

Drinking Water System Discharges To Surface Waters: A Utility Perspective

San Diego Area Implementation Workshop on
the Statewide NPDES Permit for Discharges
from Drinking Water Systems

June 8, 2015 – San Diego , CA

Jim Fisher
Operations & Maintenance Manager
San Diego County Water Authority



Agenda

- ▶ Water Authority Overview
- ▶ Current Permits
- ▶ Types of Discharges
- ▶ SWRCB Application
- ▶ Implementation
- ▶ Additional Information

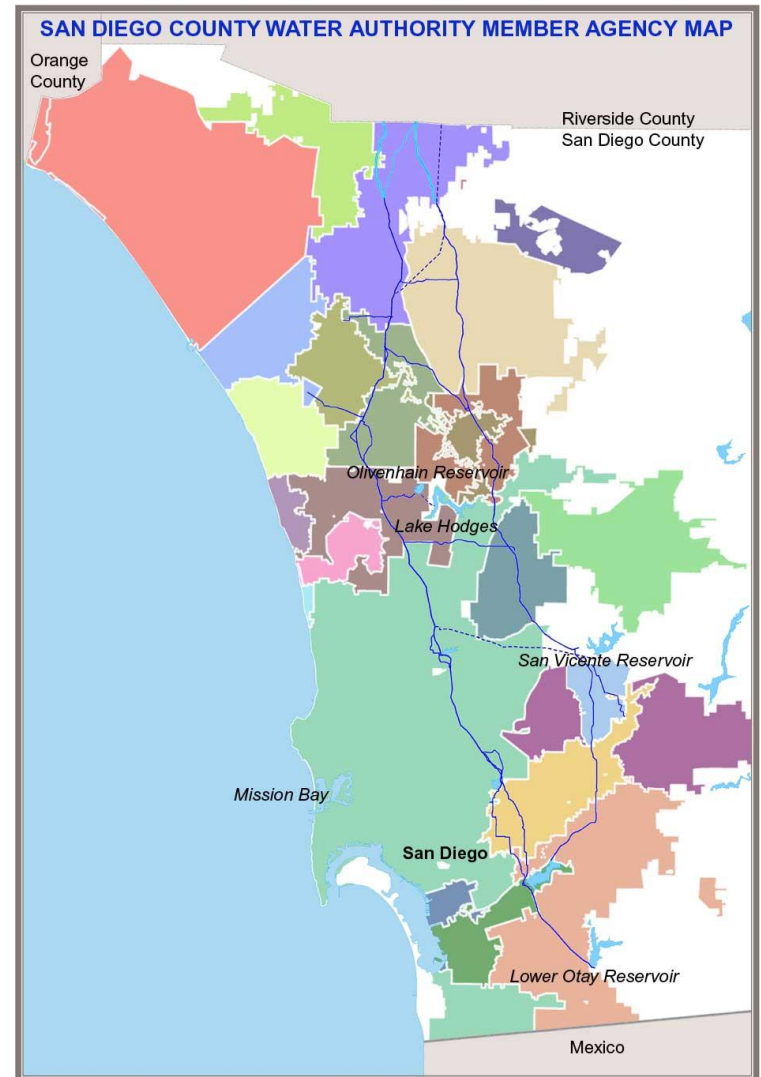


Water Authority Overview



San Diego County Water Authority

- ▶ Wholesale water agency created by State Legislature in 1944
 - 24 member agencies
 - 36-member board of directors
 - Serves 3.1 million people and region's \$206 billion economy
- ▶ Service area
 - 950,000 acres
 - 97% of county's population
- ▶ Imports ~80% of water used in San Diego County
- ▶ Largest member agency of Metropolitan Water District of Southern California



Water Authority Aqueduct System

- Pipelines
 - 300 miles
 - 44 to 108 inches
- Facilities
 - 96 service connections
 - 1,400 pipeline structures
- Reservoir: Olivenhain Reservoir
- Treatment Plant
 - Twin Oaks – 100 million gallons per day
- Hydroelectric Generation
 - Rancho Penasquitos – 4 megawatts
 - Lake Hodges – 40 megawatts



