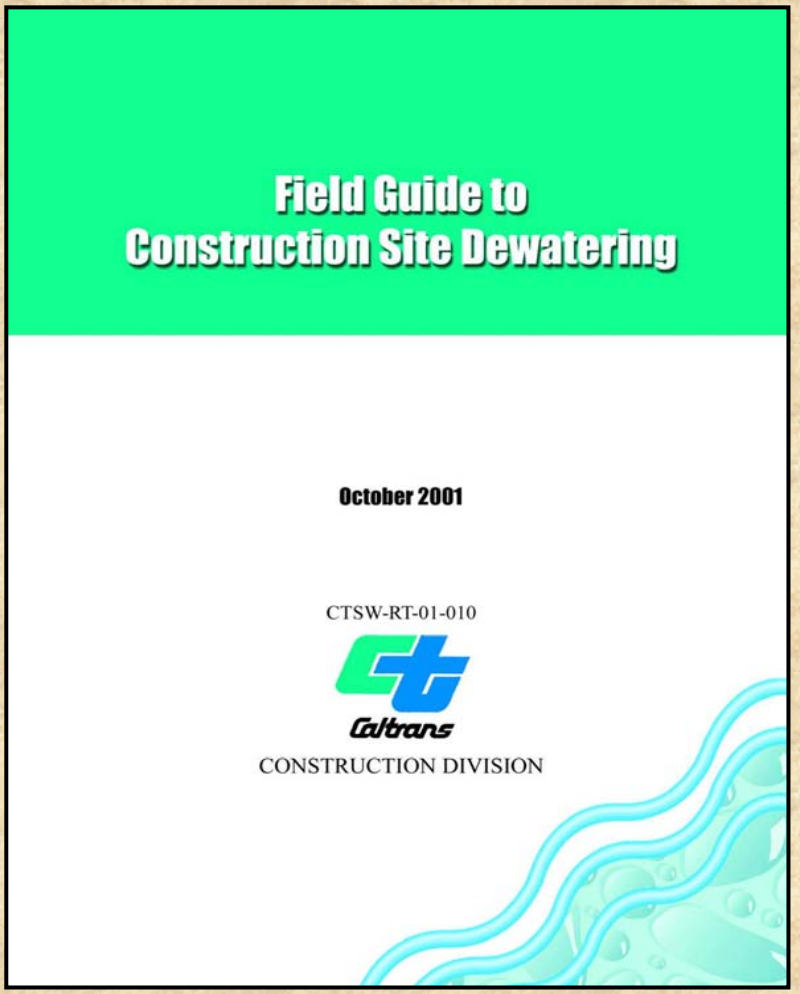
Team Competition #1:
Water Pollution Control Overview

SEE ANSWER KEY

Introduction to Dewatering Operations Management

Caltrans

Field Guide to Construction Site Dewatering



http://www.dot.ca.gov/hq/construc/stormwater/stormwater1.htm

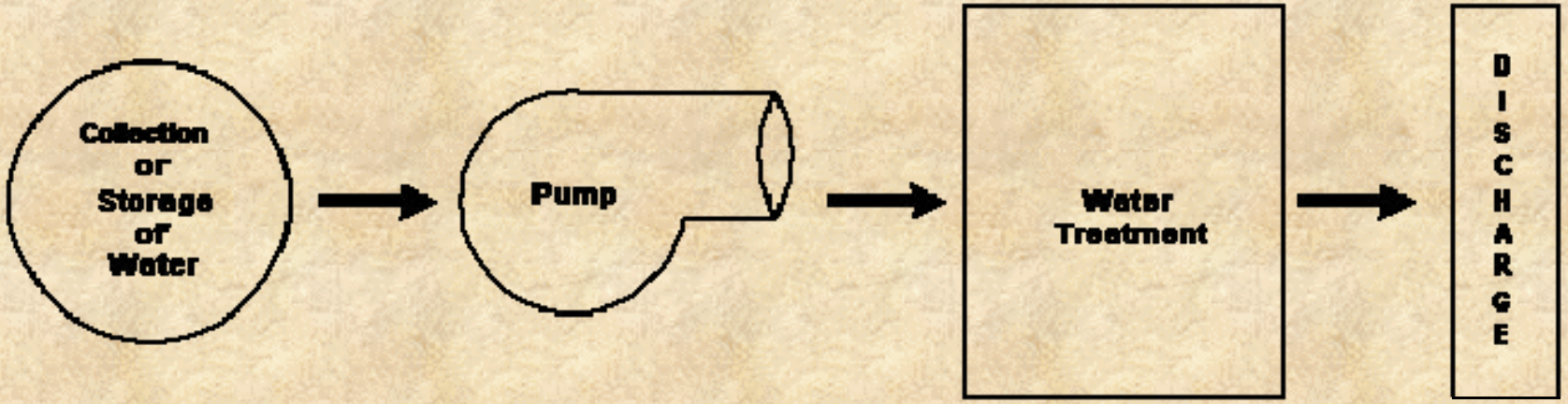
Field Guide Table of Contents

- **Section 1:** Introduction
- **Section 2:** Selecting a Dewatering Management Option
- **Section 3:** Dewatering Management Details
- **Appendix A:** RWQCB Maps, Contacts, Permit Summaries
- **Appendix B:** Sediment Treatment Options
- **Appendix C:** Water Quality Assessment/Discharge Parameters Forms & Dewatering Operations Monitoring Form
- **Appendix D:** RWQCB General Permits

What is a Dewatering Operation? (FG: Page 1)

- Practices that manage the discharge when non-stormwater or accumulated precipitation must be removed from a work location.

General Dewatering and Discharge Process (FG: Page 1)



Why are Dewatering Operations Regulated? (FG: Page 2)

- Untreated water from construction dewatering operations may contain pollutants that can violate receiving water quality standards.

Is a Dewatering Operation Required?

- Do you have water on the project...
  - ...that has been standing for 72 hours or more and needs to be removed for vector control?
  - ...that needs to be removed by the Contractor for construction to proceed?

Is an NPDES Permit Required?

- Is it stormwater or non-stormwater?
- Where is the effluent being discharged?
- Where is the project located?
- What is the daily volume of water and duration?
- Is the effluent polluted with sediment or other pollutants?

Not Only NPDES to Consider…

- If discharging directly to, or working in, a **stream**, other permits and regulatory requirements may specify dewatering practices:
  - 401 – California RWQCB
  - 404 – U.S. Army Corps of Engineers
  - 1602 – California Fish and Game
  - U.S. Fish and Wildlife
  - Bureau of Land Management
  - Clean Water Act 303(d) issues
  - Coastal Commission
  - Other

Not Only NPDES to Consider…

- Caltrans Permit also requires compliance with local requirements, including:
  - Basin Plans
  - Municipal Separate Storm Sewer System (MS4) Permits
  - Local Permits (e.g., city, county)
  - Other
- Most Restrictive Permit Provision Governs!
  - Should be reflected in SWPPP Water Pollution Control Strategy

Team Competition #2:
Intro to Dewatering Operations Mgmt.

SEE ANSWER KEY

Team Competition #2:
Intro to Dewatering Operations Mgmt.

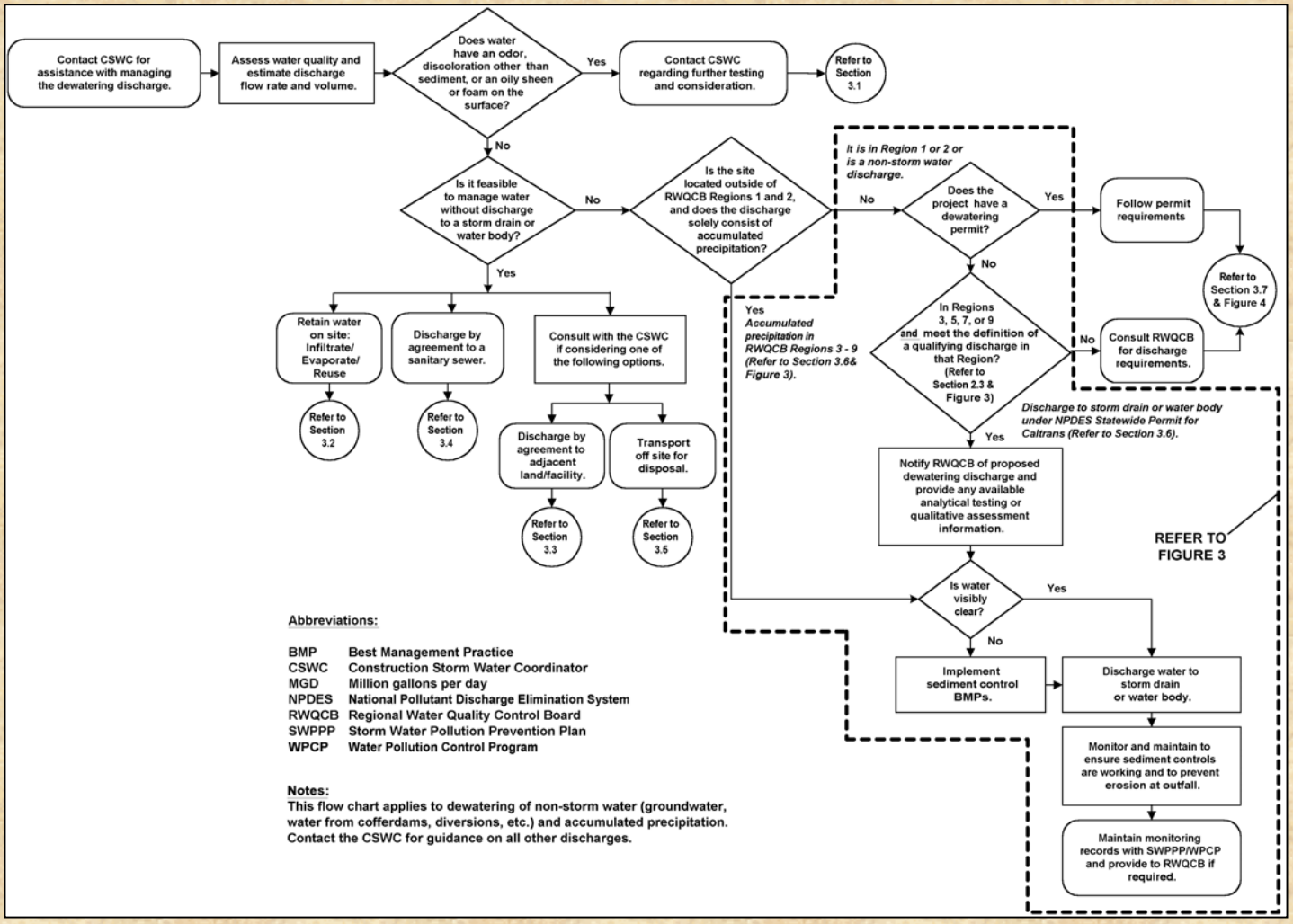
SEE ANSWER KEY

Selecting an Appropriate Dewatering Management Option

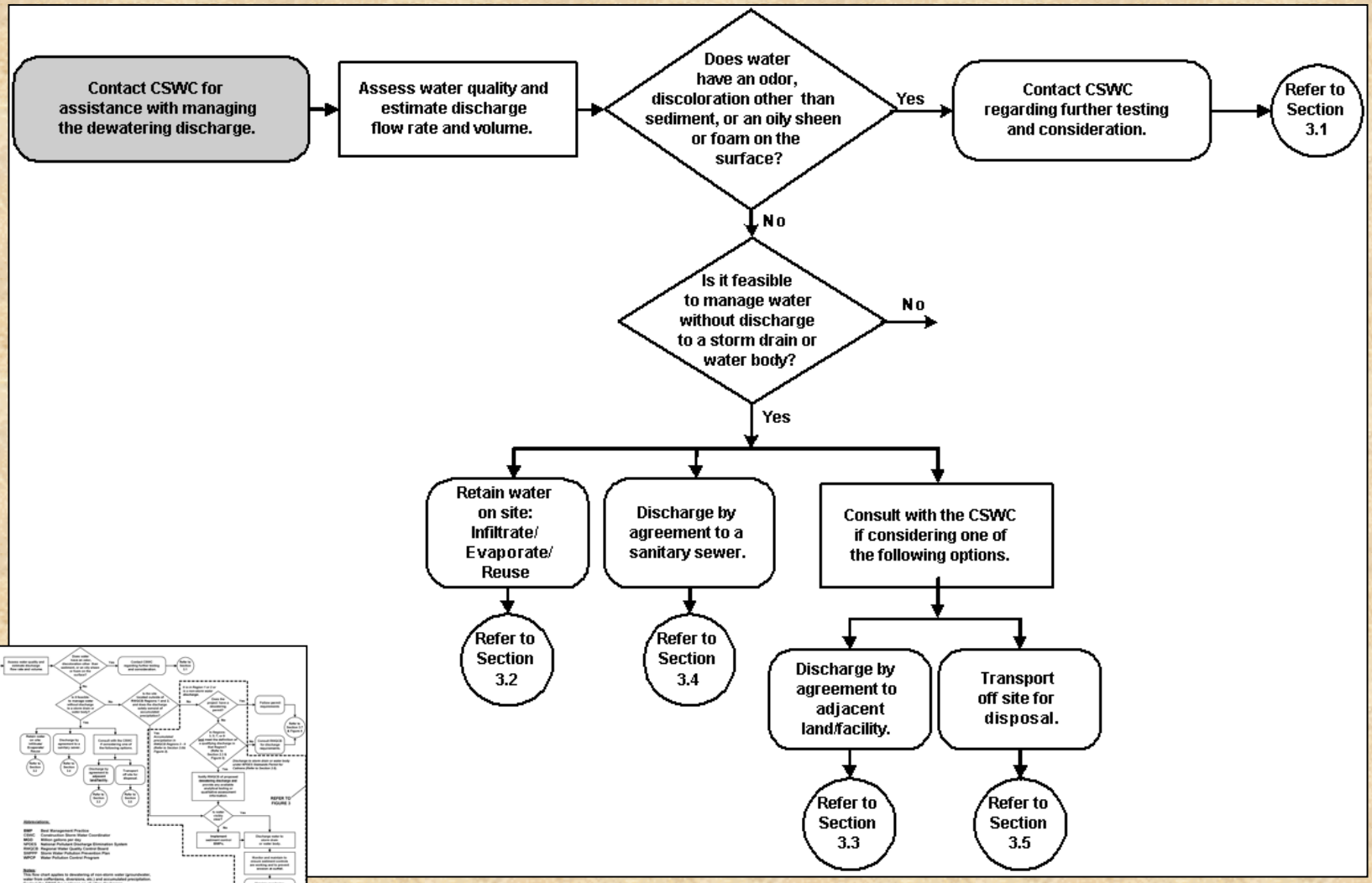
Types of Dewatering Operations

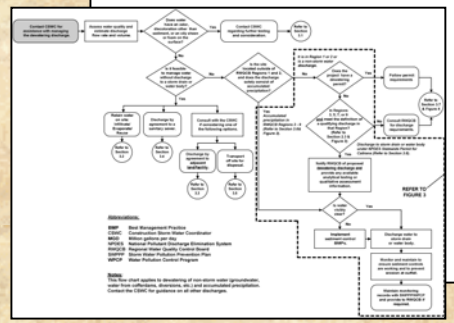
- There are three types of dewatering operations:
  - Operations **<u>NOT</u> regulated** under an NPDES Permit
  - Operations **regulated under the Caltrans Statewide** NPDES Permit
  - Operations **regulated under a local RWQCB** NPDES Permit

Dewatering Operations Management Flow Chart (FG: Page 6)



Contact Construction Stormwater Coordinator (CSWC)





District CSWCs

(Student Handouts)

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03/19/2007

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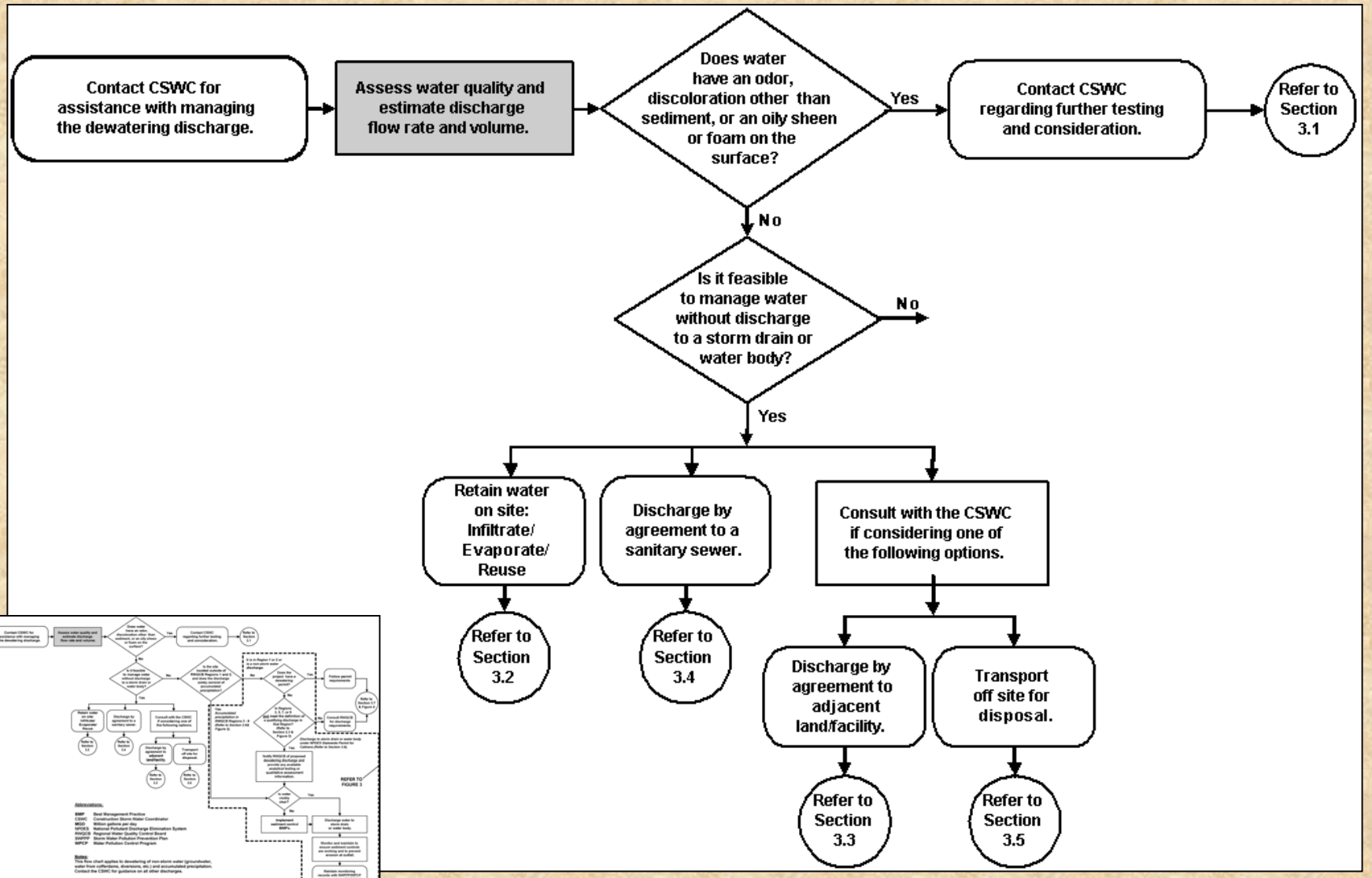
Assess Water Quality (FG: Page 7)



Assess Water Quality (FG: Page 7 & App. C)

- Appendix C has form that can be reproduced.
- Complete one form for each unique location.

WATER QUALITY ASSESSMENT

The following questions provide an initial assessment of the quality of the water to be discharged from the dewatering operation.			
Common Sense Test	1. Review the project records. Is there any reason to suspect that the water may be polluted by something other than sediment?	No	Yes
	2. Is the water located in an area of known contamination?	No	Yes
Sight Test	Does the water have an abnormal visual feature, such as: (circle) Oily Sheen Floating Foam Murky Appearance Unusual color Other		
Smell Test	Does the water have an odor? Possible odors include gasoline, petroleum, ammonia, sewage, etc.	No	Yes
If you answered YES to any of the above questions, explain.			
If you answered YES to any of the questions in the assessment or suspect that the water contains pollutants other than sediments, contact the Construction Storm Water Coordinator (CSWC) for assistance with additional testing and management options.			

- If answer is YES to any question, contact the CSWC.

Team Competition #3: Water Quality Assessment

SEE ANSWER KEY

Estimate Discharge Parameters

(FG: Page 8 & App. C)

- Appendix C has form that can be reproduced.
- Complete one form for each unique location.

