



# The City of San Diego Water Department 2005 Watershed Sanitary Survey

## Hodges Watershed

Volume 5 of 5

Data Collected Between 01/01/01– 12/31/05

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## ABBREVIATIONS

ACOE	Army Corps of Engineers
ADT	Average daily traffic
ADWF	Average dry weather flow
AF/Y	Acre-Feet per Year
AWWA	American Water Works Association
BLM	Bureau of Land Management – U.S. Federal
BMPs	Best Management Practices
CDF	California Department of Forestry
CDFA	California Department of Food and Agriculture
CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology
CEQA	California Environmental Quality Act
CFR	California Federal Regulation
cfs	Cubic feet per second
City	City of San Diego
CNDDDB	California Natural Diversity Database
CNF	Cleveland National Forest
CNPS	California Native Plant Society
County	County of San Diego
CWA	San Diego County Water Authority
D/DBP	Disinfection/Disinfection By-Product
DHS	Department of Health Services
DMG	Division of Mines and Geology – State of California
dS/M	Decisiemens per meter
DSOD	Division of Safety of Dams
EPA	Environmental Protection Agency
ESWTR	Enhanced Surface Water Treatment Rule
GIS	Geographic Information System
gpd	Gallons per day
Gpm	Gallons per minute
HAAs	Haloacetic Acids

## ABBREVIATIONS

Helix	Helix Water District
HPC	Heterotrophic Plate Count
HSU	Hydrographic Subunit
HU	Hydrographic Unit
HUMAN CON	Human Consumption
IOCs	Inorganic Chemicals
LPG	Liquid Propane Gas
LSE LF	Loose Leaf
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MG	Million Gallons
mg/L	Milligrams per liter (parts per million)
mgd	Million gallons per day
mgy	Million gallons per year
MHCP	Multiple Species Conservation Program
MSL	Mean Sea Level
MWD	Metropolitan Water District
N-GRNHS	Nursery Greenhouse
N-OUTDR	Nursery Outdoor
NEPA	National Environmental Protection Act
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NTU	Nephelometric Turbidity Unit
OTC	Olympic Training Center
PAHs	Polyaromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
RCA	Resource Conservation Area
RMWD	Ramona Municipal Water District
RO	Reverse Osmosis
RUIS	Regional Urban Information System

## ABBREVIATIONS

RWQCB	California Regional Water Quality Board
SANDAG	San Diego Association of Governments
SCS	Soil Conservation Service – U.S.
SDWA	Safe Drinking Water Act - Federal
SMCL	Secondary Maximum Contaminant Level
SOCs	Synthetic Organic Chemicals
SP	Soluble Powder
SUB	Subtropical
SWPPPs	Storm Water Pollution Prevention Plans
TCR	Total Coliform Rule – Federal
TDH	Total Dynamic Head
TDS	Total Dissolved Solids
THMs	Trihalomethanes
TTHMs	Total Trihalomethanes
TOC	Total Organic Carbon
TRANSPL	Transplants
ug/L	Micrograms per liter (parts per billion)
UNCUL	Uncultivated
UNSP	Unspecified
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Society
VOCs	Volatile Organic Compounds
WDRs	Waste Discharge Requirements
WPCF	Water Pollution Control Facility
WRF	Water Reclamation Facility
WSS	Watershed Sanitary Survey
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant



# **VOLUME 5**

## **THE HODGES WATERSHED**

### **CHAPTER 1: SYNOPSIS**

#### **Introduction**

This volume is the second five-year update of the 1996 Watershed Sanitary Survey (WSS) for the Hodges Watershed. Hodges Watershed is comprised of the Hodges Reservoir. The Hodges Watershed has an area of 158,417 acres, about 248 square miles (Figure 5-1.1). The primary function of the reservoir is to store local runoff. Although it is owned and operated by the City of San Diego Water Department, Hodges Reservoir is not currently connected to the San Diego Water Department's system. Water impounded in Hodges Reservoir is supplied to other agencies.

#### **Watershed Sanitary Survey Requirements**

The California Surface Water Treatment Rule (SWTR), in Title 22, Article 7, Section 64665 of the State Code of Regulations, requires every public water system using surface water to conduct a comprehensive sanitary survey of its watersheds every five years. The purpose of such a survey is to identify actual or potential sources of contamination, or any other watershed-related factor, which might adversely affect the quality of water used for domestic drinking water. The initial WSS was completed January 1, 1996 and is to be updated every five years thereafter.

The City of San Diego Water Department and its oversight agencies will use the Watershed Sanitary Survey Update (WSS Update) to evaluate water quality problems which might result from contaminants in the watersheds. The WSS Update will also serve as a basis for future watershed management and planning efforts.