Pipelines 3 and 4 Interconnect



Twin Oaks Valley Water Treatment Plant



Current Permits



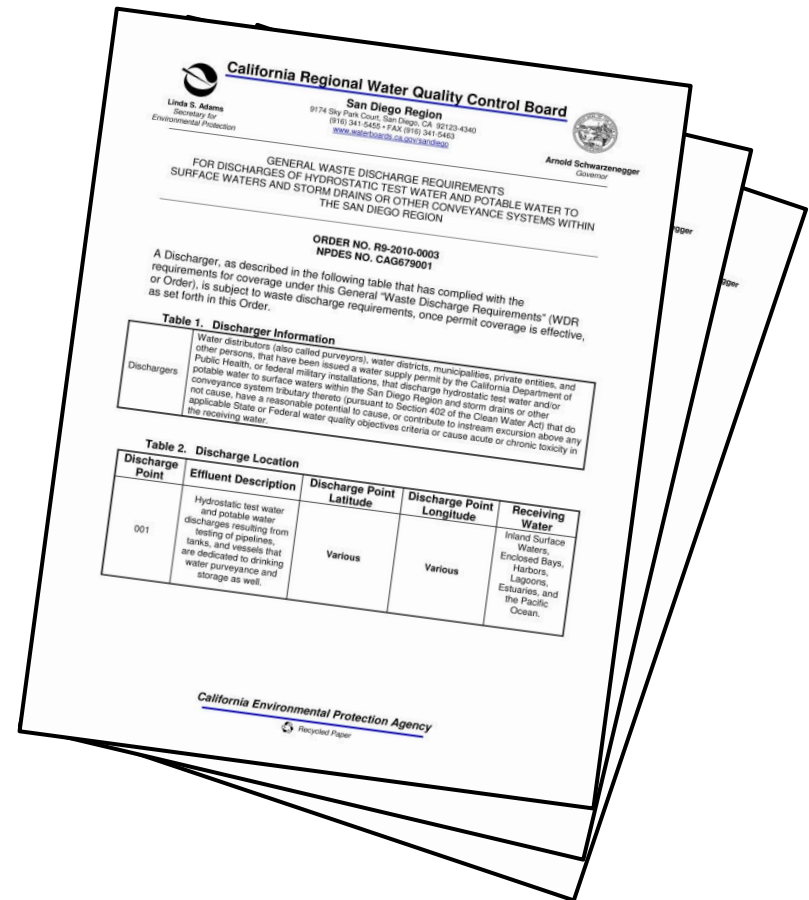
Current Permits

Hydrostatic Permit

- Order No. R9-2010-0003
- NPDES No. CAG679001
- Expires October 2015

MS4 Permit

- Order No. R9-2013-0001
- NPDES No. CAS0109266
- Expires June 2018



Types of Discharges



Overview of Planned Discharges

- ▶ Transmission and Distribution System Discharges
- ▶ Potable Water Treatment Plants
- ▶ Groundwater



Planned Discharges

- ▶ Transmission and Distribution Systems
 - Maintenance and repair, inspection, improvements
 - Trench dewatering
 - System flushing
 - Fire flow/Hydrant testing
 - Meter testing
 - Automated water quality analyzer operation
 - Pressure relief valves
- ▶ Potable Water Treatment Plants
 - Excludes filter backwash



Planned Discharges (cont.)

- ▶ Groundwater
 - Groundwater supply well flushing or pump-to-waste
 - Groundwater well development, rehabilitation and testing
 - Groundwater monitoring for purposes of supply well development, rehabilitation and testing



Emergency/Unplanned Discharges

- ▶ Pipeline leaks and breaks
- ▶ Hydrant leaks and knockovers
- ▶ Contamination/water quality events
- ▶ Reservoir overflows



SWRCB Application



SWRCB Application

- ▶ Must be submitted by September 1, 2015
- ▶ SWRCB Application and Notice of Non-Applicability Review Checklist

http://www.swrcb.ca.gov/water_issues/programs/npdes/docs/drinkingwater/chklist_dwsnpdes_permit.pdf

- ▶ Signed by executive officer or elected official

**Application and Notice of Non-Applicability
Review Checklist**
Statewide NPDES Permit Coverage for Drinking Water System Discharges
(State Water Board Order 2014-0194-DWQ)
http://www.waterboards.ca.gov/water_issues/programs/npdes/docs/drinkingwater/final_statewide_wqo2014_0194_dwq.pdf