DISCHARGE PARAMETERS

To estimate water discharge parameters, answer the following questions and document the results below.		
Origin of Water	Is the discharge from (circle one): Groundwater Cofferdam/Diversion Accumulated Precipitation Other	
	Will the discharge be intermittent (associated with each rainstorm) or continuous (dewatering one area for a long period)? (circle)	Intermittent Continuous
Daily Flow Rate	Estimate the total quantity of water and proposed discharge rate for each daily discharge event (Q_d, gallons per day). This can be estimated from the pump discharge rate and the expected daily total of hours the pump will be run. Q_d, gpd = ____ gals/min pump rate X 60 mins/hr X ____ hrs discharge	Q_d = _____ gpd
Duration	What is the expected duration of the dewatering operation?	_____ days
Total Volume	What is the estimated total discharge for the life of the project (V_T)? To estimate the total discharge, multiply the daily flow rate (Q_d) by the estimated duration.	V_T = _____ Gallons
Comments:		

“Rules of Thumb” for Estimating Discharge Parameters

- Estimate discharge rate based on submersible pump

Pump Size (in.)	Pump Flow Rate (gpm)
1.5	90 – 120
2	90 – 300
3	300 – 800
4	400 – 1300
6	400 - 1800

“Rules of Thumb” for Estimating Discharge Parameters

- Estimate discharge rate based on gravity fed pipe flow

Pipe size in inches	Estimated Discharge Rate (gpm)			
	Percent of Pipe Capacity Filled*			
	25%	**50%**	**75%**	**100%****
1.5	7	14	21	28
2	12	24	37	49
3	28	55	83	110
4	49	98	147	196
6	110	220	330	440

* Not under pressure

** Flow meter required for accurate measurement gpm Gallons Per Minute

“Rules of Thumb” for Estimating Discharge Parameters (Cont.)

- Estimate discharge rate
  - How long would it take to fill up a 55 gallon drum?
  - How many 55 gallon drums could be filled each minute?

- Estimate accumulated volume by size of hole
  - Calculate volume based on length x width x depth of hole (1 m^3 = 264.2 gallons or 1 ft^3 = 7.5 gallons)
  - Estimate based on size of hole compared to a swimming pool (30’l x 20’w x 5’d = 22,500 gallons)

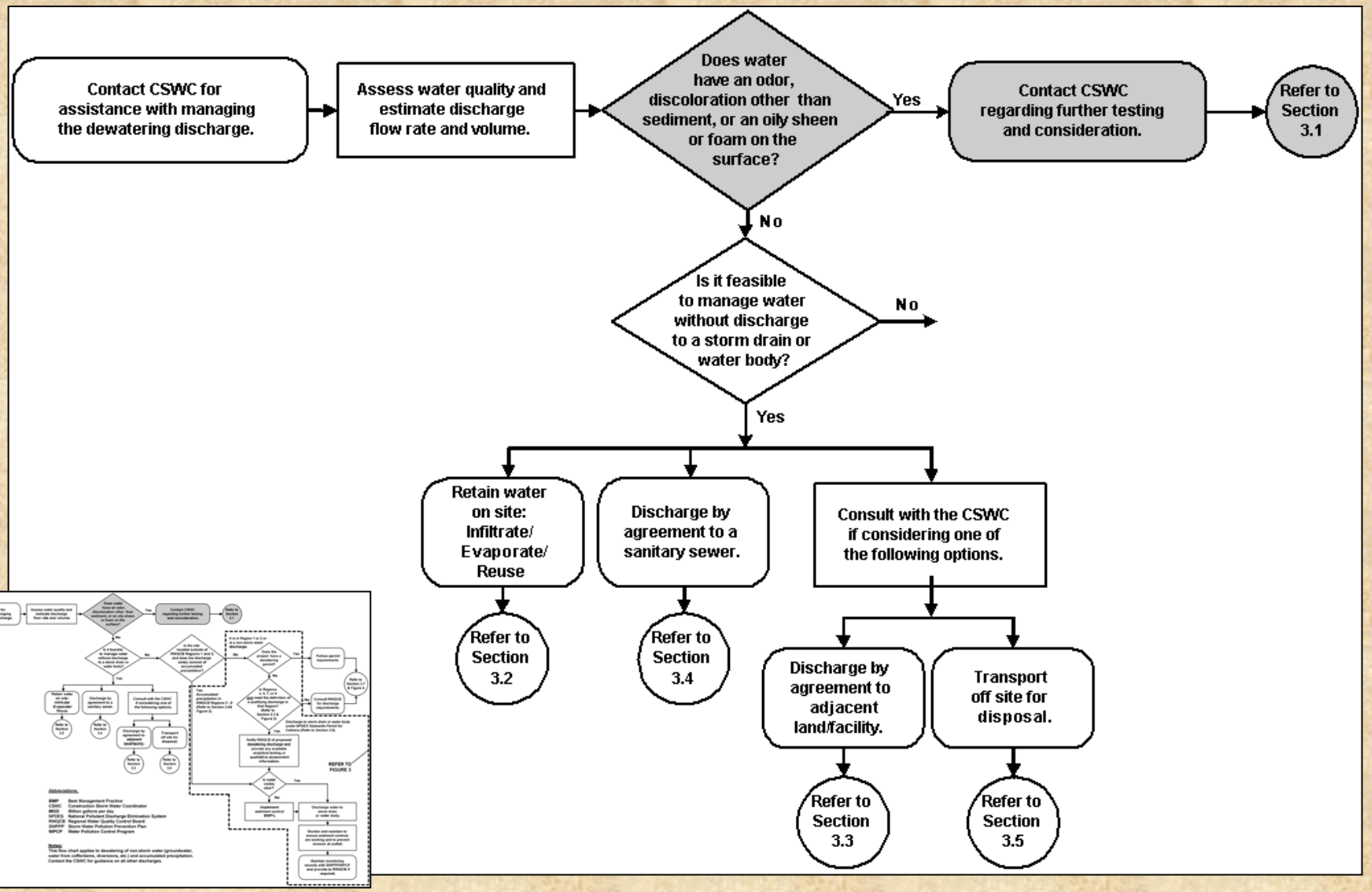
Team Competition #4:
Estimating Discharge Parameters

SEE ANSWER KEY

Team Competition #4:
Estimating Discharge Parameters (Cont.)

SEE ANSWER KEY

Managing Water with Pollutants Other than Sediment (FG: Page 11)



Manage Water with Pollutants Other than Sediment (FG: Page 11)

- Additional testing and evaluation are typically required.
- Contact your CSWC for assistance.

Types of Dewatering Operations

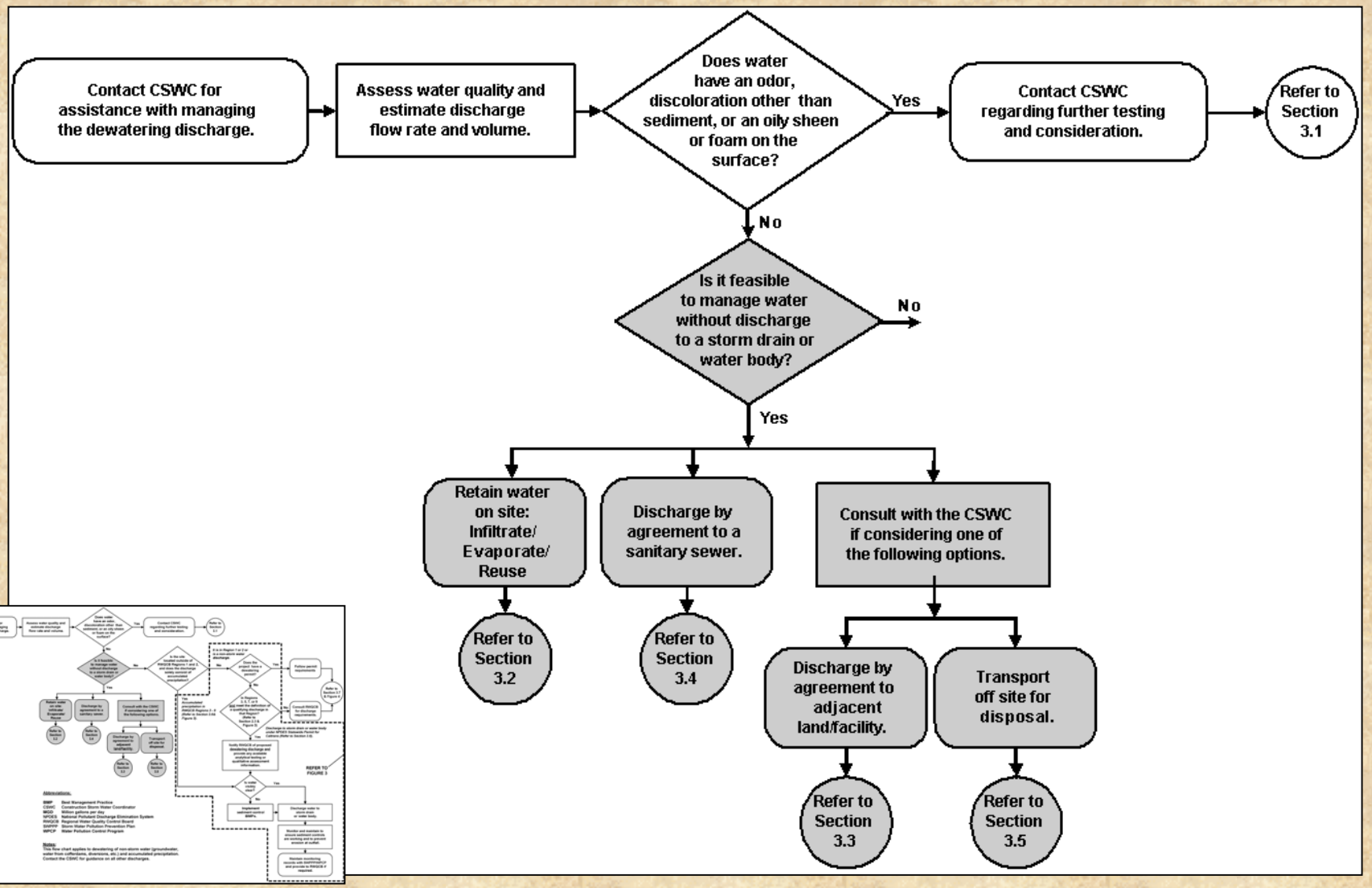
- After you've assessed:
  - Water Quality
  - Discharge Parameters
- You have the information needed to determine how you will comply with the Clean Water Act.

Types of Dewatering Operations

- There are three types of dewatering operations:
  - Operations **<u>NOT</u> regulated** under an NPDES Permit
  - Operations **regulated under the Caltrans Statewide** NPDES Permit
  - Operations **regulated under a local RWQCB** NPDES Permit

Dewatering Operations Management:

No NPDES Permit Required Options



Key Qualification:

No NPDES Permit Required Options

Dewatering effluent cannot be discharged to a storm drain or water body at any time during the operation!

Dewatering Management Options:
No NPDES Permit Required

1. Retain Water on Site
2. Discharge to Adjacent Land or Facility Owned by Others
3. Discharge to a Public Sanitary Sewer System
4. Transport Off Site Using a Transportation, Storage and Disposal (TSD) Contractor

No NPDES Permit Option #1:

Retain Water On Site (FG: Page 12)

No NPDES Permit Option #1:

Retain Water On Site (Cont.)

- **Accumulated water is retained on site and is…**
  - Allowed to evaporate or infiltrate into the soil, or
  - Used on site for dust control, irrigation, etc., or
  - Stored in tanks for later use on site.

- **Water Quality**
  - Free of pollutants other than sediment
  - Minor amounts of non-hazardous pollutants* by approval of CSWC (examples may include vegetation, wooden debris, or trash depending on site conditions)

*Non-hazardous pollutants are those not listed in Title 22 Div. 4.5 or 40 CFR Parts 110, 117, 261, 302

No NPDES Permit Option #1:

Retain Water On Site (Cont.)

- **Limitations**
  - Not feasible for large volumes or high flow rates
  - Ponded water should be infiltrated or evaporated within 72 hours - if this cannot be achieved contact local district to determine vector control regulations
  - May require space for water tanks
  - May create problems (sediment-laden water can produce dust)

No NPDES Permit Option #1:

Retain Water On Site (FG: Page 12)

Table 6 Use Assessment: On-Site Retention

Can Water be Retained On Site?	
1)	Answer the following questions to determine the feasibility of using this option:
	a) Is the water free of pollutants other than sediment? YES NO
	b) Can the operation be managed so that *no water* leaves the construction site? YES NO
	c) Can the estimated volume of water as calculated on the **Discharge Parameters** section of the *Water Quality and Discharge Parameters Assessment Form* (Appendix C) be accommodated on the site? YES NO
	d) Will ponded water evaporate or infiltrate within 72 hours of collection? YES NO
	e) Can the water be treated for sediment if necessary for the anticipated reuse? YES NO
2)	If you answered YES to all of the questions above, consider retaining ownership of the water on site.
3)	If you answered NO to any of the above questions, this option is not feasible for the site. Consider other management options.

No NPDES Permit Option #2:

Discharge to Adjacent Land or Facility Owned by Others
(FG: Page 13)

No NPDES Permit Option #2:

Discharge to Adjacent Land or Facility Owned by Others (Cont.)

- **Accumulated water is…**
  - Discharged by agreement to another owner's facility (settling basin, irrigation, etc.)
- **Water Quality**
  - Generally required to be free of pollutants other than sediment
- **General Requirements**
  - Discuss regulatory and legal implementation with CSWC
  - May require a fee
  - May require treatment for sediment removal

No NPDES Permit Option #2:

Discharge to Adjacent Land or Facility Owned by Others (Cont.)

- Requires written agreement with provisions for:
  - Compensation
  - Discharge prohibitions
  - Testing requirements
  - Property restoration requirements

- Discharge to be managed to prohibit discharge to a storm drain or water body including Waters of the State or Waters of the United States

No NPDES Permit Option #2:

Discharge to Adjacent Land or Facility Owned by Others

(FG: Page 13)

Table 7 Use Assessment: Discharge to Adjacent Land or Facility Owned by Others

Can Water be Discharged to an Adjacent Land or Facility?	
1)	Answer the following questions to determine the feasibility of using this option:
	a) Is there an appropriate landowner or a facility adjacent to the site that is willing to negotiate an agreement to accept your discharge? YES NO
	b) Is the water free of pollutants other than sediment? YES NO
	c) Can the estimated volume of water as calculated on the **Discharge Parameters** section of the *Water Quality and Discharge Parameters Assessment Form* (Appendix C) be accommodated by the land/facility? YES NO
	d) Can the water be treated for sediment (if necessary) prior to discharge? YES NO
	e) If groundwater, does the RWQCB allow unrestricted discharge of groundwater to land? YES NO
2)	If you answered YES to all of the questions above, consider negotiating an agreement to discharge to the land/facility.
3)	If you answered NO to any of the above questions, this option is not feasible for the site. Consider other management options.

No NPDES Permit Option #3:

Discharge to a Public Sanitary Sewer System (FG: Page 14)

No NPDES Permit Option #3:

Discharge to a Public Sanitary Sewer System (Cont.)

- **Requires an agreement to discharge from the applicable agency**
- **Water Quality**
  - Appropriate for discharges that contain sediment and other pollutants
- **Advantages**
  - Acceptable levels of pollutants may be discharged without pre-treatment, as defined by the agency.
  - Water can be pumped directly to sewer without intermediate transportation.

No NPDES Permit Option #3:

Discharge to a Public Sanitary Sewer System (Cont.)

- **Requires written agreement with agency**
  - Pay necessary fees
  - Discharge limitations/prohibitions may apply
  - Pre-discharge testing, monitoring and reporting may be required
  - Agreement is typically in the form of a permit issued by the Sanitary Sewer Authority

No NPDES Permit Option #3:

Discharge to a Public Sanitary Sewer System (FG: Page 14)

Table 8 Use Assessment: Discharge to a Sanitary Sewer System

Can Water be Discharged to a Sanitary Sewer System?	
1)	Answer the following questions to determine the feasibility of using this option:
	a) Is the local sanitary sewer agency willing to negotiate an agreement to accept the discharge?
	b) Is the water quality acceptable to the agency or can it be treated to meet requirements?
	c) Is the estimated volume of water as calculated on the **Discharge Parameters** section of the *Water Quality and Discharge Parameters Assessment Form* (Appendix C) acceptable to the sanitary sewer agency?
2)	If you answered YES to all of the questions above, consider negotiating an agreement to discharge to the sanitary sewer. Contact the CSWC for assistance.
3)	If you answered NO to any of the above questions, this option is not feasible. Consider other management options.

No NPDES Permit Option #4:

Transport Off Site Using a TSD Contractor (FG: Page 15)

No NPDES Permit Option #4:

Transport Off Site Using a TSD Contractor (Cont.)

- **Transport water off site using a licensed commercial Transportation, Storage and Disposal (TSD) contractor.**
- **Water Quality**
  - For toxic pollutants that cannot be discharged elsewhere.
  - Some TSD contractors will accept clean water.
  - Use when it's more cost effective to transport water off site than to treat water and discharge at the site.

No NPDES Permit Option #4:

Transport Off Site Using a TSD Contractor (Cont.)

❑ General Requirements

- Requires a fee
- Requires testing to characterize effluent prior to transport
- Not a good long-term solution for dewatering

No NPDES Permit Option #4:

Transport Off Site Using a TSD Contractor (FG: Page 15)

Table 9 Use Assessment: Transport Off Site Using Transportation, Storage and Disposal Contractor

Can Water be Transported Off Site for Disposal?	
1)	Answer the following questions to determine the feasibility of using this option:
	a) Is the water quality acceptable to the TSD? YES NO
	b) Is the estimated volume of water as calculated on **Discharge Parameters** section of the *Water Quality and Discharge Parameters Assessment Form* (Appendix C) acceptable? YES NO
	c) Is the fee acceptable to the contract budget? YES NO
2)	If you answered YES to all of the questions above, consider negotiating an agreement to discharge to the TSD facility. Contact the District CSWC for assistance.
3)	If you answered NO to any of the above questions, this option is not feasible. Consider other management options.

Team Competition #5:
No NPDES Permit Options

SEE ANSWER KEY

Team Competition #5:
No NPDES Permit Options Flow Chart

SEE ANSWER KEY

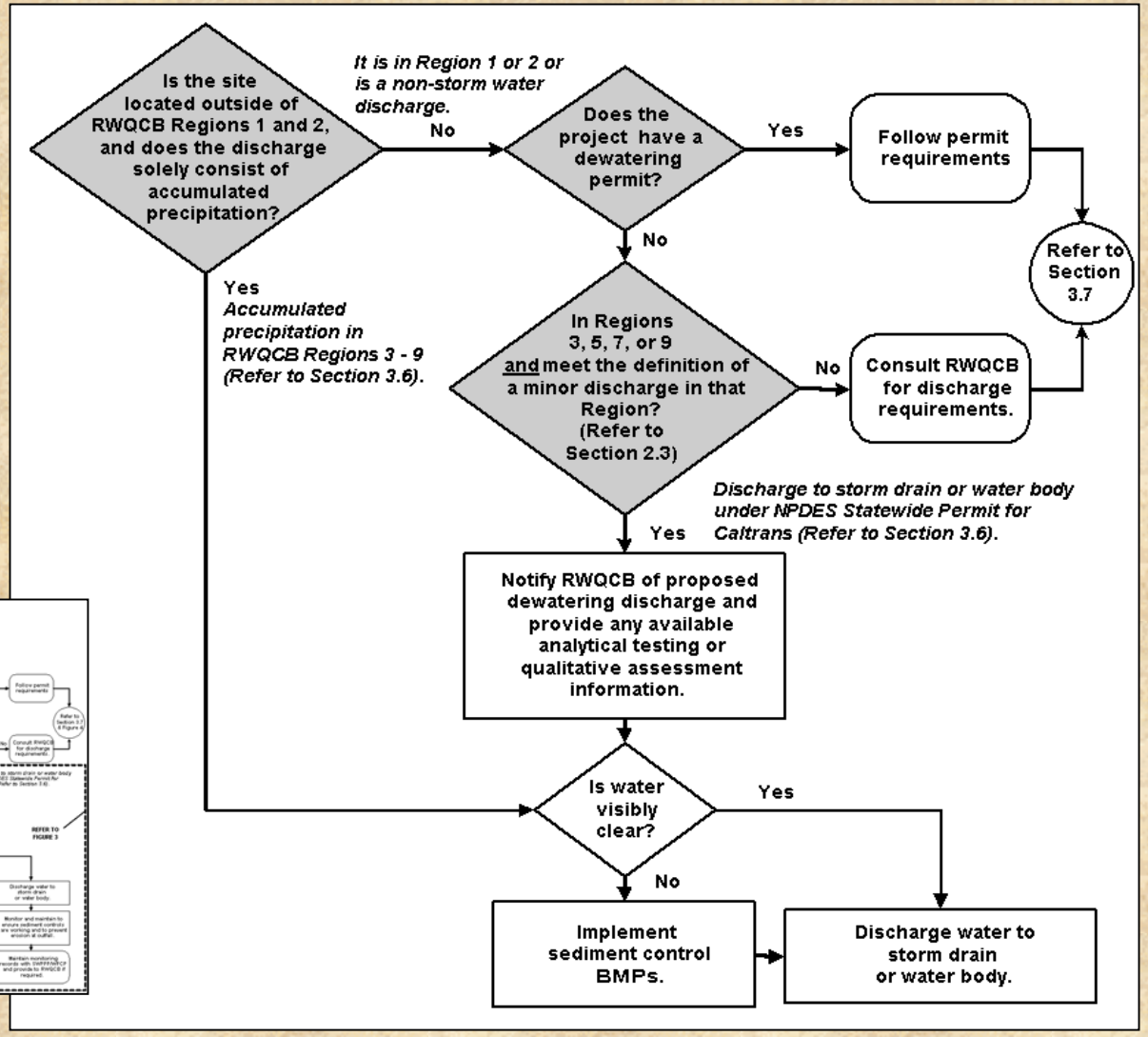
Types of Dewatering Operations

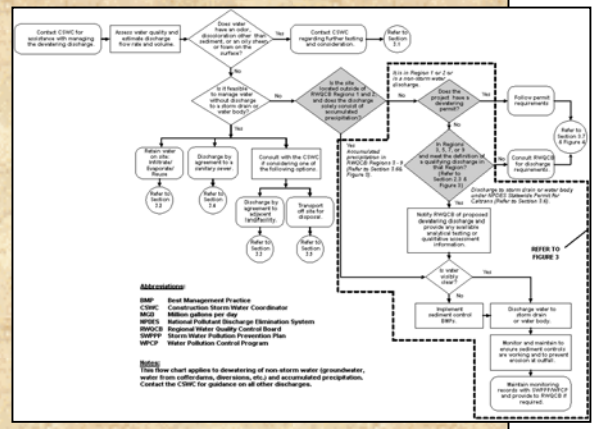
- **There are three types of dewatering operations:**
  - Operations **NOT regulated** under an NPDES Permit
  - Operations **regulated under the Caltrans Statewide** NPDES Permit
  - Operations **regulated under a local RWQCB** NPDES Permit

Key Qualification:
NPDES Permit

A dewatering operation is regulated by an NPDES Permit if any effluent will discharge to a surface water or a storm drain that discharges to a surface water. Surface waters include Waters of the State and Waters of the United States

Dewatering Management Options: Which Permit?