## **Objectives**

The main objectives of this WSS Update are to:

- Satisfy the regulatory requirement for a watershed sanitary survey.
- Identify and assess existing and potential future sources of contamination in the watersheds.
- Provide a general description of existing watershed control and management practices.
- Provide general recommendations for improving watershed management practices in order to protect the quality of the surface waters entering the reservoirs.

## **Conduct Of The Study**

This update of the WSS for the Hodges Watershed was produced by the staff of the City of San Diego Water Department, Water Quality Laboratory. The survey covers all portions of the Hodges Watershed. It was conducted by reviewing existing aerial photographs, GIS data, reports, water quality data and other record documents, and was supplemented by field surveys and personal knowledge of Water Department staff.

## **Report Organization**

The organization of this volume has changed since the 2001 WSS Update. The Executive Summary, formerly Chapter 1, has been removed from the individual volumes. The remaining chapters have been rearranged as follows:

- Chapter 1: Synopsis
- Chapter 2: Description of Watersheds/Source Water System and Review of 2001 Watershed Sanitary Survey Recommendations
- Chapter 3: Existing Conditions in the Watersheds
- Chapter 4: Water Quality Assessment
- Chapter 5: Conclusions and Recommendations

## **CHAPTER 2: DESCRIPTION OF WATERSHEDS/SOURCE WATER SYSTEM AND REVIEW OF 2001 WSS RECOMMENDATIONS**

### **Introduction**

The following is a summary of the findings of the 2001 Hodges Watershed Sanitary Survey Update. It covers Potential Contaminant sources, Water Quality, Watershed Management and Control Practices, and Conclusions and Recommendations for management of the watershed.

### **Potential Contaminant Sources**

#### **Recreation -**

Potential sources of contamination from recreational use include soil erosion from hiking, off-trail biking and horseback riding; discarded trash from picnicking; excretions of horses and personal pets; and gasoline spillage from fishing boats and other personal craft. Incidental personal contact from sail boarding occurs; however, microorganism contamination from such contact is minimal.

#### **Runoff -**

Microorganisms correlated to seasonal rainfall runoff occur in the Hodges Reservoir. The total coliform count was consistently monitored from 1995 to 2000.

#### **Significant Events -**

There have been seven small to semi-large brushfires since 1996, one of which was considered a significant threat to water quality. Consequences of burning include soil erosion, stream sediment, ash and debris, and chemical fire retardants here have been no significant earthquakes from 1996 to 2000.

#### Agriculture -

Most agriculture consists of extensive activity. There is also intensive farming and a number of vineyards and orchards along the Santa Ysabel Creek. Orchards and intensive plots rely more heavily upon fertilizers and pesticides. Contamination such as sediment, nutrients, pesticides, and bacteria typically is found in runoff from agricultural areas.

#### Animal Grazing -

Animal grazing is permitted on Federal lands within the Cleveland National Forest. Grazing also occurs on private lands. Loss of vegetation from grazing may increase soil erosion and sedimentation of streams and rivers.

#### Concentrated Animal Facilities -

There are fifteen poultry farms and five dairy farms within the Hodges Watershed. Wastewater from dairy farms is discharged into retention ponds. Contaminated runoff from poultry farms is possible during rainy periods.

#### Wastewater Facilities & Reclaimed Water -

The San Pasqual Aquatic Reclamation Facility, Santa Maria Wastewater Reclamation Plant, and the San Pasqual Wild Animal Park Wastewater Treatment Plant operate within the Hodges Watershed. Plant effluent is discharged to spray fields or used in highway landscape irrigation. Effluent from the Wild Animal Park is used inside the park for landscape irrigation and stock watering. Reclaimed water from the San Pasqual and Santa Maria facilities is delivered to various areas for landscape and golf course irrigation.

#### Septic Systems and Sewer Overflows -

The majority of septic systems occur in the areas of Ramona and South Escondido. Residences are served by a mixture of sewer and septic tank

facilities. Problems with septic systems occur mostly in low-lying areas, where the water table is higher and ground percolation is not as good.

There were 47 reported sewer spills, one of which posed a significant source of contamination for the Hodges Reservoir. However, since Hodges Reservoir is not connected to the City of San Diego's potable source water, it did not impact the City's ability to comply with surface water treatment regulations.

#### Mines -

There are nineteen mines located throughout the Hodges Watershed. There have not been any recorded incidents at the mine sites.

#### Hazardous Materials -

Solid and liquid hazardous wastes are collected in storage areas and hauled away by licensed haulers. There is also capacity for storing 2,600,390 gallons of hazardous liquid, most of which is automotive and tractor fuel. The Ramona area also contains stored aviation fuel.