No.	Determining if submittal of a permit application or Notice of Non-Applicability (NONA) is required	Yes	No
1	Is the water purveyor a drinking water wholesaler?	If Yes go to item 4	If No, continue.
2	Is the drinking water system a community water system? (A community water system does not include non-community water systems, transient community water systems, or non-transient community water systems)	If Yes continue.	If No, stop here. Submittal of an application or NONA is not required.
3	Does the community water system have 1000 connections or more?	If Yes, continue	If No, water purveyor has option to continue to item 4 or stop here (See Note*).
<p><i>*Note: The statewide permit does not require discharges from community water systems with less than 1000 connections to submit a permit application (apply for NPDES permit coverage) or a NONA. However, water purveyors with discharges from their community water systems with less than 1000 connections are obligated to obtain NPDES regulatory coverage under the Clean Water Act if the discharges enter waters of the U.S. The State Water Board provides these water purveyors the option to obtain NPDES regulatory coverage under this statewide permit. NPDES regulatory coverage for these small community water systems is not to be provided by a Regional Water Board with exception of discharges that pose a threat to water quality outside the scope of the statewide permit. If NPDES coverage is desired, continue to the application submittal checklist below.</i></p>			
4	Will a discharge from the drinking water system facilities enter a water of the U.S., either directly or via a storm water system or other conveyance system?	If Yes, go to application submittal checklist below	If No, continue
5	Do discharges from the drinking water system solely enter a water of the U.S. via a municipal separate storm sewer system (MS4) and there is a local agreement established with the MS4 Permittee?	If Yes, continue to the NONA submittal checklist below	If No, continue
6	Is the drinking water system owned or operated by the MS4 Permittee and do all discharges enter a water of the U.S. via the permitted MS4 system?	If Yes, continue to the NONA submittal checklist	If No, continue
7	Is the drinking water system regulated under an existing individual Regional Water Board Permit due to threat to water quality above the low-threat scope of the statewide permit, or due to the need to address TMDL-specific requirements?	If Yes, continue to the NONA submittal checklist below	If No, continue



Section 3 – Water Suppliers

- ▶ Water Authority Member Agencies should use:

San Diego County Water Authority

4677 Overland Avenue

San Diego, CA 92123

(858) 522-6600

Contact Person: Jim Fisher, Operations &
Maintenance Manager



Section 7 – Receiving Water Information

▶ Receiving waters as listed in the Basin Plan

http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/docs/update082812/Chpt_2_2012.pdf

- Table 2-2 – Inland Surface Waters
- Table 2-3 – Coastal Waters
- Table 2-4 – Reservoirs and Lakes

Table 2-2. BENEFICIAL USES OF INLAND SURFACE WATERS

Inland Surface Waters ^{1, 2}	Hydrologic Unit Basin Number	BENEFICIAL USE												
		MUN	AGR	IND	PRO	FRSH	POW	REC	BIO	WAL	COL	WIL	RARE	SPWN
San Luis Rey River Watershed – continued														
San Luis Rey River	3.12	+	•	•				•	•	•	•	•	•	•
Live Oak Creek	3.12	+	•	•				•	•	•	•	•	•	•
Keys Creek	3.12	+	•	•				•	•	•	•	•	•	•
Moosa Canyon	3.15	+	•	•				•	•	•	•	•	•	•
unnamed intermittent streams	3.16	+	•	•				•	•	•	•	•	•	•
Moosa Canyon	3.14	+	•	•				•	•	•	•	•	•	•
Moosa Canyon	3.13	+	•	•				•	•	•	•	•	•	•
Turner Lake	3.13													
See Reservoirs & Lakes – Table 2-4														
South Fork Moosa Canyon	3.13	+	•	•				•	•	•	•	•	•	•
Moosa Canyon	3.12	+	•	•				•	•	•	•	•	•	•
Gopher Canyon	3.12	+	•	•				•	•	•	•	•	•	•
South Fork Gopher Canyon	3.12	+	•	•				•	•	•	•	•	•	•
San Luis Rey River	3.11	+	•	•				•	•	•	•	•	•	•
Pilgrim Creek	3.11	+	•	•				•	•	•	•	•	•	•
Windmill Canyon	3.11	+	•	•				•	•	•	•	•	•	•
Tuley Canyon	3.11	+	•	•				•	•	•	•	•	•	•
Laverence Canyon	3.11	+	•	•				•	•	•	•	•	•	•
Mouth of San Luis Rey River	3.11													
See Coastal Waters – Table 2-3														

• Existing Beneficial Use
+ Exempted from MUN (See Text)

¹ Waterbodies are listed multiple times if they cross hydrologic zone or sub-area boundaries.
² Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

Table 2-2
BENEFICIAL USES

2-30



Section 7 – Receiving Water Information (cont.)