Which NPDES Permit Regulates the Operation: Caltrans Statewide or RWQCB?

- **Depends on:**
  - RWQCB with jurisdiction over project
  - Source of effluent: Stormwater or non-stormwater
  - Water quality: Unpolluted, polluted by sediment only, or contains pollutants other than sediment
  - Discharge Parameters: Flow rate, daily volume, duration

Which Permit?
Determine RWQCB Jurisdiction

Caltrans District ⇩	North Coast 1	San Francisco 2	Central Coast 3	Los Angeles 4	Central Valley 5	Lahontan 6	Colorado River 7	Santa Ana 8	San Diego 9
1	X				X				
2	X				X	X			
3					X	X			
4	X	X	X		X				
5		X	X		X				
6					X	X			
7			X	X	X	X			
8						X	X	X	X
9						X			
10		X			X	X			
11							X		X
12								X	X

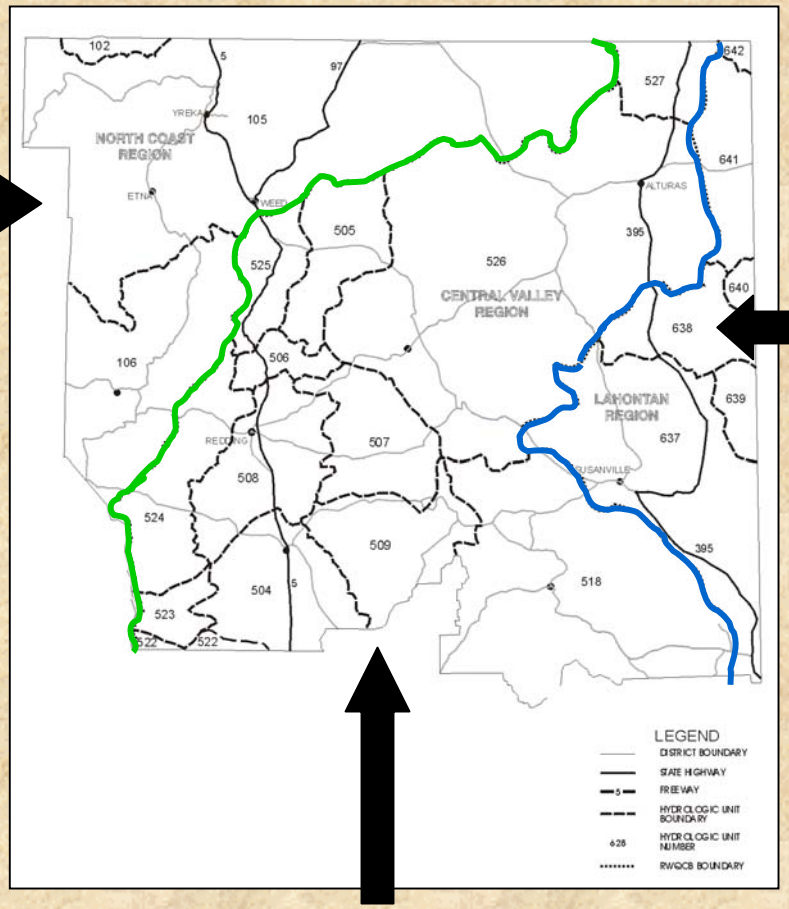
District 1 - RWQCB Boundaries

RWQCB 1 regulates all projects in District 1 except for that portion of Lake County within the Sacramento Watershed that drains to the Pacific Ocean via San Francisco Bay.

RWQCB 5 regulates projects in that portion of Lake County within the Sacramento Watershed that drain to the Pacific Ocean via San Francisco Bay.

District 2 - RWQCB Boundaries

RWQCB 1 (North Coast) regulates projects in the northwest portion of District 2 that drain directly to the Pacific Ocean, primarily in the Klamath and Eel River drainages.

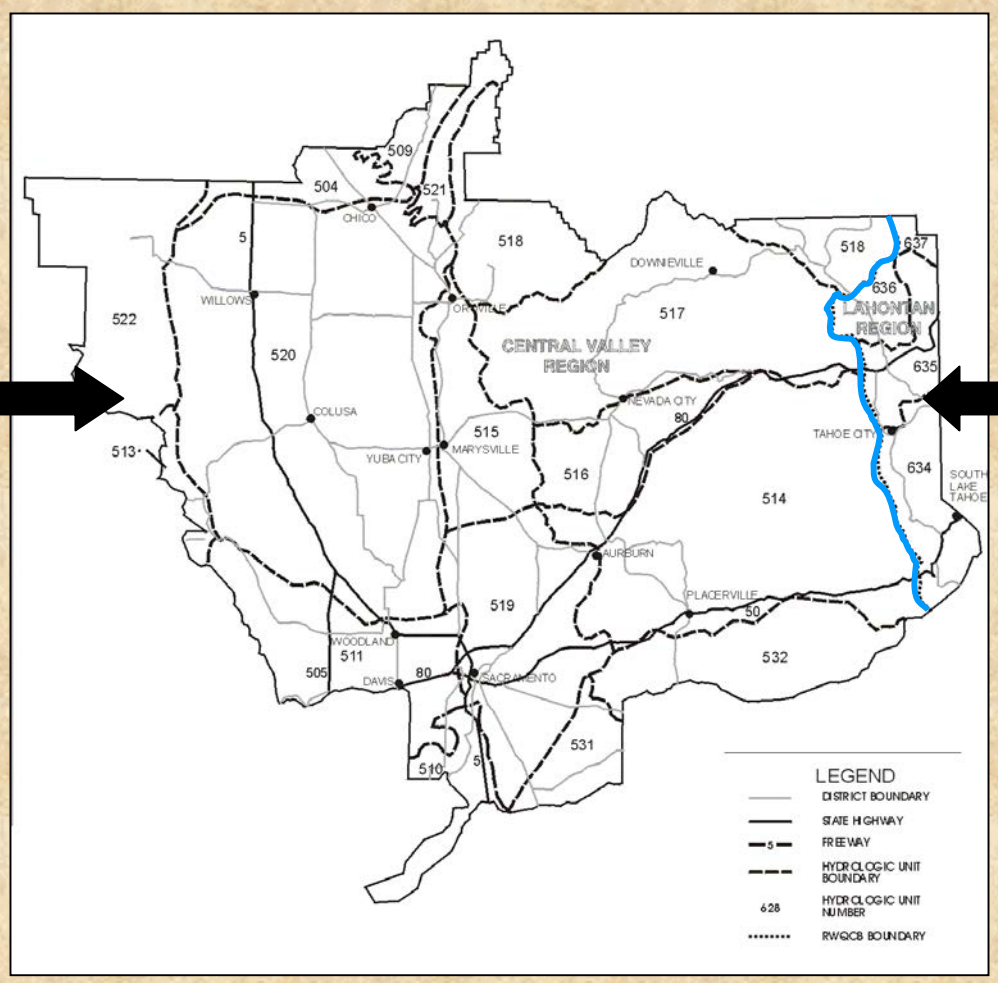


RWQCB 6 (Lahontan) regulates projects in the eastern portion of District 2 within the Great Basin that do not drain to the ocean.

RWQCB 5 (Central Valley) regulates projects in the central portion of District 2 that ultimately drain to the Pacific Ocean via San Francisco Bay.

District 3 - RWQCB Boundaries

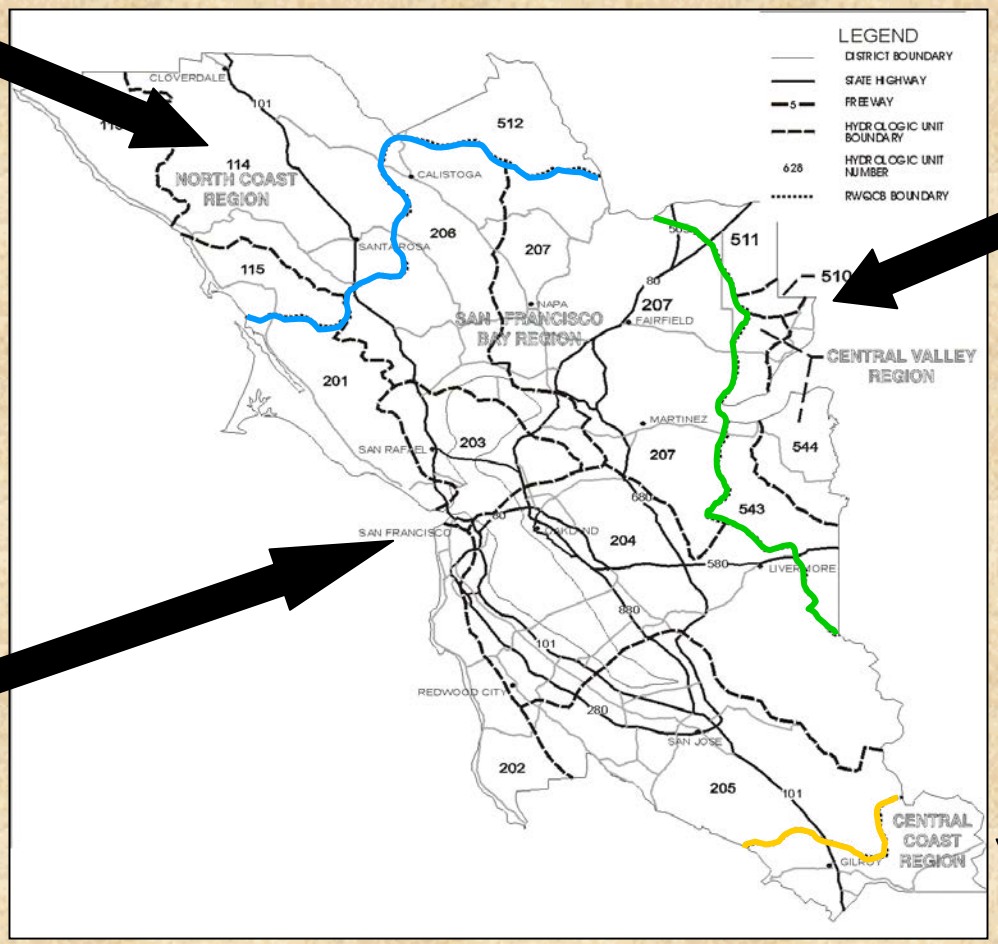
RWQCB 5 (Central Valley) regulates all projects in District 3 within the Sacramento Watershed that drain to the Pacific Ocean via San Francisco Bay.



RWQCB 6 (Lahontan) regulates projects in the eastern portion of District 3 within the Great Basin that do not drain to the ocean.

District 4 - RWQCB Boundaries

RWQCB 1 (North Coast) regulates projects within the northwest potion of District 4.



RWQCB 5 (Central Valley) regulates projects within the eastern portion of District 4 within Napa, Solano and Alameda counties.

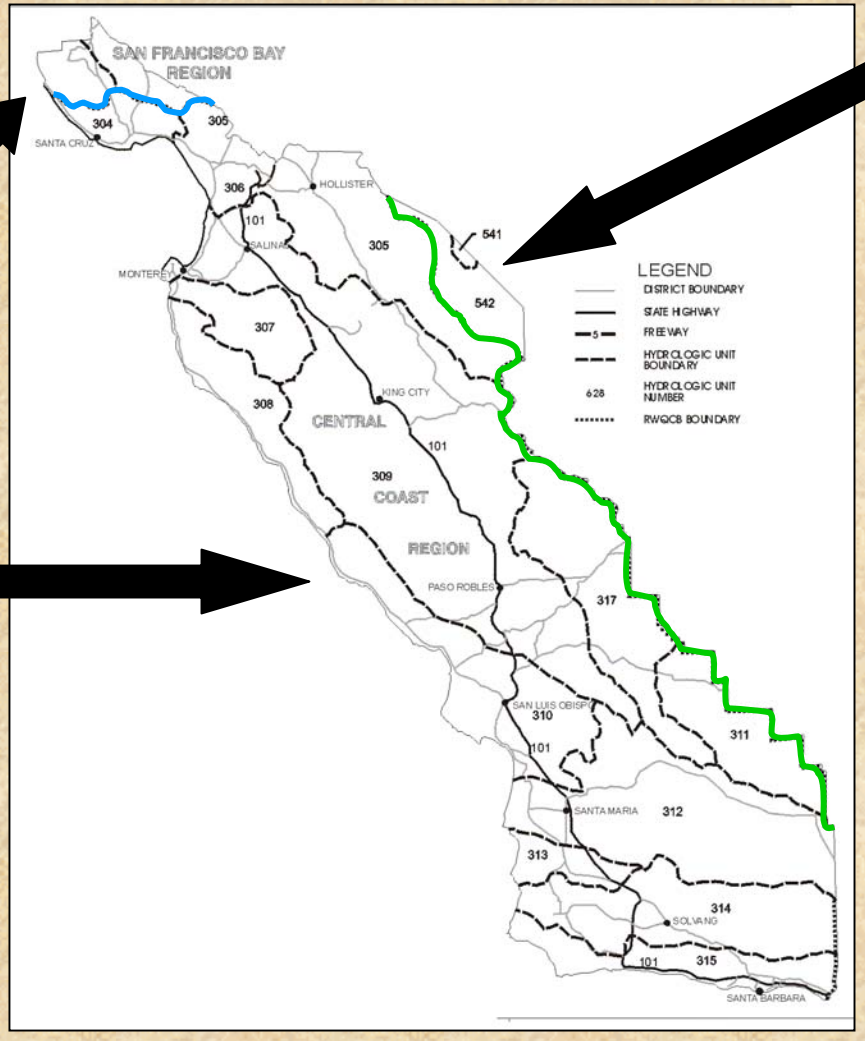
RWQCB 2 (San Francisco Bay) regulates the largest portion of District 4.

RWQCB 3 (Central Coast) regulates the southern portion of District 2.

District 5 - RWQCB Boundaries

RWQCB 2 (San Francisco Bay) regulates the northern tip of District 5.

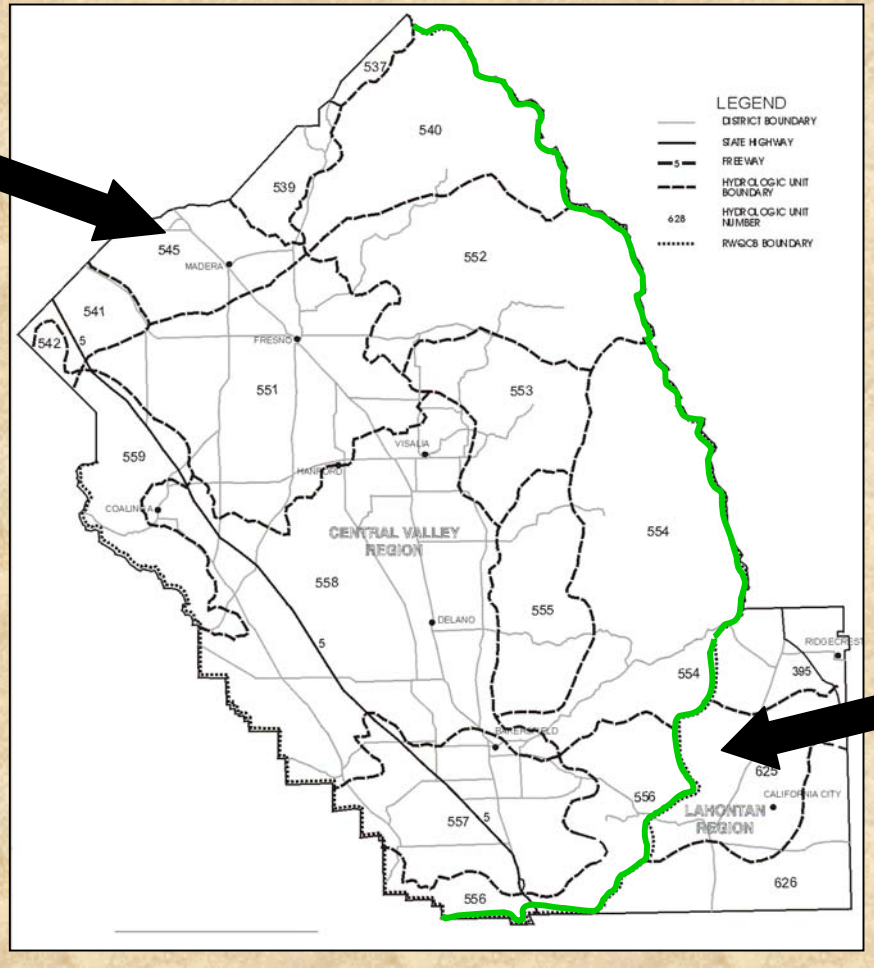
RWQCB 3 (Central Coast) regulates the largest portion of District 5.



RWQCB 5 (Central Valley) regulates the northeastern portion of District 5 (eastern San Benito County).

District 6 - RWQCB Boundaries

RWQCB 5 (Central Valley) regulates the largest portion of District 6.

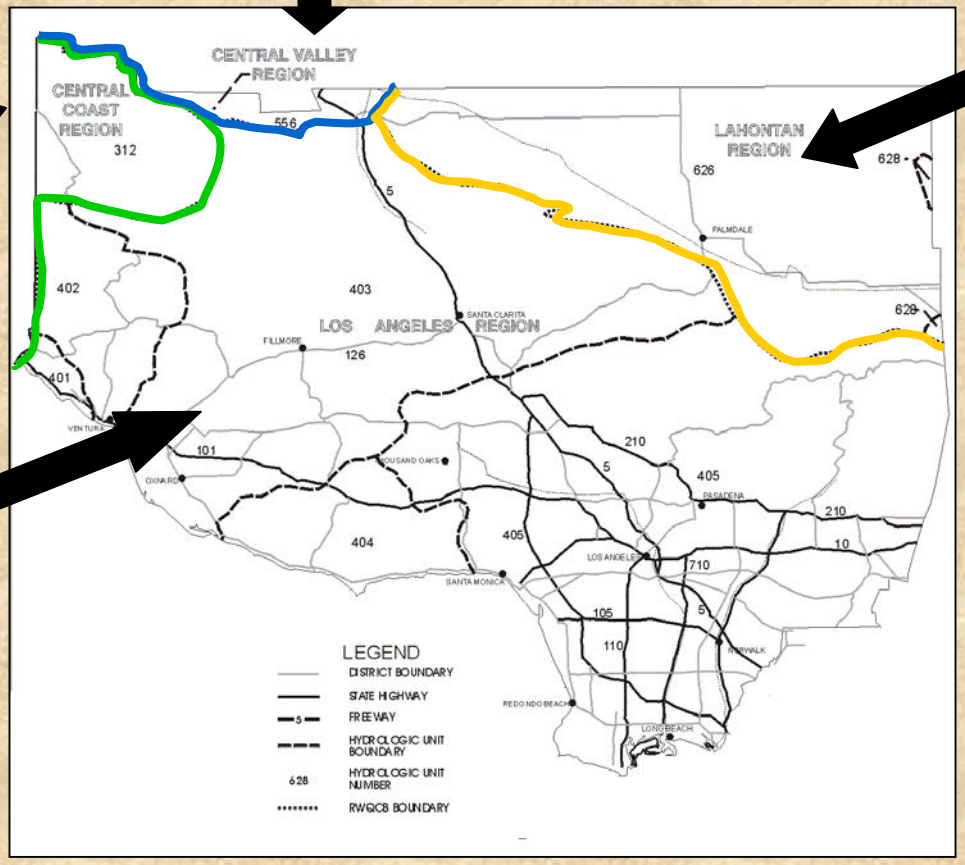


RWQCB 6 (Lahontan) regulates projects in a portion of District 6 in eastern Kern County.

District 7 – RWQCB Boundaries

RWQCB 5 (Central Valley) regulates a small north central portion of District 7.