▶ 303(d) List Water Bodies

http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml

- Excel File
- Interactive Map

2010 Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report) — Statewide

2010 Integrated Report | Map | 303(d) List | Admin. Record | Data Download | Past Reports | Contact Us

2010 Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report)

- On **October 11, 2011**, USEPA issued its final decision regarding the water bodies and pollutants USEPA added to California's 2010 303(d) List. This decision included all of the water bodies and associated pollutants identified in the November 12, 2010 letter with the exception of San Joaquin River (Mendota Pool to Bear Creek) for electrical conductivity.
- On **November 12, 2010**, USEPA approved the inclusion of all waters to California's 2010 303(d) list of impaired waters requiring TMDLs and disapproved the omission of several water bodies and associated pollutants that meet federal listing requirements. USEPA provided public notice and the opportunity for public comment on the proposed additions which ended December 23, 2010.

External Links to USEPA's website:

- [Supporting documentation](#) for USEPA's decision on California's 2010 303(d) List.
- [List and maps of USEPA added waters to California's 2010 303\(d\) List](#) on USEPA Region 9 Media Center website for California Impaired Waters.

Integrated Report Categories

The 2010 Integrated Report places each assessed water segment into one of the five non-overlapping USEPA categories based on the overall beneficial use support of the water segment. In California, the 303(d) list is made up of three of the Integrated Report categories, 5, 4A, and 4B. These categories contain water segments that are not meeting water quality standards or not expected to meet water quality standards.

- [Category 5](#) - 303(d) list requiring the development of a TMDL
- [Category 4A](#) - 303(d) list being addressed by USEPA approved TMDL
- [Category 4B](#) - 303(d) list being addressed by an action other than a TMDL
- [Category 3](#)
- [Category 2](#)
- [Category 1](#)

California 2010 303(d) combined list table (combines category 4a, 4b, and 5):

- [303\(d\) list - Excel file \(without potential sources\)](#)
- [303\(d\) list - Excel file \(includes potential sources\)](#)

Supporting information:

- [Decision Fact Sheets and Associated Lines of Evidence](#)
- [Miscellaneous Changes](#)



Section 7 – Receiving Water Information (cont.)

▶ San Diego Region TMDL's – Adopted

http://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdls/index.shtml

- Chollas Creek – Diazinon
- Rainbow Creek – Nitrogen and Phosphorus
- Shelter Island Yacht Basin – Dissolved Copper
- Chollas Creek – Copper, Lead and Zinc
- 20 Beaches and Creeks – Indicator Bacteria

http://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdls/docs/bacteria/updates_022410/2010-0210_Final_TechRpt_AppendixD.pdf

- Los Peñasquitos Lagoon – Sediment
- Loma Alta Slough – Phosphorus



Section 7 – Receiving Water Information (cont.)

- ▶ San Diego Region TMDL's – In Progress
 - San Diego Bay – Marine Sediment
 - Impaired Lagoons, Adjacent Beaches, and Agua Hedionda Creek – Nutrients, Sediment, TDS and Bacteria
 - Tijuana River and Estuary – Sediment and Trash



Section 8 – Best Management Practices

- ▶ Date that implementation of BMPs commenced:

For agencies that have been operating under the initial San Diego Regional Board Hydrostatic Water Permit

August 2002



Site Information (Service Area Map)

- ▶ USGS –National Hydrography Data

<http://nhd.usgs.gov/>

- ▶ 303(d) List Water Bodies

http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml

- GIS Shapefiles



Implementation

- ▶ Best Management Practices
- ▶ Emergency/Unplanned Discharges
- ▶ Multiple/Beneficial Reuse
- ▶ Effluent Limits
- ▶ Receiving Water Limitations
- ▶ Notifications
- ▶ Monitoring
- ▶ Records
- ▶ Reporting



Implementation – Best Management Practices



What are Best Management Practices?

- ▶ A Best Management Practice (BMP) is a control, such as a practice or procedure, when implemented reduces or eliminates a pollutant to the Maximum Extent Practicable (MEP)



Permit BMP Requirements

- ▶ Requires BMP use for all discharges
- ▶ Emphasis on BMP's to:
 - Control toxicity
 - Prevent erosion and hydromodification
 - Minimize sediment discharge, turbidity and color impacts
- ▶ Requires personnel training on BMP use and monitoring
- ▶ Validation of BMP effectiveness
- ▶ Types of BMP's are left to discretion of permittee



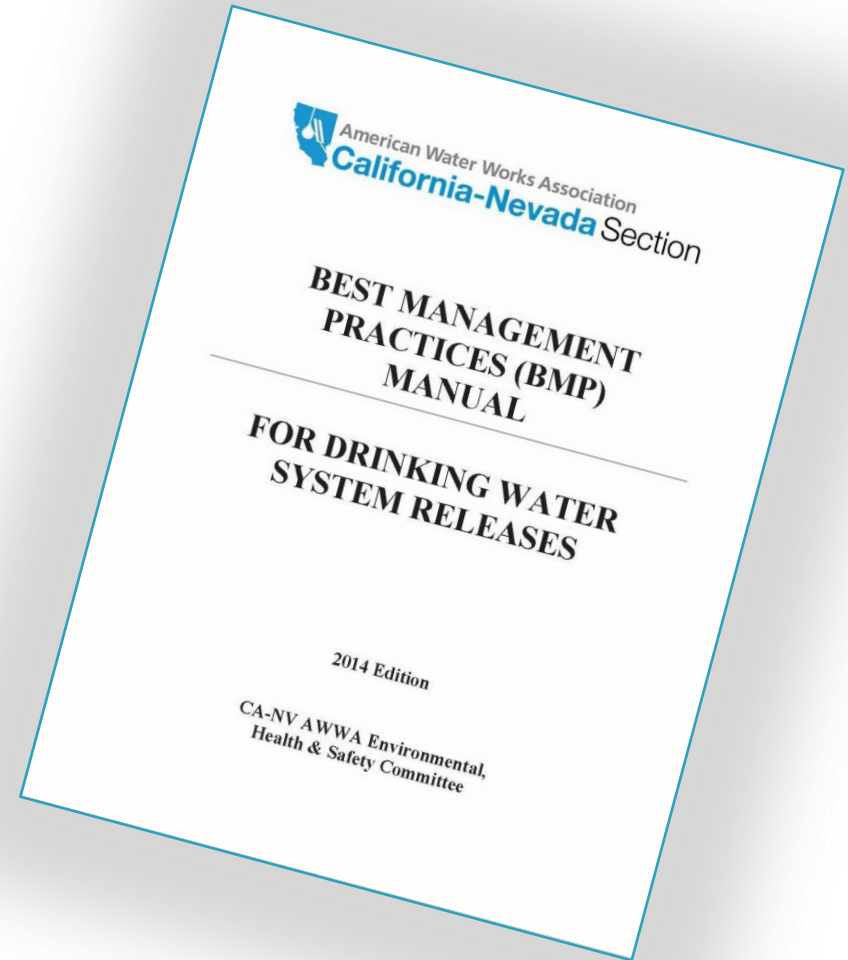
BMP References

- ▶ CA/NV–AWWA Best Management Practices Manual

[https://ca-nv-awwa.org/CANV/downloads/Armando/2014BMPManual\(Final\).pdf](https://ca-nv-awwa.org/CANV/downloads/Armando/2014BMPManual(Final).pdf)

- ▶ Attachment C – Example Best Management Practices

http://www.swrcb.ca.gov/water_issues/programs/npdes/docs/drinkingwater/final_statewide_wqo2014_0194_dwq.pdf



Structural BMPs – Dechlorination

- ▶ Dechlor tablets, dechlor mats
- ▶ Drip tank
- ▶ Dechlorinating diffuser
- ▶ In-line chemical addition
- ▶ Limitations
 - Over-application can deplete DO and reduce pH
 - Requires adequate mixing
 - Less effective for high volumes



Structural BMPs – Erosion & Sediment Control

- ▶ Straw wattles
- ▶ Filter bags
- ▶ Gravel bags diffuser
- ▶ Rip rap
- ▶ Portable storage tanks
- ▶ Geo-textile materials
- ▶ Naturally vegetated areas
- ▶ Limitations
 - May not remove all sediments, particularly fine particles
 - Success depends on site-specific factors, appropriate placement, number of drain inlets, flow rate, volume of flow