RWQCB 3 (Central Coast) regulates the northwestern corner of District 7.



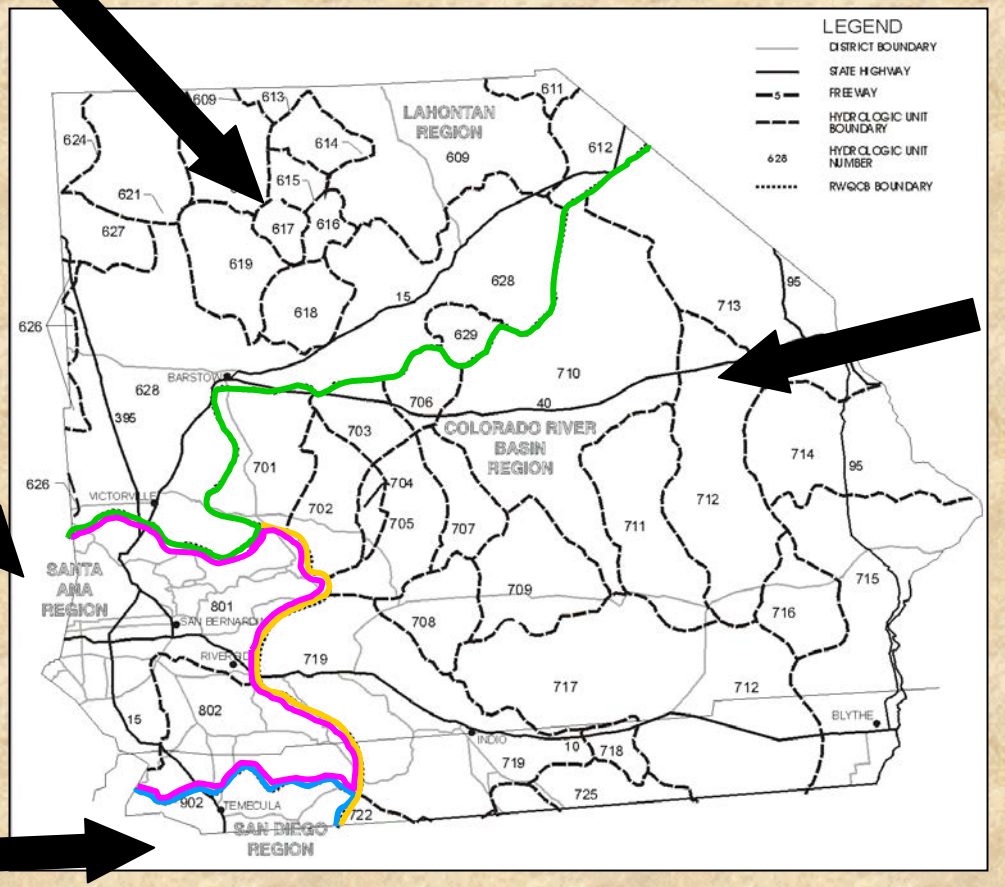
RWQCB 6 (Lahontan) regulates the northeastern corner of District 7.

RWQCB 4 (Los Angeles) regulates most of District 7.

District 8 - RWQCB Boundaries

RWQCB 6 (Lahontan) regulates the northern portion of District 8 in the Great Basin that drains internally.

RWQCB 8 (Santa Ana) regulates a southwestern portion of District 8.

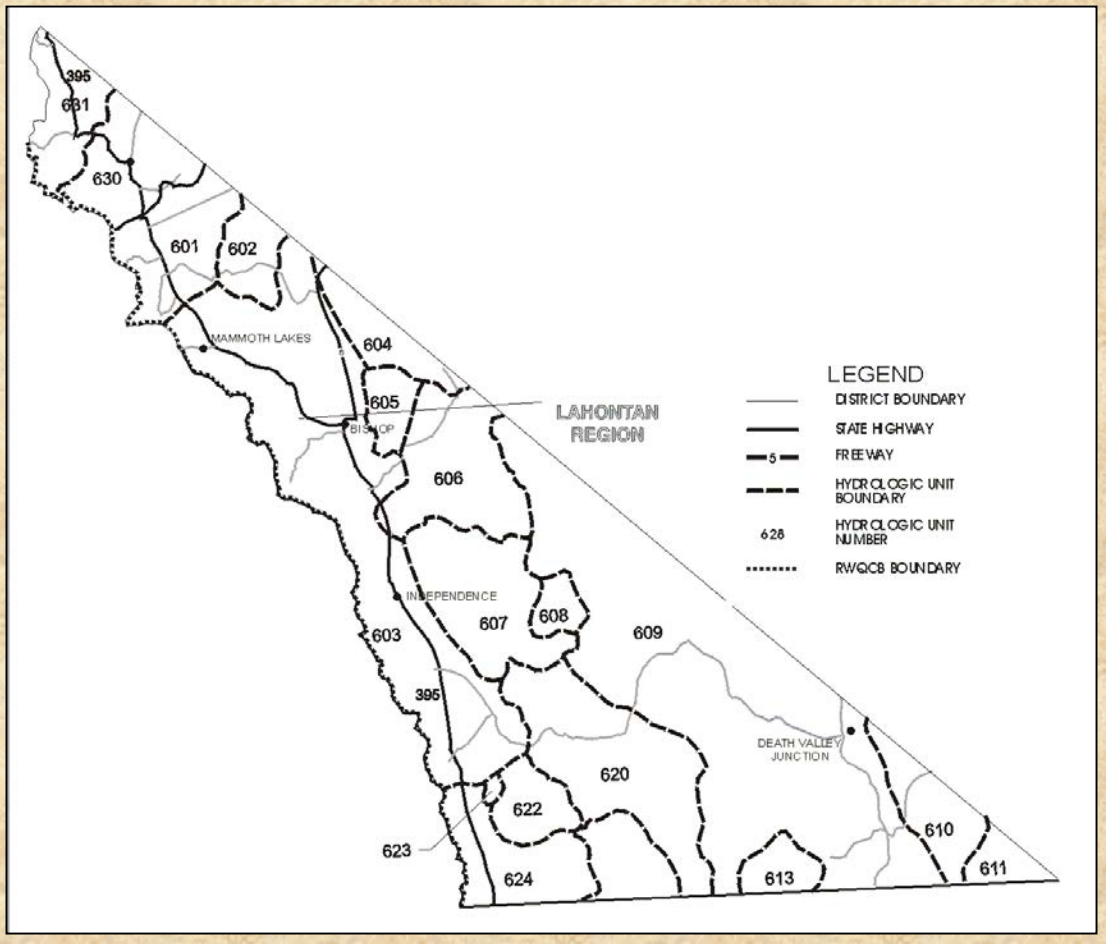


RWQCB 7 (Colorado River Basin) regulates a large portion of the southeastern area of District 8.

RWQCB 9 (San Diego) regulates the southwest corner of District 8.

District 9 - RWQCB Boundaries

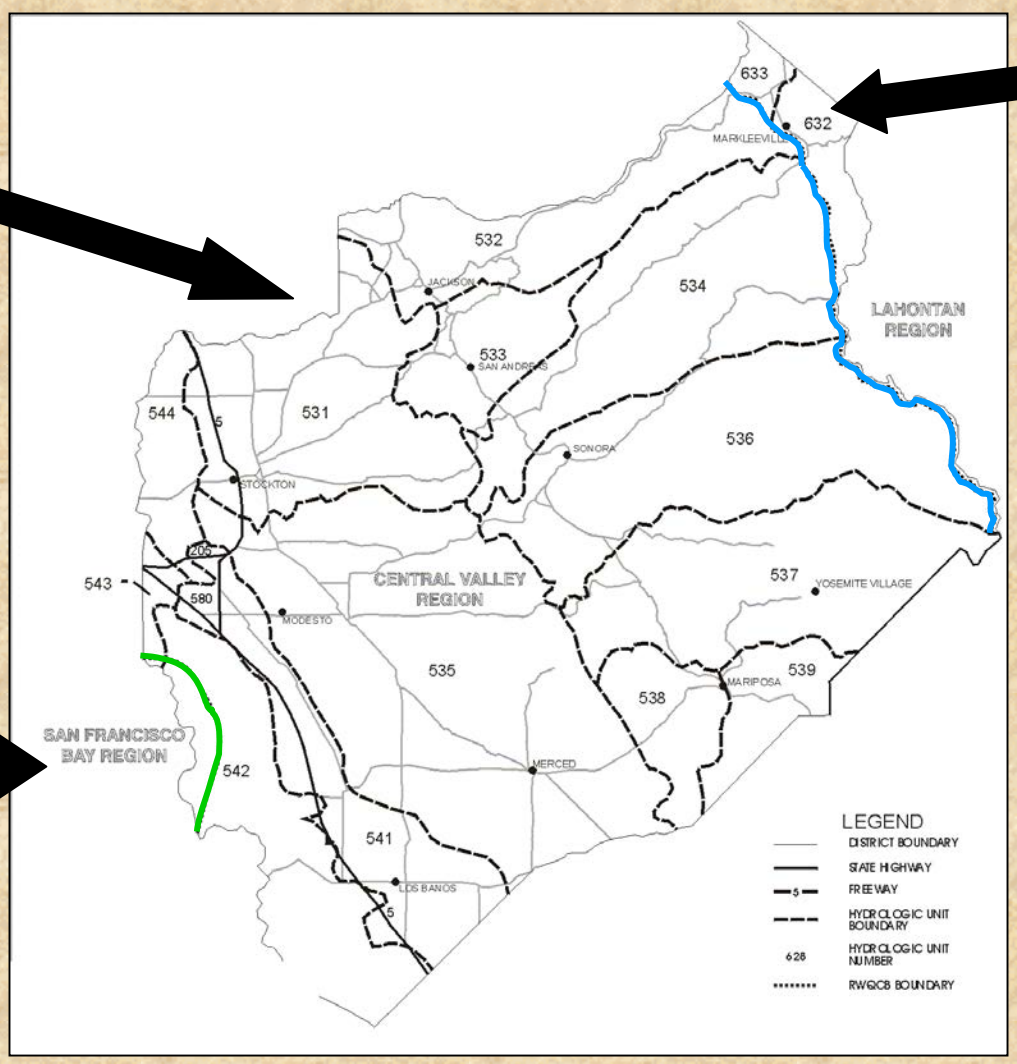
RWQCB 6 (Lahontan) regulates all projects in District 9.



District 10 - RWQCB Boundaries

RWQCB 5 (Central Valley) regulates the largest portion of District 10.

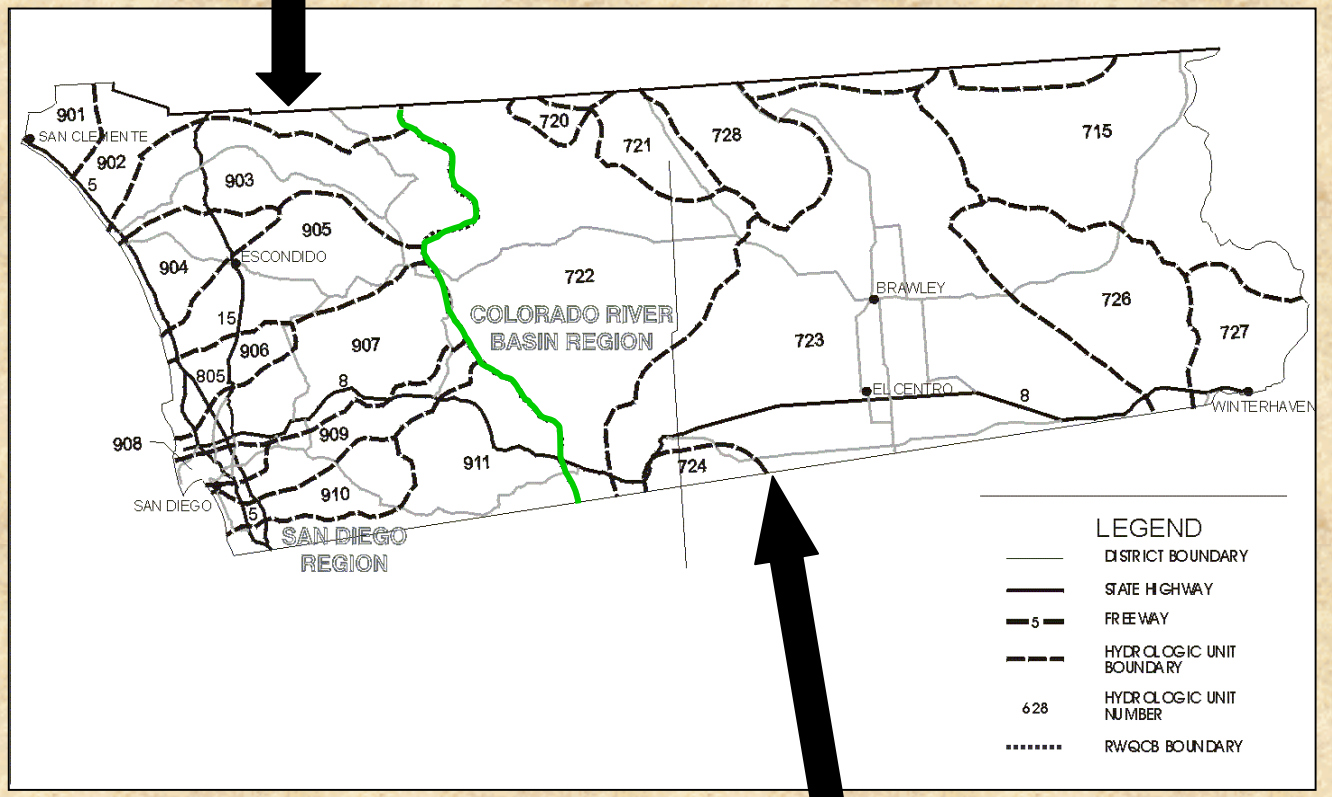
RWQCB 2 (San Francisco Bay) regulates the northwest portion of District 10.



RWQCB 6 (Lahontan) regulates a small portion of the northeast corner of District 10 in Alpine County.

District 11 - RWQCB Boundaries

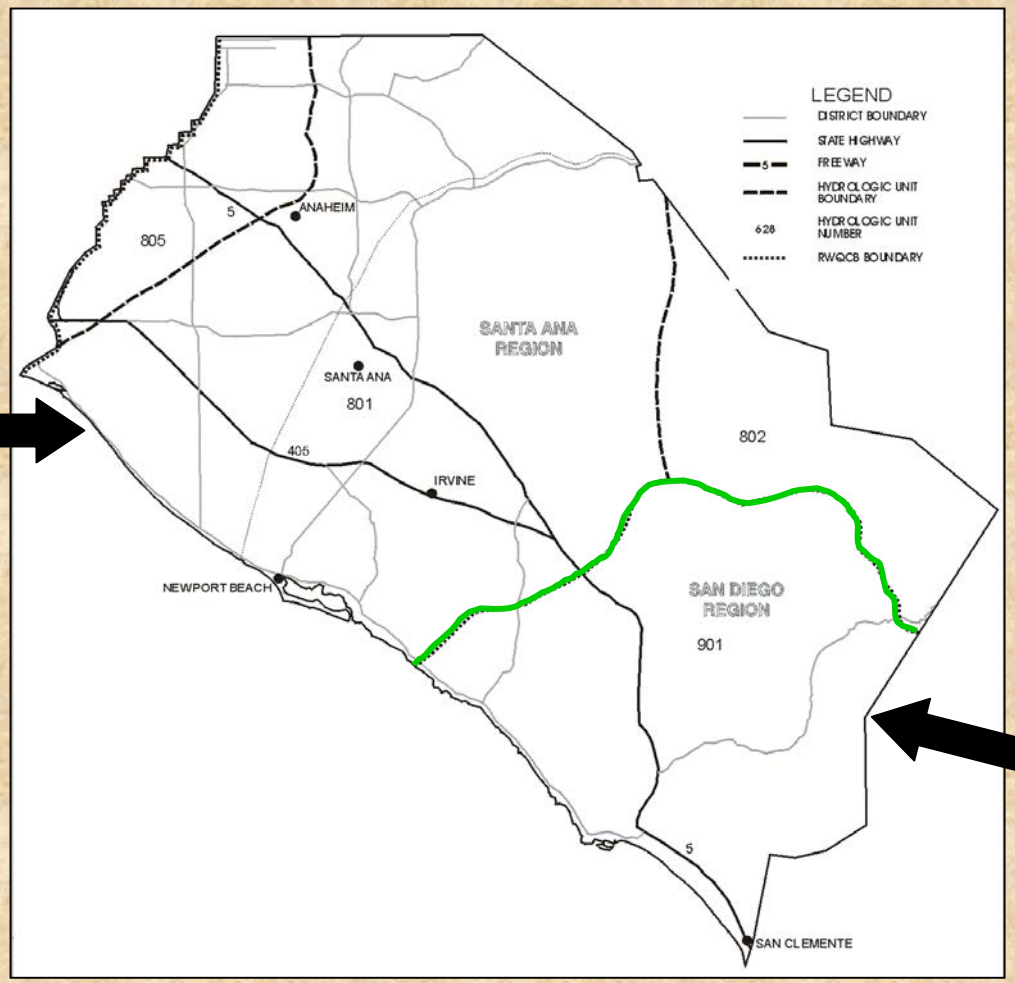
RWQCB 9 (San Diego) regulates the western portion of District 11.



RWQCB 7 (Colorado River Basin) regulates the eastern portion of District 11.

District 12 - RWQCB Boundaries

RWQCB 8 (Santa Ana) regulates the northern portion of District 12.



RWQCB 9 (San Diego) regulates the southern portion of District 12.

District 1 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 1		RWQCB	
Type of Dewatering Discharge		1 North Coast	5 Central Valley
Storm Water	Unpolluted or Sediment as Only Pollutant		
	Pollutant Other Than Sediment		
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted and Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)		
	Polluted or More than 250,000 Gallons/Day (24-hour day) or Longer Than 4 Months Duration (in Calendar Year)		

District 1 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 1		RWQCB	
Type of Dewatering Discharge		1 North Coast	5 Central Valley
Storm Water	Unpolluted or Sediment as Only Pollutant	RWQCB Permit	
	Pollutant Other Than Sediment	RWQCB Permit	
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted and Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	RWQCB Permit	
	Polluted or More than 250,000 Gallons/Day (24-hour day) or Longer Than 4 Months Duration (in Calendar Year)	RWQCB Permit	

District 1 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 1		RWQCB	
Type of Dewatering Discharge		1 North Coast	5 Central Valley
Storm Water	Unpolluted or Sediment as Only Pollutant	RWQCB Permit	Caltrans Statewide Permit
	Pollutant Other Than Sediment	RWQCB Permit	RWQCB Permit
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted and Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	RWQCB Permit	Caltrans Statewide Permit
	Polluted or More than 250,000 Gallons/Day (24-hour day) or Longer Than 4 Months Duration (in Calendar Year)	RWQCB Permit	RWQCB Permit

District 2 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 2			RWQCB		
Type of Dewatering Discharge			1 North Coast	5 Central Valley	6 Lahontan
Storm Water	Unpolluted or Sediment as Only Pollutant				
	Pollutant Other Than Sediment				
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits			
		Less Than 250,000 Gallons/Day (24-hr/day) and Less Than 4 Months Duration (in Calendar Year)			
		More Than 250,000 Gallons/Day (24-hr/day) and Less Than 4 Months Duration (in Calendar Year			
	Polluted	No Volume or Duration Limits			

District 2 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 2			RWQCB		
Type of Dewatering Discharge			1 North Coast	5 Central Valley	6 Lahontan
Storm Water	Unpolluted or Sediment as Only Pollutant		RWQCB Permit		
	Pollutant Other Than Sediment		RWQCB Permit		
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits			
		Less Than 250,000 Gallons/Day (24-hr/day) and Less Than 4 Months Duration (in Calendar Year)	RWQCB Permit		
		More Than 250,000 Gallons/Day (24-hr/day) and Less Than 4 Months Duration (in Calendar Year	RWQCB Permit		
	Polluted	No Volume or Duration Limits	RWQCB Permit		

District 2 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 2			RWQCB		
Type of Dewatering Discharge			1 North Coast	5 Central Valley	6 Lahontan
Storm Water	Unpolluted or Sediment as Only Pollutant		RWQCB Permit	Caltrans Statewide Permit	Caltrans Statewide Permit
	Pollutant Other Than Sediment		RWQCB Permit	RWQCB Permit	RWQCB Permit
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits			RWQCB Permit
		Less Than 250,000 Gallons/Day (24-hr/day) and Less Than 4 Months Duration (in Calendar Year)	RWQCB Permit	Caltrans Statewide Permit	
		More Than 250,000 Gallons/Day (24-hr/day) and Less Than 4 Months Duration (in Calendar Year	RWQCB Permit	RWQCB Permit	
	Polluted	No Volume or Duration Limits	RWQCB Permit	RWQCB Permit	RWQCB Permit

Note: Individual Regional Board permits need to be reviewed for applicability.