Structural BMPs – Onsite Treatment

- ▶ Portable tanks
- ▶ Filtration systems
- ▶ Limitations
 - On-site storage capacity
 - Complexity of treatment process
 - Availability of equipment
 - Cost of treatment
 - Residuals management
 - Permitting process



Structural BMPs – Groundwater

- ▶ Baker tanks
- ▶ Filtration systems
- ▶ Sanitary sewer
- ▶ Land application
- ▶ Discharge to areas of reuse or groundwater recharge



Administrative BMPs

- ▶ Conservation and reuse of water
- ▶ Scheduling, planning and operating procedures
- ▶ Material storage and waste management
- ▶ Documentation
- ▶ Procedures for unplanned releases
- ▶ Training

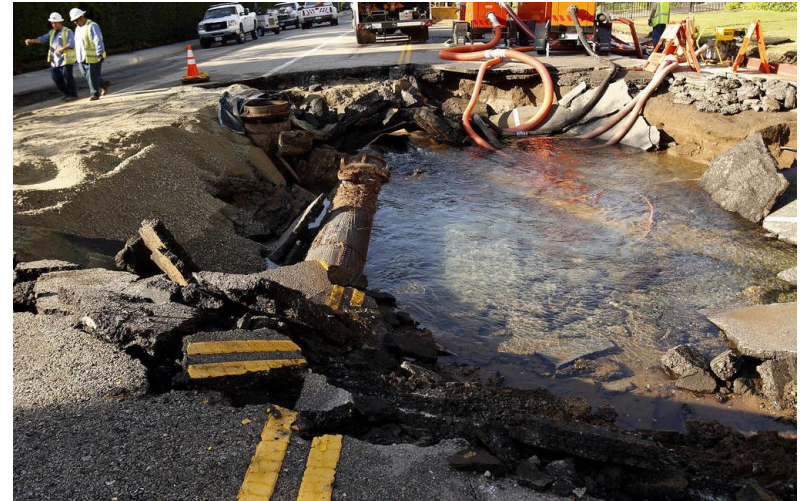


Implementation - Emergency/Unplanned Discharges



Emergency/Unplanned Discharges

- ▶ Assess
- ▶ Implement BMPs
- ▶ Repair & Recovery
- ▶ Housekeeping
- ▶ Update SOPs and Training as needed

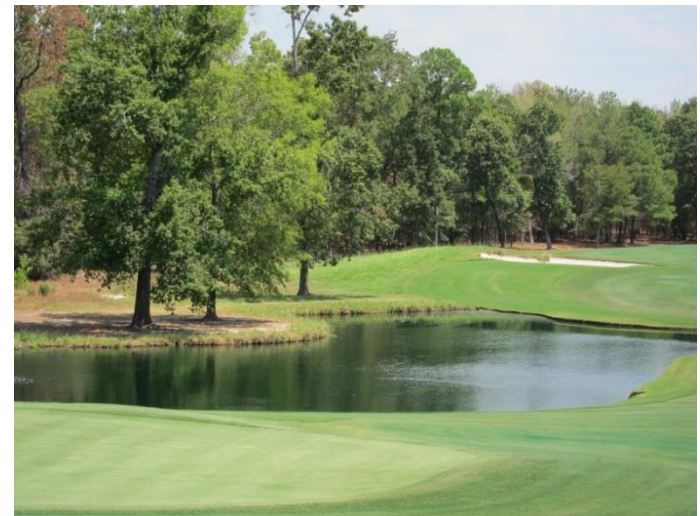


Implementation – Multiple/Beneficial Use Option



Multiple/Beneficial Use Option

- ▶ Review land use data near discharge locations
- ▶ Outreach to nearby farms, golf courses, parks and construction sites
- ▶ Pump/transfer into adjacent pipelines
- ▶ Discharge in storage reservoir/pond
- ▶ Limitations
 - Large volume/short duration



Implementation – Effluent Limits



Effluent Limits

- ▶ Limits apply to discharges directly to or within 300 feet of a receiving water
 - Chlorine*
 - Non-compliance – field measurement greater than or equal to 0.1 mg/l
 - Turbidity
 - Discharges within 300 feet of ocean waters – 225 NTU
 - Well discharge action level – 100 NTU [§ IV.A.2(2)]



* Applies to all superchlorinated discharges



Implementation – Receiving Water Limitations



Receiving Water Limitations

- ▶ pH
- ▶ Chemical Constituents
- ▶ Floating Material and Trash
- ▶ Sediment and Total Suspended Solids
- ▶ Toxicity
- ▶ Hydromodification
- ▶ Turbidity



Receiving Water Limitations (cont.)