District 3 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

District 3			RWQCB	
Type of Dewatering Discharge			5 Central Valley	6 Lahontan
Storm Water	Unpolluted or Sediment as Only Pollutant			
	Pollutant Other Than Sediment			
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits		
		Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)		
		More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)		
	Polluted	No Volume or Duration Limits		

District 3 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

District 3			RWQCB	
Type of Dewatering Discharge			5 Central Valley	6 Lahontan
Storm Water	Unpolluted or Sediment as Only Pollutant		Caltrans Statewide Permit	
	Pollutant Other Than Sediment		RWQCB Permit	
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits		
		Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	Caltrans Statewide Permit	
		More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)	RWQCB Permit	
	Polluted	No Volume or Duration Limits	RWQCB Permit	

District 3 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

District 3			RWQCB	
Type of Dewatering Discharge			5 Central Valley	6 Lahontan
Storm Water	Unpolluted or Sediment as Only Pollutant		Caltrans Statewide Permit	Caltrans Statewide Permit
	Pollutant Other Than Sediment		RWQCB Permit	RWQCB Permit
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits		RWQCB Permit
		Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	Caltrans Statewide Permit	
		More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)	RWQCB Permit	
	Polluted	No Volume or Duration Limits	RWQCB Permit	RWQCB Permit

Note: Individual Regional Board permits need to be reviewed for applicability.

District 4 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 4		RWQCB			
Type of Dewatering Discharge		1 North Coast	2 San Francisco[A]	3 Central Coast	5 Central Valley
Storm Water	Unpolluted or Sediment as Only Pollutant				
	Pollutant Other Than Sediment				
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted and Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)				
	Polluted or More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)				

A

District 4 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 4		RWQCB			
Type of Dewatering Discharge		1 North Coast	2 San Francisco[A]	3 Central Coast	5 Central Valley
Storm Water	Unpolluted or Sediment as Only Pollutant	RWQCB Permit			
	Pollutant Other Than Sediment	RWQCB Permit			
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted and Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	RWQCB Permit			
	Polluted or More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)	RWQCB Permit			

A

District 4 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 4		RWQCB			
Type of Dewatering Discharge		1 North Coast	2 San Francisco[A]	3 Central Coast	5 Central Valley
Storm Water	Unpolluted or Sediment as Only Pollutant	RWQCB Permit	Permission or RWQCB Permit	Caltrans Statewide Permit	Caltrans Statewide Permit
	Pollutant Other Than Sediment	RWQCB Permit	RWQCB Permit	RWQCB Permit	RWQCB Permit
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted and Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	RWQCB Permit	Permission or RWQCB Permit	Caltrans Statewide Permit	Caltrans Statewide Permit
	Polluted or More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)	RWQCB Permit	RWQCB Permit	RWQCB Permit	RWQCB Permit

[A] May give verbal permission for short-term, small quantity discharges without a permit

District 5 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 5		RWQCB		
Type of Dewatering Discharge		2 San Francisco [A]	3 Central Coast	5 Central Valley
Storm Water	Unpolluted or Sediment as Only Pollutant			
	Pollutant Other Than Sediment			
Non-Storm Water or Storm Water Mixed with Other Water	Unpolluted and Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)			
	Polluted or More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)			

A

District 5 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 5		RWQCB		
Type of Dewatering Discharge		2 San Francisco [A]	3 Central Coast	5 Central Valley
Storm Water	Unpolluted or Sediment as Only Pollutant	Permission or RWQCB Permit		
	Pollutant Other Than Sediment	RWQCB Permit		
Non-Storm Water or Storm Water Mixed with Other Water	Unpolluted and Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	Permission or RWQCB Permit		
	Polluted or More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)	RWQCB Permit		

[A] May give verbal permission for short-term, small quantity discharges without a permit

District 5 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 5		RWQCB		
Type of Dewatering Discharge		2 San Francisco [A]	3 Central Coast	5 Central Valley
Storm Water	Unpolluted or Sediment as Only Pollutant	Permission or RWQCB Permit	Caltrans Statewide Permit	Caltrans Statewide Permit
	Pollutant Other Than Sediment	RWQCB Permit	RWQCB Permit	RWQCB Permit
Non-Storm Water or Storm Water Mixed with Other Water	Unpolluted and Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	Permission or RWQCB Permit	Caltrans Statewide Permit	Caltrans Statewide Permit
	Polluted or More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)	RWQCB Permit	RWQCB Permit	RWQCB Permit

[A] May give verbal permission for short-term, small quantity discharges without a permit

District 6 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

District 6			RWQCB	
Type of Dewatering Discharge			5 Central Valley	6 Lahontan
Storm Water	Unpolluted or Sediment as Only Pollutant			
	Pollutant Other Than Sediment			
Non-Storm Water or Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits		
		Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)		
		More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)		
	Polluted	No Volume or Duration Limits		

District 6 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

District 6			RWQCB	
Type of Dewatering Discharge			5 Central Valley	6 Lahontan
Storm Water	Unpolluted or Sediment as Only Pollutant		Caltrans Statewide Permit	
	Pollutant Other Than Sediment		RWQCB Permit	
Non-Storm Water or Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits		
		Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	Caltrans Statewide Permit	
		More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)	RWQCB Permit	
	Polluted	No Volume or Duration Limits	RWQCB Permit	

District 6 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

District 6			RWQCB	
Type of Dewatering Discharge			5 Central Valley	6 Lahontan
Storm Water	Unpolluted or Sediment as Only Pollutant		Caltrans Statewide Permit	Caltrans Statewide Permit
	Pollutant Other Than Sediment		RWQCB Permit	RWQCB Permit
Non-Storm Water or Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits		RWQCB Permit
		Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	Caltrans Statewide Permit	
		More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)	RWQCB Permit	
	Polluted	No Volume or Duration Limits	RWQCB Permit	RWQCB Permit

Note: Individual Regional Board permits need to be reviewed for applicability.

District 7 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 7			RWQCB			
Type of Dewatering Discharge			3 Central Coast	4 Los Angeles	5 Central Valley	6 Lahontan
Storm Water	Unpolluted or Sediment as Only Pollutant					
	Pollutant Other Than Sediment					
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits				
		Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)				
		More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)				
	Polluted	No Volume or Duration Limits				

District 7 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 7			RWQCB			
Type of Dewatering Discharge			3 Central Coast	4 Los Angeles	5 Central Valley	6 Lahontan
Storm Water	Unpolluted or Sediment as Only Pollutant		Caltrans Statewide Permit			
	Pollutant Other Than Sediment		RWQCB Permit			
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits				
		Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	Caltrans Statewide Permit			
		More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)	RWQCB Permit			
	Polluted	No Volume or Duration Limits	RWQCB Permit			

District 7 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 7			RWQCB			
Type of Dewatering Discharge			3 Central Coast	4 Los Angeles	5 Central Valley	6 Lahontan
Storm Water	Unpolluted or Sediment as Only Pollutant		Caltrans Statewide Permit	Caltrans Statewide Permit	Caltrans Statewide Permit	Caltrans Statewide Permit
	Pollutant Other Than Sediment		RWQCB Permit	RWQCB Permit	RWQCB Permit	RWQCB Permit
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits		RWQCB Permit		RWQCB Permit
		Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	Caltrans Statewide Permit		Caltrans Statewide Permit	
		More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)	RWQCB Permit		RWQCB Permit	
	Polluted	No Volume or Duration Limits	RWQCB Permit	RWQCB Permit	RWQCB Permit	RWQCB Permit

Note: Individual Regional Board permits need to be reviewed for applicability.

District 8 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 8			RWQCB			
Type of Dewatering Discharge			6 Lahontan	7 Colorado River	8 Santa Ana	9 San Diego
Storm Water	Unpolluted or Sediment as Only Pollutant					
	Pollutant Other Than Sediment					
Groundwater	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Less Than 100,000 Gallons/Day (24-hr day)					
	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Greater Than 100,000 Gallons/Day (24-hr day) or Polluted and Less Than 100,000 Gallons/Day (24-hr day)					
	Discharge to San Diego Bay or to Storm Conveyances or Tributaries Thereto					
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits				
		Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)				
		More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)				
	Polluted	No Volume or Duration Limits				

District 8 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 8			RWQCB			
Type of Dewatering Discharge			6 Lahontan	7 Colorado River	8 Santa Ana	9 San Diego
Storm Water	Unpolluted or Sediment as Only Pollutant		Caltrans Statewide Permit			
	Pollutant Other Than Sediment		RWQCB Permit			
Groundwater	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Less Than 100,000 Gallons/Day (24-hr day)					
	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Greater Than 100,000 Gallons/Day (24-hr day) or Polluted and Less Than 100,000 Gallons/Day (24-hr day)					
	Discharge to San Diego Bay or to Storm Conveyances or Tributaries Thereto					
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits	RWQCB Permit			
		Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)				
		More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)				
	Polluted	No Volume or Duration Limits	RWQCB Permit			

District 8 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 8			RWQCB			
Type of Dewatering Discharge			6 Lahontan	7 Colorado River	8 Santa Ana	9 San Diego
Storm Water	Unpolluted or Sediment as Only Pollutant		Caltrans Statewide Permit	Caltrans Statewide Permit	Caltrans Statewide Permit	Caltrans Statewide Permit
	Pollutant Other Than Sediment		RWQCB Permit	RWQCB Permit	RWQCB Permit	RWQCB Permit
Groundwater	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Less Than 100,000 Gallons/Day (24-hr day)					Caltrans Statewide Permit
	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Greater Than 100,000 Gallons/Day (24-hr day) or Polluted and Less Than 100,000 Gallons/Day (24-hr day)					RWQCB Permit CAG919002
	Discharge to San Diego Bay or to Storm Conveyances or Tributaries Thereto					RWQCB Permit CAG919001
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits	RWQCB Permit			Contact RWQCB
		Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)		Caltrans Statewide Permit	RWQCB Permit	
		More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)		RWQCB Permit	RWQCB Permit	
	Polluted	No Volume or Duration Limits	RWQCB Permit	RWQCB Permit	RWQCB Permit	Contact RWQCB

Note: Individual Regional Board permits need to be reviewed for applicability.

District 9 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 9		RWQCB
Type of Dewatering Discharge		6 Lahontan
Storm Water	Unpolluted or Sediment as Only Pollutant	
	Pollutant Other Than Sediment	
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted	
	Polluted	

District 9 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 9		RWQCB
Type of Dewatering Discharge		6 Lahontan
Storm Water	Unpolluted or Sediment as Only Pollutant	Caltrans Statewide Permit
	Pollutant Other Than Sediment	RWQCB Permit
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted	RWQCB Permit
	Polluted	RWQCB Permit

Note: Individual Regional Board permits need to be reviewed for applicability.

District 10 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 10			RWQCB		
Type of Dewatering Discharge			2 San Francisco [A]	5 Central Valley	6 Lahontan
Storm Water	Unpolluted or Sediment as Only Pollutant				
	Pollutant Other Than Sediment				
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits			
		Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)			
		More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)			
	Polluted	No Volume or Duration Limits			

[A]

District 10 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 10			RWQCB		
Type of Dewatering Discharge			2 San Francisco [A]	5 Central Valley	6 Lahontan
Storm Water	Unpolluted or Sediment as Only Pollutant		RWQCB Permit		
	Pollutant Other Than Sediment		RWQCB Permit		
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits			
		Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	RWQCB Permit		
		More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)	RWQCB Permit		
	Polluted	No Volume or Duration Limits	RWQCB Permit		

[A] May give verbal permission for short-term, small quantity discharges without a permit

District 10 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 10			RWQCB		
Type of Dewatering Discharge			2 San Francisco [A]	5 Central Valley	6 Lahontan
Storm Water	Unpolluted or Sediment as Only Pollutant		RWQCB Permit	Caltrans Statewide Permit	Caltrans Statewide Permit
	Pollutant Other Than Sediment		RWQCB Permit	RWQCB Permit	RWQCB Permit
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted	No Volume or Duration Limits			RWQCB Permit
		Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	RWQCB Permit	Caltrans Statewide Permit	
		More than 250,000 Gallons/Day (24-hr day) or Longer Than 4 Months Duration (in Calendar Year)	RWQCB Permit	RWQCB Permit	
	Polluted	No Volume or Duration Limits	RWQCB Permit	RWQCB Permit	RWQCB Permit

[A] May give verbal permission for short-term, small quantity discharges without a permit

Note: Individual Regional Board permits need to be reviewed for applicability.

District 11 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 11		RWQCB	
Type of Dewatering Discharge		7 Colorado River	9 San Diego
Storm Water	Unpolluted or Sediment as Only Pollutant		
	Pollutant Other Than Sediment		
Groundwater	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Less Than 100,000 Gallons/Day (24-hr day)		
	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Greater Than 100,000 Gallons/Day (24-hr day) or Polluted and Less Than 100,000 Gallons/Day (24-hr day)		
	Discharge to San Diego Bay or to Storm Conveyances or Tributaries Thereto		
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted and Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)		
	Polluted or More Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)		

District 11 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 11		RWQCB	
Type of Dewatering Discharge		7 Colorado River	9 San Diego
Storm Water	Unpolluted or Sediment as Only Pollutant	Caltrans Statewide Permit	
	Pollutant Other Than Sediment	RWQCB Permit	
Groundwater	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Less Than 100,000 Gallons/Day (24-hr day)		
	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Greater Than 100,000 Gallons/Day (24-hr day) or Polluted and Less Than 100,000 Gallons/Day (24-hr day)		
	Discharge to San Diego Bay or to Storm Conveyances or Tributaries Thereto		
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted and Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	Caltrans Statewide Permit	
	Polluted or More Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	RWQCB Permit	

District 11 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 11		RWQCB	
Type of Dewatering Discharge		7 Colorado River	9 San Diego
Storm Water	Unpolluted or Sediment as Only Pollutant	Caltrans Statewide Permit	Caltrans Statewide Permit
	Pollutant Other Than Sediment	RWQCB Permit	Contact RWQCB
Groundwater	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Less Than 100,000 Gallons/Day (24-hr day)		Caltrans Statewide Permit
	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Greater Than 100,000 Gallons/Day (24-hr day) or Polluted and Less Than 100,000 Gallons/Day (24-hr day)		RWQCB Permit CAG919002
	Discharge to San Diego Bay or to Storm Conveyances or Tributaries Thereto		RWQCB Permit CAG919001
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted and Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	Caltrans Statewide Permit	Contact RWQCB
	Polluted or More Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	RWQCB Permit	Contact RWQCB

Note: Individual Regional Board permits need to be reviewed for applicability.

District 12 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 12		RWQCB	
Type of Dewatering Discharge		8 Santa Ana	9 San Diego
Storm Water	Unpolluted or Sediment as Only Pollutant		
	Pollutant Other Than Sediment		
Groundwater	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Less Than 100,000 Gallons/Day (24-hr day)		
	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Greater Than 100,000 Gallons/Day (24-hr day) or Polluted and Less Than 100,000 Gallons/Day (24-hr day)		
	Discharge to San Diego Bay or to Storm Conveyances or Tributaries Thereto		
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted and Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)		
	Polluted or More Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)		

District 12 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 12		RWQCB	
Type of Dewatering Discharge		8 Santa Ana	9 San Diego
Storm Water	Unpolluted or Sediment as Only Pollutant	Caltrans Statewide Permit	
	Pollutant Other Than Sediment	RWQCB Permit	
Groundwater	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Less Than 100,000 Gallons/Day (24-hr day)		
	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Greater Than 100,000 Gallons/Day (24-hr day) or Polluted and Less Than 100,000 Gallons/Day (24-hr day)		
	Discharge to San Diego Bay or to Storm Conveyances or Tributaries Thereto		
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted and Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	RWQCB Permit	
	Polluted or More Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	RWQCB Permit	

District 12 Team Exercise: RWQCB NPDES Permit Summary

(FG: Appendix A and Student Handouts)

Caltrans District 12		RWQCB	
Type of Dewatering Discharge		8 Santa Ana	9 San Diego
Storm Water	Unpolluted or Sediment as Only Pollutant	Caltrans Statewide Permit	Caltrans Statewide Permit
	Pollutant Other Than Sediment	RWQCB Permit	Contact RWQCB
Groundwater	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Less Than 100,000 Gallons/Day (24-hr day)		Caltrans Statewide Permit
	Discharge to other than San Diego Bay or Storm Conveyances or Tributaries Thereto: Unpolluted and Greater Than 100,000 Gallons/Day (24-hr day) or Polluted and Less Than 100,000 Gallons/Day (24-hr day)		RWQCB Permit CAG919002
	Discharge to San Diego Bay or to Storm Conveyances or Tributaries Thereto		RWQCB Permit CAG919001
Non-Storm Water and Storm Water Mixed with Other Water	Unpolluted and Less Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	RWQCB Permit	Contact RWQCB
	Polluted or More Than 250,000 Gallons/Day (24-hr day) and Less Than 4 Months Duration (in Calendar Year)	RWQCB Permit	Contact RWQCB

Note: Individual Regional Board permits need to be reviewed for applicability.

Team Competition #6:
Which NPDES Permit Will You Use?

SEE ANSWER KEY

Team Competition #6:
Which NPDES Permit Will You Use?

SEE ANSWER KEY

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Which NPDES Permit Will You Use?

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SEE ANSWER KEY

Team Competition #6:
Which NPDES Permit Will You Use?

SEE ANSWER KEY

Dewatering Under Caltrans Permit

Types of Dewatering Operations

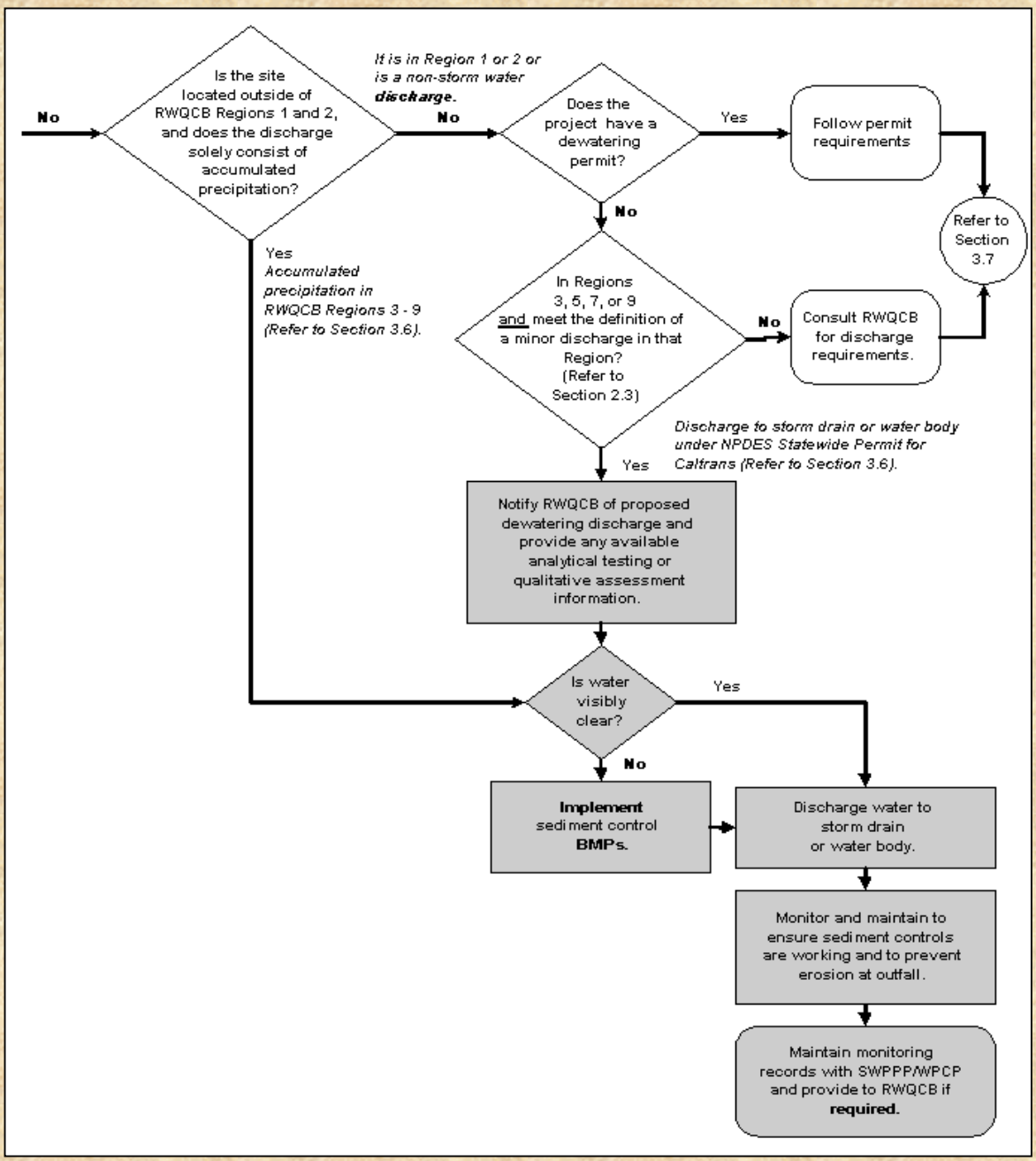
- **There are three types of dewatering operations:**
  - Operations **<u>NOT</u> regulated** under an NPDES Permit
  - Operations **regulated under the Caltrans Statewide** NPDES Permit
  - Operations **regulated under a local RWQCB** NPDES Permit

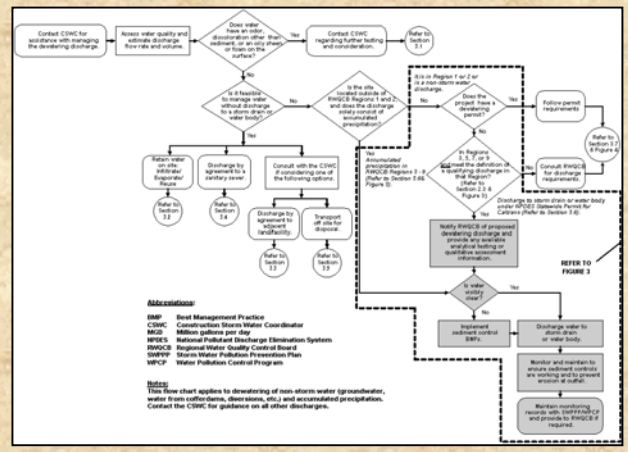
Dewatering under Caltrans Permit

General Information

- Stormwater in all Regions except 1 and 2
- Qualifying non-stormwater in Regions 3, 5, 7, and 9 (volume and duration limits)
- Must be free of pollutants other than sediment
- May require treatment for sediment removal prior to discharge

Dewatering Under Caltrans Permit





Dewatering under Caltrans Permit
General Process

1. Notify RWQCB (through your CSWC) if non-stormwater. (Applicable for RWQCBs 7 & 9 only)

2. Amend SWPPP/ WPCP.

3. Treat for sediment removal if effluent is not '**visibly clear**.'

4. Monitor dewatering operations using the **Dewatering Operations Monitoring Form** (sample provided in Appendix C).

5. Maintain records for 3 years.

Dewatering Under Caltrans Permit

(FG: Page 16)

- **Notify RWQCB of intended discharge of non-stormwater**
  - Prior to discharge
  - Provide information regarding type of water quality and discharge parameters to CSWC.
  - May use courtesy Notification Form (sample provided) (Applicable for RWQCB's 3, 5, 7, & 9 only)
    - No official Caltrans form exists

Dewatering Under Caltrans Permit (Cont.)

- **Amend SWPPP/WPCP to include appropriate BMPs:**
  - NS-2: Dewatering Operations
  - SC-2: Sediment/Desilting Basin
  - SC-3: Sediment Trap
  - SS-10: Outlet Protection / Velocity Dissipation Devices
  - Other practices for removing sediment

Dewatering Under Caltrans Permit (Cont.)

- **Treat for sediment removal**
  - If water is visibly clear, **treatment may not be required.**

  - If water is not clear, **implement appropriate sediment control BMPs.**

Dewatering Under Caltrans Permit (Cont.)

- **Goal of the Caltrans Permit**
  - Visibly clear, or
  - In the case of "muddy" receiving waters…no adverse impact to the water body

Additional Guidance:

If visibly clear cannot readily be met by conventional BMPs, consult with your CSWC and RWQCB regarding discharge limitations.

Dewatering Under Caltrans Permit (Cont.)

What is 'Visibly Clear'? - Turbidity

0 NTUs

33 NTUs

113 NTUs

Rule of Thumb:

Visibly clear is if you can see through it,
Equivalent to < 50 NTUs

Dewatering Under Caltrans Permit (Cont.)

Assessing Visibly Clear/Turbidity

- Daily during dewatering operation collect a sample in a small jar from effluent or from upper portion of the receiving water.
- View to see if it is visibly clear.
- Or test with a Turbidity Meter. Measured in Nephelometric Turbidity Units (NTUs).

Dewatering Under Caltrans Permit (Cont.)

- **Discharge water**
- **Monitor operations as part of regular inspections**
  - Sample form provided in NS-2
  - Ensure that contractor maintains sediment control BMPs.
  - Ensure that there is no erosion at the discharge outfall.

Dewatering Under Caltrans Permit (Cont.)

- **Maintain records with SWPPP/WPCP**
  - Monitoring records
  - Inspection records
  - Provide to RWQCB, if required
  - Subject to regulatory review for 3 years

Team Competition #7: Dewatering Under the Caltrans Permit

SEE ANSWER KEY

Team Competition #7: Dewatering Under the Caltrans Permit

SEE ANSWER KEY

Approved Non-Stormwater Discharge Under the Caltrans Permit

Courtesy Notification Form (Applicable for RWQCB's 3, 5, 7, & 9 only)

SEE ANSWER KEY

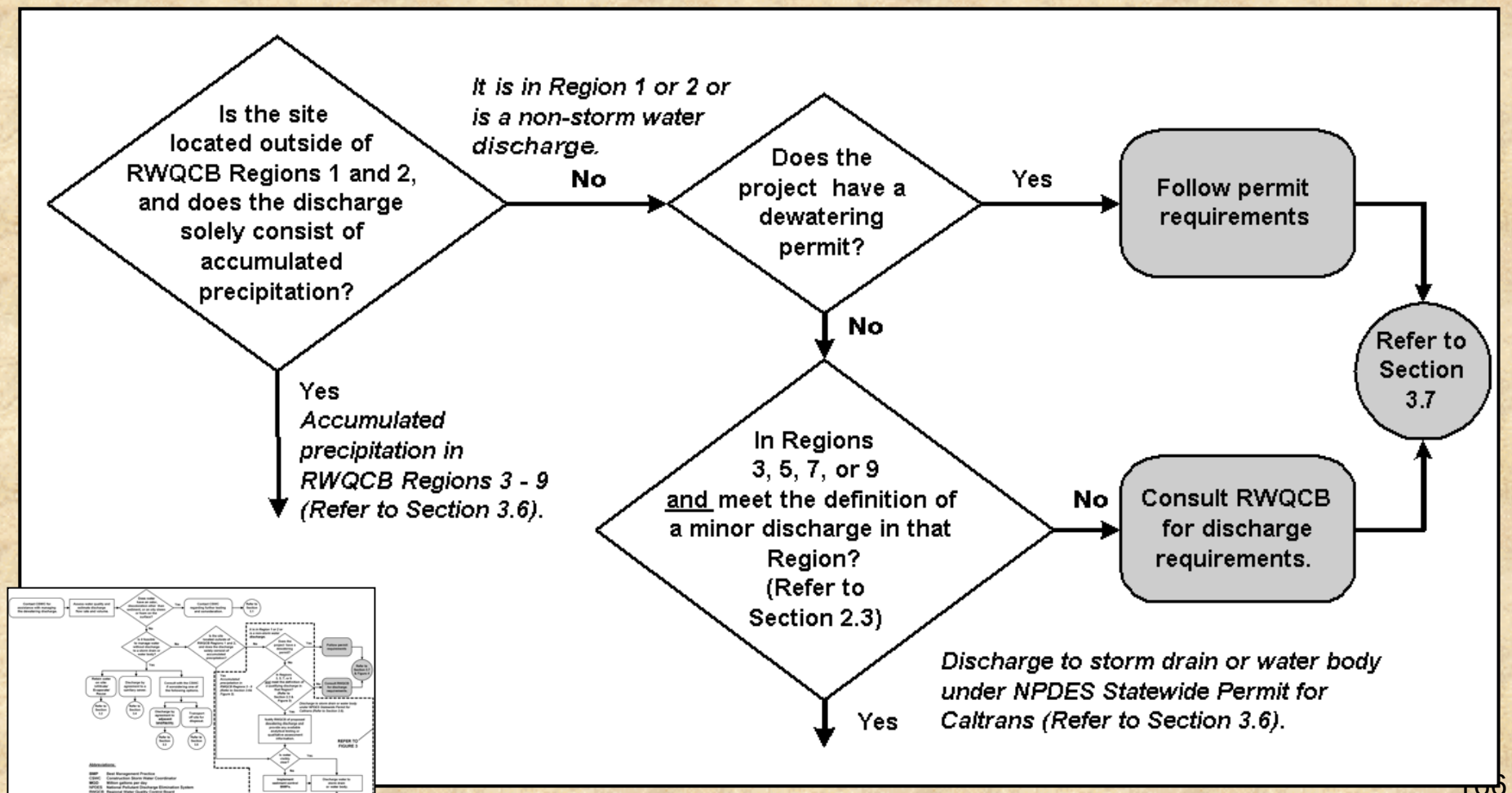
Dewatering Under a RWQCB NPDES Permit

Types of Dewatering Operations

- **There are three types of dewatering operations:**
  - Operations **NOT regulated** under an NPDES Permit
  - Operations **regulated under the Caltrans Statewide** NPDES Permit
  - Operations **regulated under a local RWQCB** NPDES Permit

Dewatering Management Options:

Dewatering Under RWQCB NPDES Permit



Dewatering Under RWQCB NPDES Permit

General Information (FG: Page 18)

- **Required** for dewatering **discharge** to storm drain or water body that is **not allowed by the RWQCB under the Caltrans Permit**.
- **Water Quality Limits**
  - Must meet permit requirements
  - Pollutants other than sediment may be allowed, but treatment will be required

Dewatering Under RWQCB NPDES Permit

General Information (FG: Page 18)

- May be discharged directly from the project site
- Appropriate for small or large volumes of water
- Minimal cost
- RWQCB permit may require several weeks to several months to obtain
- Treatment may be needed to meet water quality requirements
- Analytical testing, monitoring and reporting is required

RWQCB General NPDES Permits

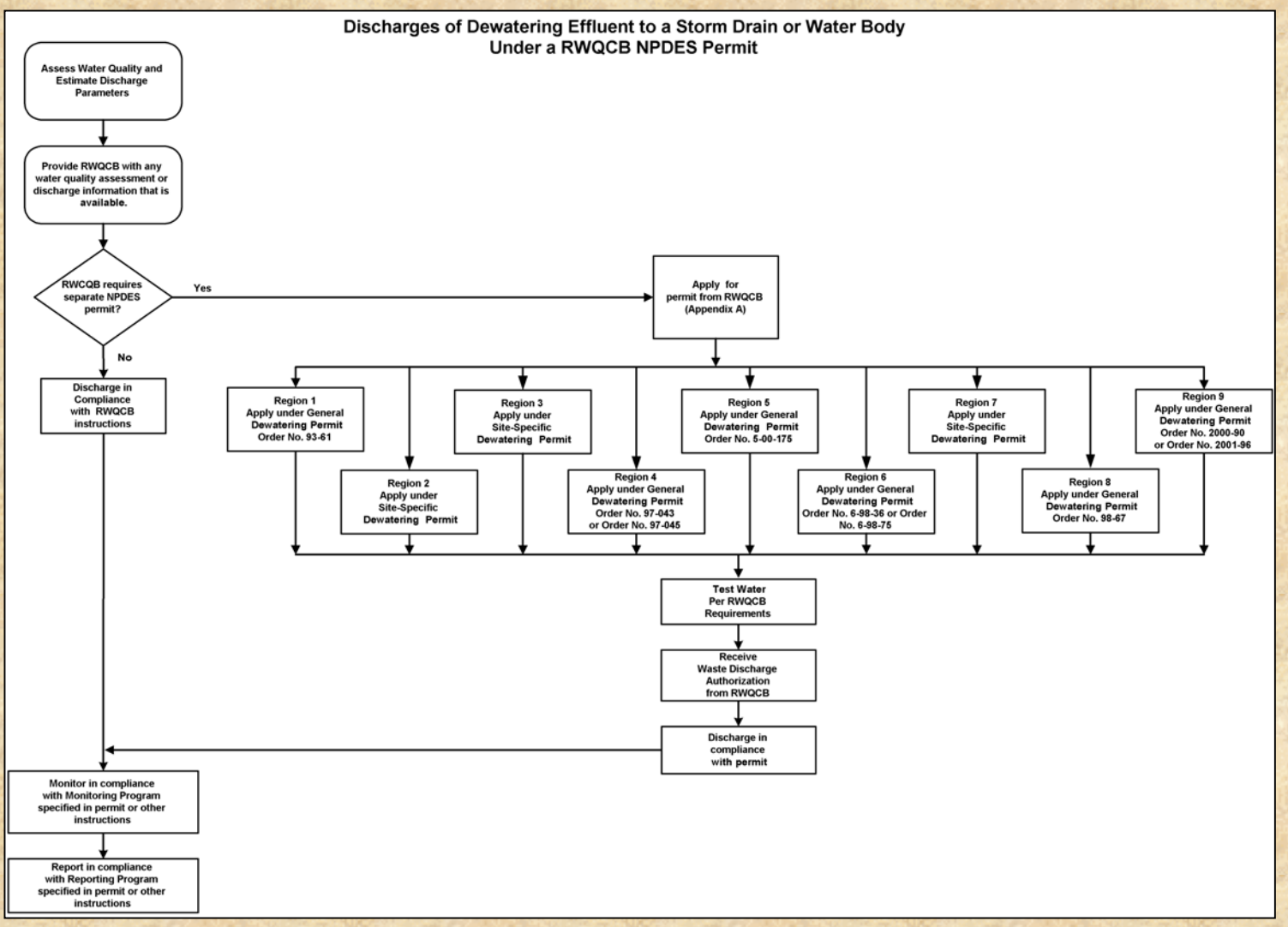
(FG: Page 18 and App. D)

- The RWQCB may have issued a general permit that covers dewatering operations.
- If the general permit does not cover your particular type of operation, a site-specific permit may be required.
- Appendix D of the Field Guide contains copies of RWQCB general permits that apply to dewatering.
- Permit expiration (RWQCB Regions 4, 6, and 8 have new permits)

Caltrans District	RWQCB General Permits
1	Region 1 – General Permit 93-61 Region 5 – General Permit 5-00-175
2	Region 1 – General Permit 93-61 Region 5 – General Permit 5-00-175 Region 6 - General Permit R6T-2003-0034, R6T-2004-025
3	Region 5 – General Permit 5-00-175 Region 6 - General Permit R6T-2003-0034, R6T-2004-025
4	Region 1 – General Permit 93-61 Region 2 – No General Permit Region 3 – No General Permit Region 5 – General Permit 5-00-175
5	Region 2 – No General Permit Region 3 – No General Permit Region 5 – General Permit 5-00-175
6	Region 5 – General Permit 5-00-175 Region 6 - General Permit R6T-2003-0034, R6T-2004-025
7	Region 3 – No General Permit Region 4 – General Permit R4-2003-0111 Region 5 – General Permit 5-00-175 Region 6 - General Permit R6T-2003-0034, R6T-2004-025
8	Region 6 - General Permit R6T-2003-0034, R6T-2004-025 Region 7 - No General Permit Region 8 – R8-2006-0004, R8-2004-0021, R8-2006-0061 Region 9 – General Permit 2000-90, 2001-96
9	Region 6 – General Permit 6-98-36, 6-98-75
10	Region 2 – No General Permit Region 5 – General Permit 5-00-175 Region 6 - General Permit R6T-2003-0034, R6T-2004-025
11	Region 7 - No General Permit Region 9 – General Permit 2000-90, 2001-96
12	Region 8 – R8-2006-0004, R8-2004-0021, R8-2006-0061 Region 9 – General Permit 2000-90, 2001-96

RWQCB General or Site-Specific Permit?

(FG: Page 19)



If You Need a RWQCB Permit and You Don't Already Have One…

You're in trouble!

- Obtaining coverage under a **RWQCB General Permit**
  - Requires 4 – 6 weeks
  - Applies to low discharges
- Obtaining a **Site-Specific RWQCB Permit**
  - May require 6 – 12 months
  - Applies to large flows and pollutants
  - Might be only permit available in some Regions
- Consider viable management options that do not require a RWQCB Permit.

RWQCB NPDES Dewatering Permit

Discharge General Process

1. Contact CSWC and provide known water quality and discharge parameters.

2. Contact RWQCB to discuss waiver or special issues.

3. Conduct water quality tests in accordance with General NPDES Permit and/or RWQCB instructions.

4. Provide tests results and dewatering treatment and monitoring program to the RWQCB.

5. Submit NOI.

RWQCB NPDES Dewatering Permit

Discharge General Process (Cont.)

6. Wait for approval: Issuance of a Waste Discharge Identification (WDID) number and Waste Discharge Authorization (WDA) with Waste Discharge Requirements (WDR)

7. Begin dewatering and implementation of treatment.

8. Monitor operation and assure compliance.

9. Provide reports to RWQCB as detailed in the General Permit or discharge approval letter.

10. Maintain records for 3 years.

Sample Notice of Intent (NOI)

- Application to request permission to discharge under a RWQCB general permit.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

NOTICE OF INTENT

TO COMPLY WITH THE TERMS OF
GENERAL ORDER NO. 5-00-175
FOR
DEWATERING AND OTHER LOW
THREAT DISCHARGES TO SURFACE WATERS

I. CONTRACTOR/OPERATOR -If additional owners/operators are involved, provide the information in a supplementary letter.

Name			
Mailing Address			
City	State	Zip	Phone
Contact Person	Contractor_____ Operator _____ Contractor/Operator_____		

II. PROPERTY OWNER -If additional property owners are involved, provide the information in a supplementary letter.

Name			
Mailing Address			
City	State	Zip	Phone
Contact Person			

III. WATER SUPPLIERS (If applicable)

Name			
Mailing Address			
City	State	Zip	Phone
Contact Person			

IV. BILLING ADDRESS:

Name			
Mailing Address			
City	State	Zip	Phone
Contact Person			

V. DISCHARGE LOCATION: -If more than one discharge is proposed, provide the information in a supplementary letter.

Street (including address, if any) _____

City/County _____

Nearest Cross Street(s) _____

Township/Range/Section T_____, R_____, Section _____, MDB&M

Attach a map of at least 1:24000 (1" = 2000') showing the discharge site. (eg. USGS 7.5' topographic map.) The map should also show the treatment system, discharge point and surface waters. Wells and residences within 1,500 feet shall be identified.

VI. DISCHARGE INFORMATION

Please Identify type of discharge

___ Well development water
___ Construction dewatering
___ Pump/well Testing
___ Water Supply System
___ Pipeline/tank pressure testing
___ Pipeline/tank flushing or dewatering
___ Condensate
___ Other (Please describe)

_____

_____

Start Date _____Stop Date_____(estimate) Discharge Rate _____MGD.

Is discharge continuous or intermittent? _____

VII. LAND DISPOSAL/RECLAMATION

Board policies dictate that wastewater discharges must be contained on land or beneficially re-used if practical. You must evaluate and rule out this alternative prior to any discharge to surface water under this Order.

Is land reclamation feasible? Yes ____ No ____

If no, explain. IF yes, you should contact the Regional Board. This Order does not apply if there is no discharge to surface waters.

Sample Notice of Intent (Cont.)

VIII. TREATMENT SYSTEM

Please Identify

_____ None (describe why a treatment system is not necessary) _____ Pond
_____ Other (please describe) _____

Provide a schematic drawing of the proposed treatment system.

IX. RECEIVING WATER INFORMATION

A. Name of closest receiving water.

_____

B. Receiving water is tributary to (name major downstream water body)

_____

X. PRIMARY POLLUTANTS/PARAMETERS LIKELY TO BE IN THE DISCHARGE

Please Identify

_____ Settleable material _____ Color

_____ Suspended material _____ Turbidity

_____ PH _____ Other (please describe)

_____ Chlorine _____ Construction material pollutants

_____ Total dissolved solids _____ Metals

_____ Trace organic compounds

Have samples been collected? _____ Yes (attach results) _____ No

Are additives in the discharge? _____ Yes (describe and quantify) _____ No

If yes, please specify the additive and/or sample result _____

_____

XI. ABILITY TO COMPLY

Do you believe the discharge may have acute or chronic toxicity, chemical or organic constituents, bacteria, pesticides, oil and grease, radioactivity, salinity or temperature that may adversely impact beneficial uses of the receiving water? _____ Yes _____ No

If your answer is yes you must contact a Professional Engineer. A specific individual permit may be required from the Regional Board rather than this General Order.

XII. PROFESSIONAL ENGINEER

If a Professional Engineer has helped you evaluate the proposed discharge for compliance with this General Order, please identify.

Name			
Mailing Address			
City	State	Zip	Phone
Signature		Certificate No.	Date

XIII. FEES

A check payable to the State Water Resources Control Board in the amount of $400 (or appropriate current fee) must be submitted.

XIV. CERTIFICATION

I hereby certify under penalty of perjury that the information provided in this application and in any attachments is true and accurate to the best of my knowledge. By signing this NOI, I agree to closely monitor and stop the discharge if there is any violation of the General Permit. The Regional Board will be immediately notified of any violation, or threatened violation, of the General Permit.

Signature of Contractor/Operator		Signature of Property Owner	
Print or Type Name		Print or Type Name	
Title	Date	Title	Date

RWQCB Permits – Major Elements

- **Permit Provisions**

- **Waste Discharge Requirements**
  - Discharge Prohibitions
  - Effluent Limitations
  - Receiving Water Limitations

- **Monitoring and Reporting Program**

RWQCB NPDES Permits

Waste Discharge Requirements (Appendix D: RWQCB 5, Page 5)

Discharge Prohibitions:

A. Discharge Prohibitions:

1. Discharge of wastewater other than that described in the Findings is prohibited. The wastewater shall be free of all other pollutants. The wastewater shall not cause or threaten to cause pollution, contamination, or nuisance.

2. Discharge of contaminated ground water is prohibited.

3. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by the attached Standard Provisions and Reporting Requirements A. 13.

- Identify types of effluents or pollutants that are prohibited under the permit.
- May reference a Basin Plan for prohibitions or other discharge limitations.