▶ Turbidity

- Cannot cause exceedance of water quality objective of receiving water
 - Inland surface water – 20 NTU
 - Lagoons & estuaries – See page 3–32 of Basin Plan
- Discharges within 300 feet of ocean waters – 225 NTU



Receiving Water Limitations (cont.)

▶ pH

- Inland surface water
 - ± 0.5 ambient level
 - Maintained between 6.5 and 8.5
- Bays and estuaries
 - ± 0.2 ambient level
 - Maintained between 7.0 and 9.0
- Oceans
 - ± 0.2 ambient level
 - Maintained between 6.0 and 9.0



Implementation – Monitoring



Monitoring

- ▶ Not required for
 - Discharges that do not reach a *'waters of the US'*
 - Discharges put to multiple or beneficial reuse
 - Emergency discharges
- ▶ Visual Monitoring only required during times of non-compliance

(If you don't monitor how do you know if you are not in compliance?)

 - Permit is minimum requirement. May want to conduct routine monitoring for management of risk/liability
- ▶ Required to determine effectiveness of BMPs



Event Monitoring

- ▶ Event specific monitoring is required for:
 - Superchlorinated discharges
 - Well development and/or rehabilitation
 - Large volumes ($>325,850$ gal)
- ▶ Samples should be taken:
 - Downstream of BMP's
 - Prior to mixing with other water
- ▶ Field sampling only (unless TMDL present)
- ▶ Conducted by trained personnel w/calibrated equipment



Event Monitoring (cont.)

▶ Monitoring Parameters

Parameter	Units	Sampling	Sample Type
Total chlorine residual	mg/l	1 /Event	Grab
Volume	Gallons	1 /Event	Estimate
pH	Standard Units	1 /Event	Grab
Turbidity	NTU	1 /Event	Visual Estimate
Turbidity (wells only)	NTU	1 /Event	Grab



Event Monitoring (cont.)

▶ Sampling Frequency

Duration of Discharge	Sampling Requirements
Less than 20 minutes	One sample is required during the first 10 minutes of the discharge
20 minutes to 60 minutes	One sample is required during the first 10 minutes of the discharge, plus a second sample is required within the last 10 minutes of the discharge
Greater than 60 minutes	One sample is required within the first 10 minutes, a second sample is required within the next 50 minutes, and a third sample is required approximately within the last 10 minutes of the discharge



Annual Representative Monitoring

- ▶ Permit allows for annual representative monitoring for discharges that are:
 - The same general water source (ground water or surface water of similar water quality)
 - The same water treatment, and
 - The same type of implemented BMPs

Parameter	Units	Sampling	Sample Type
Total chlorine residual	mg/l	1 /Year	Grab
Volume	Gallons	1 /Year	Estimate
Turbidity	NTU	1 /Year	Visual Estimate

- ▶ Sample Frequency (same as Event Monitoring)



Non-Compliance Discharge Monitoring

▶ Monitoring Requirement

- During and after period of non-compliance
- At point of confluence
- Document with digital photographs
- Observed effects and impacts
 - Erosion, floating or suspended matter, discoloration, impact to aquatic life, films, sheens, coatings and potential nuisance conditions
- Include in Annual Report



Implementation – Notifications



Notifications

- ▶ Pre-Notification of Large Planned Discharges
 - Pre-notification 3 days prior to any planned discharge greater than 1 AF to the Regional Board and MS4 operator
 - Start date, location, receiving water, estimated volume and reason for discharge
- ▶ Emergency or Non-Compliance Discharges
 - If your discharge impacts a receiving water:
 - Notify Regional Board and MS4 operator within 24 hours
 - Written follow-up within 5 days
 - Location, cause, date, time, duration, volume, receiving water and corrective actions
- ▶ Any toxic chemical release reported to State Emergency Response Commission within 15 days