RWQCB NPDES Permits

Waste Discharge Requirements (Appendix D: RWQCB 5, Page 6)

Effluent Limitations:

Specific Constituents Identified

Limits Identified

B. Effluent Limitations:

1. Effluent shall not exceed the following limits:

Constituents	Units	Monthly Average	Weekly Average	Daily Maximum
BOD'	mg/l	10	15	30
Total Suspended Solids	mg/l	10	15	30
Settleable Solids	ml/l			0.1

' 5-day, 20*C biochemical oxygen demand (BOD)

2. Effluent discharged into a surface water body shall not contain chlorine in excess of 0.02 mg/l (instantaneous maximum). If the wastewater contains chlorine in excess of 0.02 mg/l, the Discharger shall certify that chlorine will be reduced to a maximum of 0.02 mg/l before wastes enter surface water.

3. Effluent discharged into a surface water body shall not have a pH less than 6.5 nor greater than 8.5.

4. The average dry weather (May through October) discharge flow shall not exceed 0.25 MGD unless the discharge is four months or less in duration in which case there is no flow limit.

- Identifies “numeric” and “narrative” requirements for the effluent prior to discharge.

RWQCB NPDES Permits

Waste Discharge Requirements (Appendix D: RWQCB 5, Page 6)

Receiving Water Limitations:

D. Receiving Water Limitations:

Receiving Water Limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit. The discharge shall not cause the following in the receiving water:

1. Concentrations of dissolved oxygen to fall below 7.0 mg/l.
2. Oils, greases, waxes, or other materials to form a visible film or coating on the water surface or on the stream bottom.
3. Oils, greases, waxes, floating material (liquids, solids, foams, and scums) or suspended material to create a nuisance or adversely affect beneficial uses.
4. Aesthetically undesirable discoloration.
5. Fungi, slimes, or other objectionable growths.
6. The turbidity to increase as follows:
   a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.
   b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
   c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.
   d. More than 10 percent where natural turbidity is greater than 100 NTUs.

Specific Constituents Identified

Limits Identified

- Identifies “narrative” and “numeric” limitations on changes to the receiving water.

RWQCB NPDES Permits

Permit Provisions (Appendix D: RWQCB 5, Page 8)

Provisions:

E. Provisions:

1. Dischargers currently covered by Order No. 93-230 are automatically granted coverage under this Order for a period of 90-days following adoption, during which time the Discharger may file a Notice of Intent (NOI) for coverage under this Order. Coverage under this Order is terminated after the 90-day period unless a new NOI has been submitted. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Board or court orders requiring corrective action or imposing civil monetary liability, or in revocation of authorization to discharge under this Order.

2. Individual owners of the real property at which the discharge will occur are ultimately responsible for ensuring compliance with these requirements. Individuals and companies responsible for site operations retain primary responsibility for compliance with these requirements, including day-to-day operations and monitoring. Enforcement actions will be taken against landowners in the event that enforcement actions against site operators are ineffective or would be futile, or that enforcement is necessary to protect public health or the environment.

3. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating and site management personnel shall be familiar with its contents.

- Identify the scope and general requirements of the permit.

RWQCB NPDES Permits

Monitoring and Reporting Program (Appendix D: RWQCB 5, Att. C)

Monitoring Specifications for Effluent:

Units identify the reporting limit required for the constituent.

Sampling Frequency

DISCHARGES FOUR MONTHS OR LESS IN DURATION

The following effluent monitoring program is required if the discharge is four months or less in duration. Effluent samples shall be collected downstream from the last connection through which wastes can be admitted into the outfall. Effluent samples should be representative of the volume and quality of the discharge. Time of collection of samples shall be recorded. Effluent monitoring shall include at least the following:

Constituents	Units	Type of Sample	Sampling Frequency
20°C BOD5	mg/l	Grab	Twice monthly[1]
Suspended Solids	mg/l	Grab	Twice monthly[1]
Settleable Solids	ml/l	Grab	Twice monthly[1]
pH	pH Units	Grab	Twice monthly[1]

A post-discharge report shall be submitted after each discharge. The report shall include:

1. Any variations from the Notice of Intent.
2. Did the discharge result in any discoloration or turbidity in the receiving water? Please explain upstream and downstream conditions identified in the following Receiving Water Monitoring Section.
3. Identify any violations of the General Order. Please explain.
4. Please explain any corrective actions taken to comply with the General Order.
5. Did the discharge cause any complaints?

- Identify what, when and how often water quality testing is to be conducted.

RWQCB NPDES Permits

Monitoring and Reporting Program (Appendix D: RWQCB 5, Att. C)

Monitoring Specifications for Receiving Water:

RECEIVING WATER MONITORING

Receiving water monitoring shall be twice weekly for discharges where the duration is four months or less and monthly if the discharge period is greater than four months and include at least the following:

Station	Description
R-1	50 feet upstream from the point of discharge
R-2	50 feet downstream from the point of discharge

Constituents	Units	Type of Sample
Temperature	°F	Grab
pH	pH Units	Grab
Electrical Conductivity	µmhos/cm	Grab
Dissolved Oxygen	mg/l	Grab

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Stations R-1 and R-2. Attention shall be given to the presence or absence of:

a. Floating or suspended matter
b. Discoloration
c. Bottom deposits
d. Aquatic life
e. Visible films, sheens or coatings
f. Fungi, slimes, or objectionable growths
g. Potential nuisance conditions

Notes on receiving water conditions shall be summarized in the monitoring report.

Sampling Locations

Units

- Identify <u>what</u>, <u>when</u> and <u>how</u> often water quality testing is to be conducted.

RWQCB NPDES Permits

Monitoring and Reporting Program (Appendix D: RWQCB 5, Att. C)

Reporting Specifications:

M. REPORTING FREQUENCY

Monitoring reports shall be submitted to the Regional Board in accordance with the following schedule:

REPORTING FREQUENCY	REPORT PERIOD	REPORT DUE
Monthly	January*, February March, April, May June, July, August September, October November, December	By the 30th day of the following month*.
Quarterly	January - March April - June July - September October - December	April 30 July 30 October 30 January 30
Semiannual	January - June July - December	July 30 January 30
Annual	January - December	January 30

* Note: The monthly report for January is due no later than February 28.

- Identify <u>what</u>, <u>when</u> and <u>how</u> monitoring results are to be submitted to the RWQCB.

RWQCB NPDES Permits

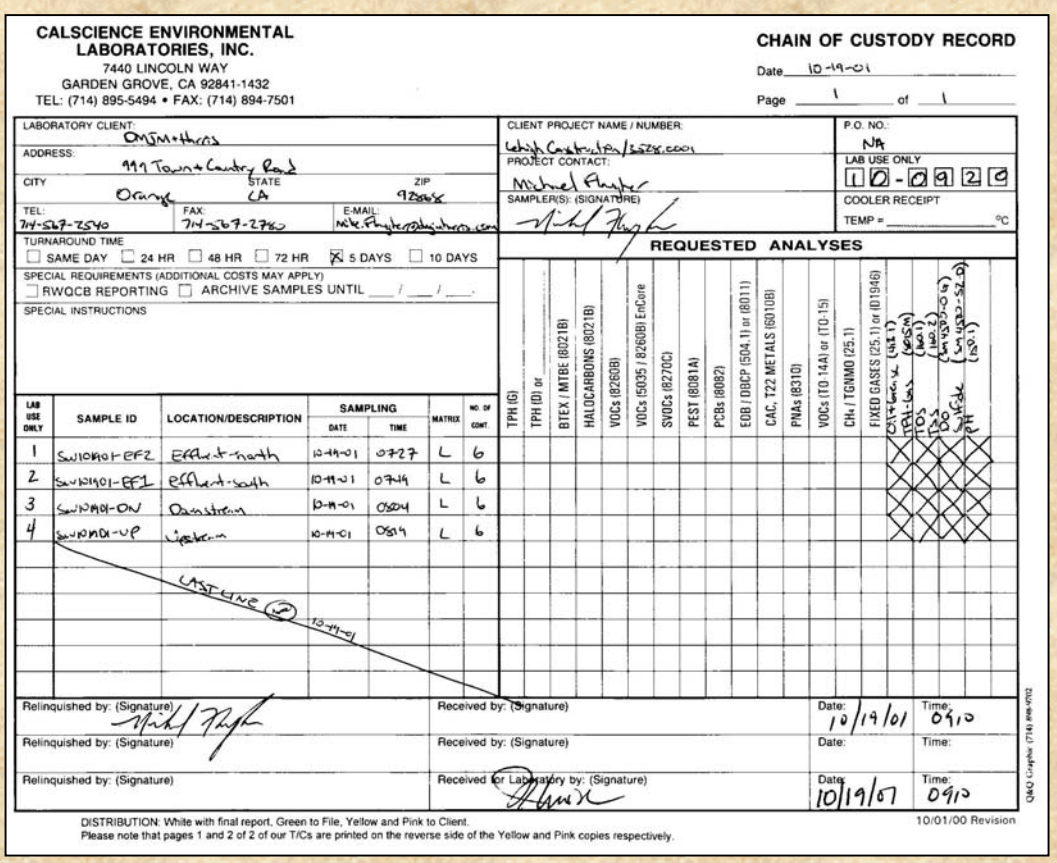
How to Assure Compliance of Monitoring Program

- A written program describing sampling and analysis methods
- Trained personnel collecting samples and interpreting results
- Samples collected at the appropriate intervals/locations
- Documentation of sample collection
- Certified laboratory analyzing samples
- Detection limits (specified in the permit) are below sample results
- Reports submitted timely to the RWQCB
- Corrections to BMPs based on analytical results

RWQCB NPDES Permits

Sample Tracking

- Chain-of-Custody Form is required for valid results
- Documents sample custody from collection to laboratory:
  - Date/time
  - Personnel
  - Turn-around time
  - Signatures



CALSCIENCE ENVIRONMENTAL LABORATORIES, INC.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 • FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

Date 10-19-01
Page 1 of 1

LABORATORY CLIENT: OMJM+Assoc
ADDRESS: 999 Town+Country Road
CITY: Orange STATE: CA ZIP: 92868
TEL: 714-567-2540 FAX: 714-567-2780 E-MAIL: Mike.Flagler@dbiguiness.com

CLIENT PROJECT NAME / NUMBER: Lehigh Construction/5578.0001
PROJECT CONTACT: Michael Flagler
SAMPLER(S): (SIGNATURE) Michael Flagler

P.O. NO.: NA
LAB USE ONLY: 10-0920
COOLER RECEIPT TEMP = ____ °C

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAYS ☐ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY): ☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ___/___/___

SPECIAL INSTRUCTIONS

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	LOCATION/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	TPH (G)	TPH (D) or	BTEX / MTBE (8021B)	HALOCARBONS (8021B)	VOCs (8260B)	VOCs (5035 / 8260B) EnCore	SVOCs (8270C)	PEST (8081A)	PCBs (8082)	EDB / DBCP (504.1) or (8011)	CAC, T22 METALS (6010B)	PNAs (8310)	VOCs (TO 14A) or (TO 15)	CH4 / TGNMO (25.1)	FIXED GASES (25.1) or (D1946)	CO/Turbidity (NTU)	TPH-Gas (8015M)	TOC (Lab 1)	TOC (Lab 2)	DO (Lab 1)	DO (Lab 2)	Sulfide	pH
1	SW10901-EF2	Effluent-north	10-19-01	0727	L	6																							
2	SW10901-EF1	Effluent-south	10-19-01	0749	L	6																							
3	SW10901-DN	Downstream	10-19-01	0804	L	6																							
4	SW10901-UP	Upstream	10-19-01	0819	L	6																							

LAST LINE (UP) 10-19-01

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Michael Flagler		10/19/01	0910
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received for Laboratory by: (Signature)	Date: 10/19/01	Time: 0910

DISTRIBUTION: White with final report, Green to File, Yellow and Pink to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Yellow and Pink copies respectively.

10/01/00 Revision

Q&Q Graphic (714) 898-9702

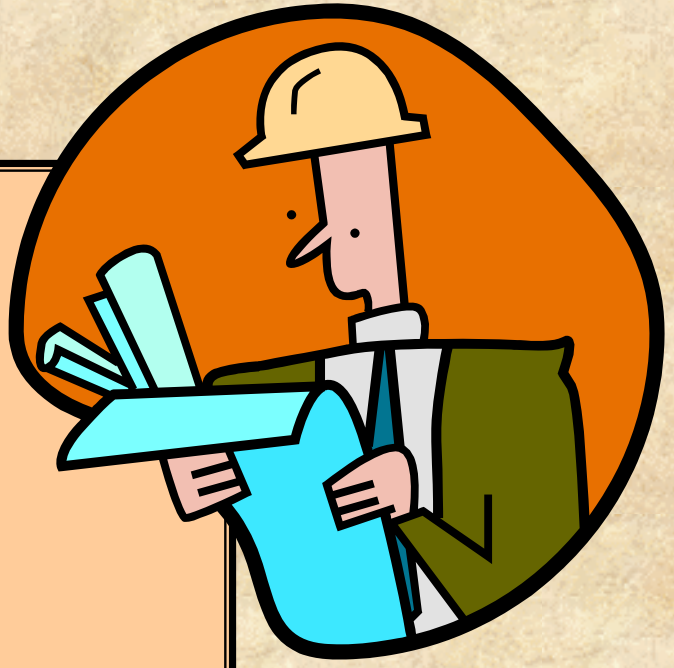
Team Competition #8: Dewatering Under a RWQCB Permit

SEE ANSWER KEY

Team Competition #8: Dewatering Under a RWQCB Permit

SEE ANSWER KEY

Roles and Responsibilities



What are the Contractor's Responsibilities for a Dewatering Operation?

- Conduct the dewatering operation
- Select the means and methods to perform the operation unless otherwise specified in the contract documents
- Comply with the contract documents

What are the Department's Responsibilities for Managing the Dewatering Operation?

- Ensure that the contractor is in compliance with NPDES permit requirements.
- On Caltrans funded sites, the Department is responsible for obtaining the NPDES permits needed.
- Encroachment Permit Projects, the Department is responsible for assuring compliance with Caltrans requirements within Caltrans right of way.

Sources of Information

- Contract Documents
- Contractor's SWPPP
- NPDES Permits
- Geotechnical Reports
- **Field Guide to Construction Site Dewatering**
- **Construction Stormwater Coordinator**
- Construction Site BMPs Reference Manual
- NS-2 Dewatering Operations
- Construction Stormwater Quality Bulletins

Sources of Information (Cont.)

- NPDES Permits for Dewatering
  - Caltrans Statewide
  - RWQCB Local

- Other Federal/State/Local Permits:
  - 401
  - 404
  - 1602
  - U.S. Fish & Wildlife
  - Bureau of Land Management (BLM)

Contract Documents
Standard Specifications: Section 7-1.01

- "Laws to be Observed"

"The Contractor shall keep fully informed of all existing and future State and Federal laws and county and municipal ordinances and regulations which in any manner affect those engaged or employed in the work, or the materials used in the work, or which in any way affect the conduct of the work, and of all orders and decrees of bodies or tribunals having any jurisdiction or authority over the same."

Contract Documents
Standard Specifications: Section 19-3

- "Structure Excavation and Backfill"

19-3.01 Description

"Structure excavation shall consist of excavation for the construction of foundations for structures; excavation of trenches for the construction of culverts, pipes, rods, deadmen, cutoff walls and other facilities; other excavation designated on the plans or in these specifications or in the special provisions as structure excavation; the control and removal of water and the construction or installation of cofferdams and other facilities as necessary to accomplish construction of the work; and the subsequent removal of those facilities, except when the facilities are required or permitted by the plans and specifications to remain in place."

Contract Documents
Standard Specifications: Section 19-3 (Cont.)

- 19-3.04 Water Control and Foundation Treatment

"The methods to be used to control and remove water at excavations…..shall be at the option of the Contractor….."

"When …footing concrete, culverts or other structures are to rest on an excavated surface other than rock, the following shall apply:

… If groundwater is encountered during excavation…dewatering shall be commenced and shall proceed in advance of or concurrently with further excavation."

Contract Documents
Standard Specifications: Section 19-3 (Cont.)

- 19-3.08 Payment

(6th Paragraph)

"Full compensation for controlling and **removing water** from excavations and for furnishing and installing or constructing all cofferdams and all other facilities necessary to the operations (except concrete seal courses when shown on the plans) and their subsequent removal, if required by the Engineer, shall be considered as included in the contract price paid for structure excavation or the contract price paid for the item of work requiring the excavation when the excavation is not paid for separately."

Standard Special Provisions
Section 10 Water Pollution Control (7/02)

- Separate provisions for SWPPP and WPCP projects
- Governs stormwater and non-stormwater discharges
- Identifies the RWQCB with jurisdiction over the project
- Identifies NPDES permits that apply to SWPPP projects:
  - Caltrans Statewide NPDES Permit
  - Statewide General Construction NPDES Permit
  - Region-specific NPDES Permit (e.g., project-specific dewatering requirements)
- Identifies contract remedies for contractor non-compliance
- Refer to contract documents for your project to determine the provisions that apply to your project

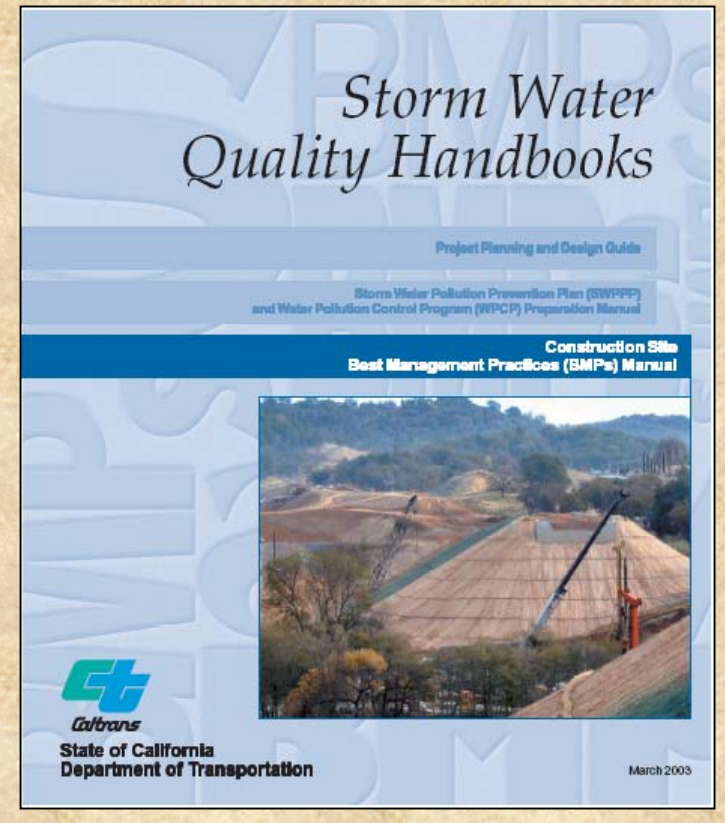
Construction Site BMPs Reference Manual 2003 Revision

- **NS-2**
  Dewatering Operations

  Revised March 2004

- **SC-2**
  Sediment/Desilting Basin

- **SC-3**
  Sediment Trap



NS-2 Dewatering Operations BMP Revisions

- Incorporates essential elements of today's class and the "Field Guide to Construction Site Dewatering"
- Includes the Dewatering Operations Management Flow Chart
- Describes types and application of sediment treatment technologies
  - Category 1: Constructed Settling Technologies
  - Category 2: Mobile Settling Technologies
  - Category 3: Basic Filtration Techniques
  - Category 4: Advanced Filtration Technologies
- Includes stormwater dewatering operations BMP discharge monitoring forms for each RWQCB region

Storm Water Bulletin: Vol. 5, No. 10: Dewatering Under Caltrans Permit

CONSTRUCTION
Storm Water Pollution Prevention Bulletin

The Storm Water Pollution Prevention Bulletin is prepared by the Storm Water Compliance Review Task Force to aid all projects and operations in maintaining compliance with the National Pollutant Discharge Elimination System (NPDES) permit requirements.

Vol. 5, No. 10
October 1, 2001

Construction Dewatering Operations – Dewatering Under the Caltrans Permit

This bulletin concludes the series on managing construction dewatering operations. This bulletin reviews requirements for dewatering discharges under the *National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit and Waste Discharge Requirements for the State of California, Department of Transportation* (Caltrans Permit No. CAS000003).

What Dewatering is Allowed?

Each of the nine Regional Water Quality Control Boards (RWQCBs) regulates dewatering discharges to storm drains or surface waters within its Region. Generally, dewatering discharges under the Caltrans Permit are allowed when *all* of the following conditions are met:

- The water is being discharged to a storm drainage system or a surface water.
- The project is in RWQCB Regions 3 through 9 and the discharge consists solely of accumulated precipitation OR the project is in RWQCB Region 3, 5, 7, or 9 and is a qualifying discharge of non-storm water.
- Sediment control and other appropriate Best Management Practices (BMPs) are employed as the water is discharged.

Dewatering Accumulated Precipitation

Discharging accumulated precipitation to a storm drain or surface water is allowed under the Caltrans Permit in RWQCB Regions 3 through 9. To qualify, the discharge must consist solely of accumulated precipitation and cannot have combined with groundwater or any other type of non-storm water. The water must also be free of pollutants other than sediment.

In Region 1 (North Coast) and Region 2 (San Francisco Bay), concurrence of the RWQCB is required prior to discharge of accumulated precipitation under the Caltrans Permit, or the RWQCB may require a separate discharge permit.

Dewatering of accumulated precipitation may be allowed under the Caltrans Permit.

Non-Storm Water Discharges

Non-storm water discharges include groundwater, water from cofferdams or diversions, storm water combined with non-storm water, and any uncontaminated water used during construction that must be removed from a work area.

Discharges of non-storm water are allowed under the Caltrans Permit only in RWQCB Regions 3, 5, 7, and 9 as follows:

- In Region 3 (Central Coast), Region 5 (Central Valley), and Region 7 (Colorado River Basin), a discharge qualifies if it has a volume of less than 250,000 gallons per day and is of less than four months duration.
- In Region 9 (San Diego), an unpolluted discharge of groundwater with a volume of less than 100,000 gallons per day is allowed to the storm drain or to a surface water *other than San Diego Bay*.

The Discharge Doesn't Qualify

If the dewatering discharge does *not* qualify for discharge under the Caltrans Permit, contact the RWQCB for guidance. The RWQCB may require a separate General or site-specific Permit. Refer to the May 2001 bulletin for more information.

It Qualifies - Now What?

If the discharge qualifies on all counts, the contractor must implement BMP NS-2, Dewatering Operations, to ensure compliance with the Caltrans Permit. Details of the BMP are contained in the *Construction Site BMPs Manual*, which requires the following:

- **Sediment Treatment:** If the water is visibly clear, it can be discharged without treatment. If the water is not visibly clear, sediment control BMPs must be implemented.
- **Monitoring and Maintenance:** The dewatering operation must be monitored and maintained to ensure that sediment controls are functional and that erosion is prevented at the outfall.
- **Record Keeping:** All records related to monitoring and maintenance of the dewatering operation must be kept with the Storm Water Pollution Prevention Plan (SWPPP) or Water Pollution Control Program (WPCP).

Several RWQCBs allow qualifying discharges of groundwater to be regulated under the Caltrans Permit.

Dewatering Field Guide

The Caltrans *Field Guide to Construction Site Dewatering* provides the Resident Engineer with step-by-step instructions for overseeing dewatering operations on the construction site. All aspects of dewatering are addressed, from the selection of an appropriate dewatering management option to ensuring compliance with NPDES permit requirements for operations, maintenance, and reporting.

The Field Guide is currently available at http://www.dot.ca.gov/hq/construc/stormwater.html.

Additional information is available in the Caltrans Storm Water Quality Handbooks. Questions or comments may be directed to:
Chris Herencia • Caltrans HQ Environmental Engineering (916) 657-5381 or
Melinda McCoy • Storm Water Task Force Team (714) 567-2588 • www.SWPPPQuestions.com

Websites

- Caltrans HQ Construction Stormwater Website:

  http://www.dot.ca.gov/hq/construc/stormwater/stormwater1.htm

- Caltrans HQ Environmental Stormwater Website:

  http://www.dot.ca.gov/hq/env/stormwater/index.htm

Who is Liable for Non-compliance?

- The NPDES permittee is liable for noncompliance with permit requirements.
  - Who is the permittee on all Caltrans construction projects?

Caltrans!

  - Who is the permittee on all oversite construction projects?

Local Agency Submitting NOI!

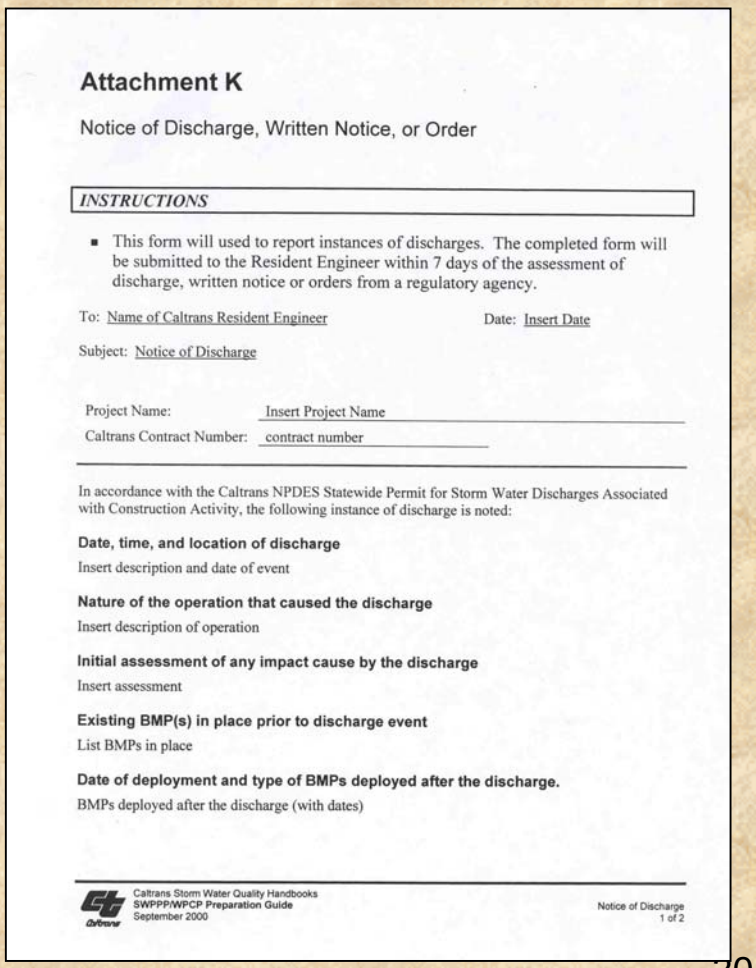
- Project records must be retained for 3 years during which time the records are available for regulatory review.

What is Non-Compliance?

- Discharging untreated “polluted” water off-site without a permit or agreement.
- Violating the terms of a permit or agreement.
- Violating Caltrans water quality management policies, procedures, or BMPs.

What Do You Do if Non-Compliant?

- RE to stop or correct the non-compliant situation.
- Contractor to retrieve "pollution" if possible.
- Caltrans Projects - RE to send Notice of Discharge, SWPPP Attachment K, (if appropriate) to the RWQCB if discharge occurred.
- Oversite Projects – local agency responsible to notify RWQCB of discharge.
- RE to assure future contractor compliance.



Attachment K

Notice of Discharge, Written Notice, or Order

INSTRUCTIONS

- This form will used to report instances of discharges. The completed form will be submitted to the Resident Engineer within 7 days of the assessment of discharge, written notice or orders from a regulatory agency.

To: Name of Caltrans Resident Engineer Date: Insert Date

Subject: Notice of Discharge

Project Name: Insert Project Name

Caltrans Contract Number: contract number

In accordance with the Caltrans NPDES Statewide Permit for Storm Water Discharges Associated with Construction Activity, the following instance of discharge is noted:

Date, time, and location of discharge

Insert description and date of event

Nature of the operation that caused the discharge

Insert description of operation

Initial assessment of any impact cause by the discharge

Insert assessment

Existing BMP(s) in place prior to discharge event

List BMPs in place

Date of deployment and type of BMPs deployed after the discharge.

BMPs deployed after the discharge (with dates)

Caltrans Storm Water Quality Handbooks
SWPPP/WPCP Preparation Guide
September 2000

Notice of Discharge
1 of 2

Caltrans Contract Remedies for Noncompliance

- Discharge any subcontractor or person employed by the contractor who Caltrans deems to be incompetent or who acts in a disorderly or improper manner (Standard Specifications, Section 5-1.12).

- Immediately suspend any work that would exacerbate the noncompliance or interfere with or prevent the contractor's efforts to correct the deficiency (Standard Specifications, Section 8-1.05).

Caltrans Contract Remedies for Noncompliance (Cont.)

- Per Special Provision 10-1, “Water Pollution Control” (07/02):
  - Retain an amount equal to 25 percent of the estimated value of the contract work performed during the first estimate period that the contractor fails to conform to the Water Pollution Control special provision of the contract.
  - Hold the Contractor responsible for penalties assessed or levied on the Contractor or Caltrans as a result of the Contractor's failure to comply with the Water Pollution Control special provision of the contract.

Team Competition #9: Roles and Responsibilities

SEE ANSWER KEY

Team Competition #9: Roles and Responsibilities

SEE ANSWER KEY

Sediment Treatment Options

(Field Guide: Appendix B)

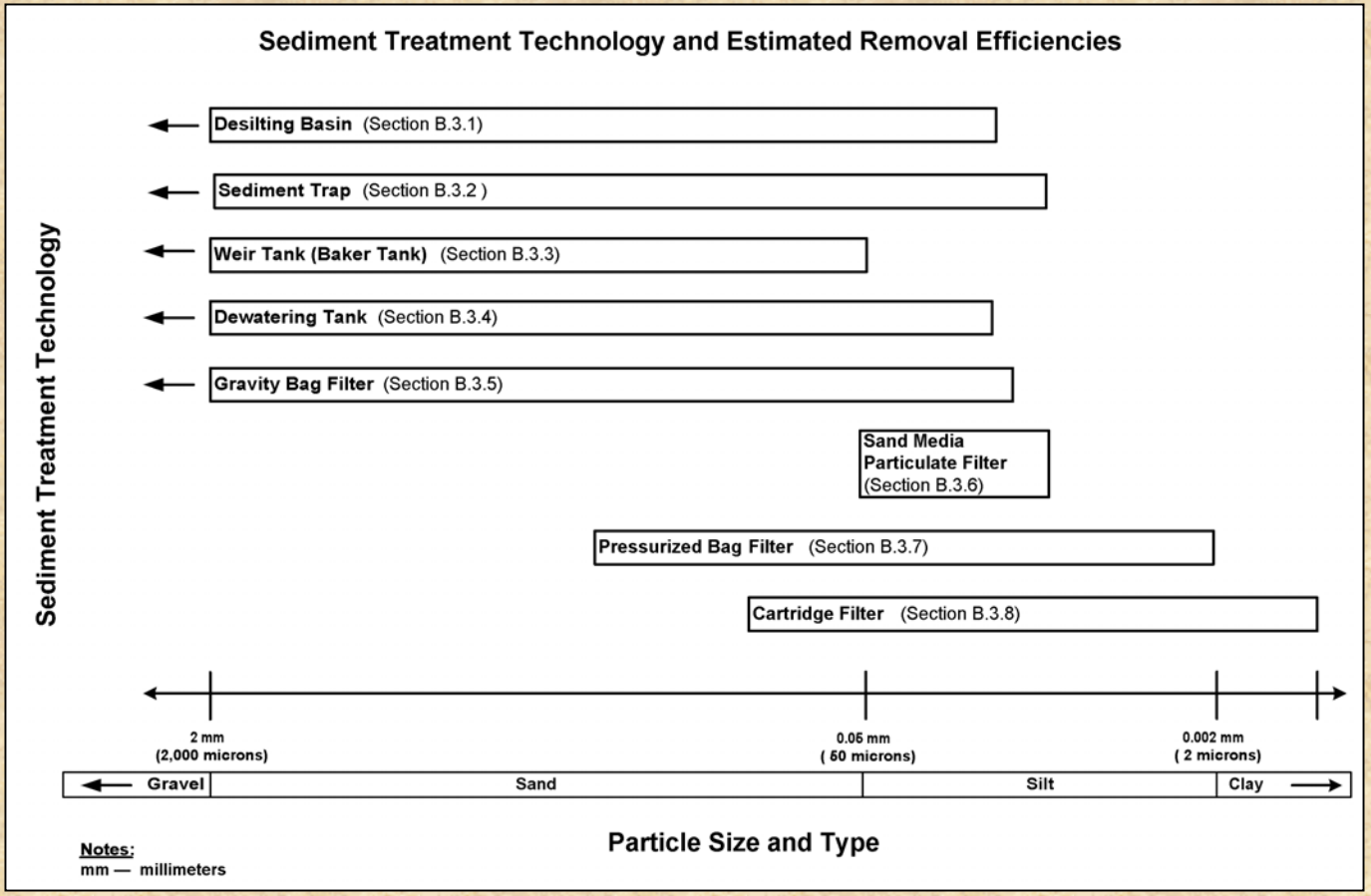
Key Consideration – Site Condition

- Evaluate site to determine:
  - If slope or accessibility limit treatment selection
  - Most effective system layout
  - Access to treatment area
  - Dewatering effluent storage size and location
  - Pumping/piping system needed
  - Backwash system
  - Low-impact discharge system and location
  - Power availability
- Request vendor assistance with design, setup and operation

Key Consideration – Site Condition

- Example of effective dewatering treatment solution within a limited area (roadway median)

Particle Size vs. Sediment Treatment Selection (FG: Page B-3)



*Section numbers refer to Field Guide to Construction Site Dewatering.

Key Consideration – Effluent Flow Rate

- Refer to manufacturer's specifications to identify appropriate options
  - Flow rate capacity vs. sediment removal size
  - Maximum flow rates

- May require multiple parallel systems to treat anticipated flow rate

Desilting/Sediment Basin (SC-2) (Page B-6)

- Temporary basin with a controlled release structure
- Effective for removal of trash, large to some fine-sized particles, and some metals (attached to sediment)
- Holds large volumes of sediment
- Retention allows sediment and and trash to settle out of effluent before discharge
- Dewatering guide provides a guide to sizing basin

Sediment Trap (SC-3) (Page B-8)

- Temporary basin formed by excavation and/or construction of embankment
- Effective for removal of large and medium-sized particles
- Located across a waterway or low drainage area
- Constructed either independently, or in conjunction with a temporary diversion dike
- Dewatering guide provides a guide to sizing trap

Weir Tank (FG: Page B-10)

- Appropriate for preliminary level of treatment
- Weirs to separate water and trash, sediment, oil/grease
- Multiple tanks can be used in parallel
- Flow rate 60 -100 gpm
- Maximize the distance water travels inside tank and minimize water turbulence
- Tanks can hold large volume of solids before cleaning required
- No filter cloth or media required

Dewatering Tank (FG: Page B-12)

- Tank has one large chamber.
- Filter fabric lines bottom of tank.
- Effluent flows into top of tank, passes through a fabric filter, and discharges through the bottom.
- Removes trash, sediment, some oils and metals

Gravity Bag Filter (FG: Page B-13)

- Also known as a “dewatering bag”
- Square or rectangular bag made of non-woven geotextile fabric that collects sand, silt, and fine particles
- Water is pumped in one end and seeps out of sides and bottom
- May require a secondary barrier to capture escaping sediments; e.g. rock filter bed or straw bale barrier
- Effective for removing larger particles.

Sand Media Particulate Filter (FG: Page B-15)

- Appropriate for a secondary or higher level of treatment to remove fine particles
- Requires backwashing-water and power source
- Removes trash, sediment, metals
- Reduces biological oxygen demand (BOD) and turbidity

Pressurized Bag Filter (FG: Page B-17)

- Uses polyester felt filter bags to remove trash, sediment, metals, BOD, and turbidity.
- Oil absorbent bags are available to remove hydrocarbons.
- Water filters through unit and discharges through a header, allowing for flow in series to an additional treatment unit.
- Units may be combined with cartridge filters to provide enhanced treatment.

Cartridge Filter (FG: Page B-19)

- Provides secondary or higher (polishing) level of treatment after significant amount of sediments and other pollutants have been removed.
- Effective for removing fine sediments.
- Water flows from outside cartridge to inside.
- Large assortment of individual filter cartridges are available.
- Highly portable with very small footprint.

Other Treatment Systems

- Flow rate is key…

Maintenance Considerations for Sediment Treatment Selection

- Maintenance is necessary for effective sediment removal.
- Requirements vary by technology
  - Desilting/Sediment Basin (SC-2) and Sediment Trap (SC-3) – Maintain per BMP; remove sediment when 1/3 full.
  - Weir (Baker) Tank and Dewatering Tank – Remove sediment when indicated by visual inspection or when flow is reduced.

Maintenance Considerations for Sediment Treatment Selection (Cont.)

- Requirements vary by technology (cont.):
  - Gravity Bag Filter – Replace bag when flow is reduced or is no longer removing sediment.
  - Sand Media Particulate Filter – Monthly service to check level and add sand media.
  - Pressurized Bag Filter and Cartridge Filter– Replace filter bag when pressure differential exceeds manufacturer's specs.

Cost vs. Sediment Treatment Selection

- Typical costs to set up and maintain systems may include:
  - Equipment rental fees (one or more systems)
  - Transportation costs
  - Installation/construction costs
  - Operation costs
  - Maintenance costs
  - Waste disposal costs
  - Ancillary costs (power, water, etc.)

Putting it all Together

- Section B.3 of the Field Guide provides additional information about these sediment treatment technologies.

- Table B-1 summarizes and compares information for various technologies.

Table B-1: Comparison of Treatment Options

(FG: Page B-5)

Sediment Treatment Technology	Pollutant Removal	Flow Range (gpm)	Footprint Area (ft2)	Product Availability	Construction/ Rental Cost	Maintenance Cost
Desilting Basin	Trash & sediment	25-500	Varies by design	Time to construct	$108 per m2 ($10/ft2)	---
Sediment Trap	Trash & sediment	25-500	Varies by design	Time to construct	$108 per m2 ($10/ft2)	---
Weir Tank (Baker Tank)	Trash, sediment, metals & some oil/grease	60-100	1,800	2-3 days; 1 week modified	$35-$45 per day	$1,000 per disposal
Dewatering Tank	Trash, sediment, some oils and metals	Varies	1,200-1,500	1-3 days	$45-$60 per day	$125-$425 fabric replacement
Gravity Bag Filter	Sediment and metals	300 & 800	100-400	1 day	$100-$200 per bag; $500-$2,000 per barrier	Bag replacement
Sand Media Filter	Trash, sediment, metals, BOD, and Turbidity	80-1,000 (varies by model)	17-450	1-2 days	1,100-$4,000 per month; $500-$1,500 setup	$50-$100 per month
Pressurized Bag Filter	Trash, sediment, metals, BOD, turbidity, and Hydrocarbons	50-100 (varies by model)	200-320	1-2 days	$850-$3,400 per month; $150-$500 setup	$300-$1,250 per month
Cartridge Filter	Trash, sediments, metals, BOD, turbidity & Hydrocarbon	50–1,000	200	1-2 days	$800-$3,000 per month; $1,500 setup	$1,000-$5,000 per month

Note:
This information is based on general manufacturers.

Sediment Treatment Equipment Vendors

Vendor/Supplier	Products Available
Rain for Rent 1-661-387-6111 Mike Chase www.rainforrent.com	Weir tank Dewatering tank Pressurized bag filter Sand media filter Cartridge filter
Clear Creek Systems, Inc. 1-661-324-9634 Joe Gannon www.clearcreeksystems.com	Dewatering tank (“mud buggy”) Pressurized bag filter Sand media filter Cartridge filter
Baker Tanks 1-800-BAKER 12 www.bakertanks.com	Weir tank Dewatering tank
Dandy Products 1-800-591-2284 www.acfenvironmental.com	Gravity (dewatering) bag filter

Team Competition #10: Sediment Treatment Options

SEE ANSWER KEY

Team Competition #10: Sediment Treatment Options

SEE ANSWER KEY

Summary

Using the Field Guide to Construction Site Dewatering

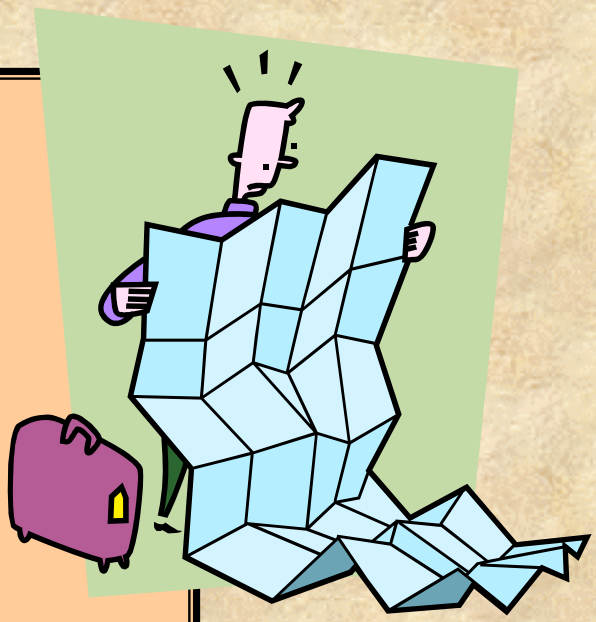
- Flow Charts identify appropriate management options.
- Appendix A contains RWQCB maps and contact information.
- Appendix B presents sediment treatment information.
- Appendix C contains water quality assessment forms.
- Appendix D contains copies of the RWQCB Permits that regulate dewatering.

Parting Thoughts…How to Manage Construction Site Dewatering Operations

- Plan Ahead
  - Will your project require dewatering after rainstorms?
  - Will you have excavations that may require groundwater dewatering?
- If so, contact your CSWC at the beginning of the job or **NOW** and identify the requirements and develop a plan of action.

Wrap-Up – What You Learned

- Learning Outcomes - You should now be able to:
  - Determine if a dewatering operation is required
  - Determine if additional permits are required
  - Determine the Contractor's roles and responsibilities
  - Determine the Department's roles and responsibilities
  - Determine if the Contractor is in compliance with applicable permits
  - Estimate quantities of dewatering discharges
  - Determine the appropriateness of various dewatering technologies

<u>QUESTIONS?</u>

Contact your CSWC