Implementation – Records



Records

- ▶ Records shall include
 - Monitoring information – Date, place, time and results of sampling or measurement
 - Individual who performed sample or measurement
 - Number of direct discharges to a *water of the US* greater than 50,000 gallons
 - Estimated volume of discharged water to surface water
 - Estimated volume of discharged water to reuse
 - BMPs implemented
 - Instrumentation calibration and maintenance records
 - Training
- ▶ Record Retention – 3 years



Field Practices – Reporting



Annual Report

- ▶ Annual Self-Monitoring Report due March 1st
- ▶ Report shall include:
 - All non-compliant discharges
 - Including photographs and documentation of non-compliance
 - Corrective actions to address non-compliance
 - Estimated volume discharged
 - Estimated volume of discharge beneficially reused



Annual Report (cont.)

- ▶ Report shall include (cont.):
 - Site schematic provided in application
 - Representative monitoring locations
 - Portion of system covered by Representative monitoring
 - Changes in Representative monitoring locations from prior year
- ▶ Requires cover letter containing:
 - Clearly identified non-compliance discharges
 - Corrective actions taken (including time schedule of actions)
 - Description of violation including requirement violated
- ▶ Signed by executive officer or authorized representative*

* Requires written authorization to SWRCB




Additional Information

- ▶ AWWA CA/NV Statewide General NPDES Permit for Discharges from Drinking Water Systems Fact Sheet

<http://ca-nv-awwa.org/CANV/downloads/2015/NPDESPotableH2OCANVAWWAFactSheet.pdf>

Fact Sheet



Statewide General NPDES Permit for Discharges from Drinking Water Systems

Water purveyors¹ regularly discharge from their drinking water systems into storm drains or other conveyances that drain to surface waters. Planned discharges are part of a water purveyor's essential operations to comply with the federal Safe Drinking Water Act and the California Health and Safety Code for providing reliable and safe drinking water. Surface water discharges also occur from pipe breaks, system failures, and emergencies.

The information in this Fact Sheet is provided as reference and in no way should be interpreted as regulatory law. For further details about the *Statewide General NPDES Permit for Discharges from Drinking Water Systems* please review Order WQ 2014-0194-DWQ General Order NO. CAG140001. See: http://www.swrcb.ca.gov/water_issues/programs/npdes/docs/drinkingwater/final_statewide_wqo2014_0194_dwq.pdf.

For questions or concerns regarding this factsheet, please contact the CA-NV AWWA Environmental, Health and Safety Committee.

	REQUIREMENTS	PERMIT REFERENCE
WHO SHOULD SEEK COVERAGE	Any community water system or water purveyor that discharges from a drinking water system. Drinking water systems with 1,000 or more connections must either enroll under the permit, or submit a "notice of non-applicability" for their system. Systems with fewer than 1,000 connections that discharge to waters of the United States are not required to enroll in this Order, but non-enrollment does not exempt dischargers from Federal Clean Water Act requirements.	Page 4-6 Attachment B2
NOTICE OF NON-APPLICABILITY	CWS can apply for a Notice of Non-Applicability (NONA) instead of applying for a Notice of Intent (NOI) in the following cases: 1. The CWS must be a permittee or co-permittee of an existing MS4 permit, the MS4 permit allows CWS discharges and all discharges enter their own MS4 system and there are no direct discharges to a WOTUS (Water of the US). 2. A CWS discharges solely to MS4 systems, they have a local agreement with the MS4 operator, and the corresponding Regional Water Board Executive Officer provides written confirmation to the State Water Board that the local agreement provides sufficient regulation of the subject drinking water system discharges through an existing MS4 NPDES permit. 3. The CWS is regulated under an existing individual site specific NPDES permit because 1) the discharges is outside the scope of the Statewide permit or 2) are adopted to address TMDL specific requirements because drinking water discharges have been found to cause an impairment of the water body.	Page 5-6 Attachment B2

¹A water purveyor is defined as any entity that discharges from a drinking water system, including water purveyors, wholesalers, distributors, districts, municipalities, private companies, and other entities that own or operate a community drinking water system.

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*San Diego County
Water Authority*

Jim Fisher

jfisher@sdcwa.org

760-233-3264

Brandi Outwin-Beals

Senior WRCE, San Diego Regional Water Board

Brandi.outwinbeals@waterboards.ca.gov

619-521-5896