### **Water Quality**

#### Monitoring -

Samples were taken from the surface and from three sample points within the watershed. Data was provided by the City of San Diego Water Quality Laboratory. The source water was analyzed for organic and inorganic constituents, microorganisms, and general physical characteristics. Results were compared to the MCL and/or SMCL standards for drinking water.

#### Raw Water Quality -

Results of surface water samples at times exceeded limits for turbidity, pH, color, iron, manganese, and MTBE. Microbiological studies indicated the presence of microorganisms.

#### Treated Water Quality -

Hodges Reservoir is not currently part of the City of San Diego potable water system. It may, in future, serve as a secondary supply, with flow directed into the Miramar Reservoir.

### **Watershed Management and Control Practices**

Much of the land is owned, either by the Cleveland National Forest or private parties, or is unincorporated County land. The City of San Diego monitors the watershed at Hodges Reservoir by limiting access to the reservoir, patrolling and observation, and water quality monitoring. Other federal, state, and local agencies also exercise control over land use and activities within the watershed.

### **Conclusions**

#### Potential Contaminant Sources -

Potential contaminant sources include soil erosion, fires, agriculture, animal husbandry, urban runoff, accidental wastewater discharge, unauthorized waste disposal, and recreational use.

#### Watershed Management -

No formal watershed management program exists. Land ownership patterns limit control measures in the watershed; therefore, the focus is on cooperation between agencies. However, the City of San Diego exercises a number of

management practices. On City-owned land, the City directly controls land use activity. On land not owned by the City, controls include monitoring land use, permits and other regulatory actions, and coordinating with other agencies. A Watershed/ Water Quality Protection Committee was established by the City in September, 1994.

#### Water Quality Conditions -

Raw water monitoring at the El Capitan Reservoir has detected several water quality constituents at levels that may be of concern, including iron, manganese, seasonal elevations in microorganism counts, and a lack of data concerning *Cryptosporidium* and *Giardia*.

#### **Recommendations & Review**

The underlying theme of all recommendations is protection of the watershed and source water quality. The recommendations fall into four categories:

- Water Quality Monitoring,
- Interjurisdictional Coordination
- Public Education

Following each recommendation will be a review of the actions taken and/or current status of the recommendation.

#### Water Quality Monitoring –

##### *Recommendations*

- 1) Continue to develop and expand the long-term monitoring program for the watershed to establish baseline conditions, identify trends in degradation, isolate sources of contamination, and determine effects of management practices.
- 2) Augment the existing City monitoring program with additional parameters.
- 3) Implement a program to determine the source of microbiological contaminants near suspected sources.
- 4) Find and test alternative methods to detect and predict algal blooms.

### *Review*

- 1) The City has instituted a program to measure flow, solids, pathogens and nutrients on a monthly basis; and to measure metals and a suite of organics on a quarterly basis; at five creeks that flow directly into Lake Hodges, and on several tributaries to the San Dieguito River upstream of Lake Hodges. The City has also collected bioassessment samples at three sites in the watershed.
- 2) Augment the existing City monitoring with additional constituents, such as dissolved organic carbon, total nitrogen, and total phosphorus.
- 3) As noted above, the City has begun monthly analysis for total nitrogen and total phosphorus at tributaries, and the reservoir is sampled quarterly for those parameters.
- 4) No change in status.

### Interjurisdictional Coordination –

#### *Recommendations*

- 1) Establish lines of communication with neighboring agencies and overlapping jurisdictions by developing written City policies, developing workgroups, and setting up a City Control Review Committee.
- 2) Coordinate with Jurisdictional Agencies such as San Diego County and the cities of Escondido, Ramona, and Poway.

### *Review*

- 1) The City contracted with Brown & Caldwell to produce a document providing guidelines for new development in our watersheds. This document has been completed and is being used by the San Diego Water Department in its review of projects. The City Water Department has established a watershed manager and a watershed project officer, and the City has established contacts with other agencies by participating on watershed plan committees.

The City is reviewing more projects than it has in the past; however, no formal clearinghouse has been established.

- 2) No change in status.

#### Watershed Management and Control –

##### *Recommendations*

- 1) Develop a land acquisition strategy to gain control of lands proximal to water.
- 2) Work with landowners and regulatory agencies to reduce the potential impact of cattle grazing and other agricultural practices.
- 3) Monitor creeks near wastewater storage ponds and facilities where there is a history of spills.

##### *Review*

- 1) The City has not adopted a strategy to acquire parcels, easements, or development rights. However the City has worked with other agencies such as the San Dieguito River Conservancy to purchase some privately owned lands that are proximate to water bodies for conservation purposes.
- 2) No change in status.
- 3) No change in status.

#### Public Education –

##### *Recommendations*

- 1) Develop and distribute educational materials to landowners, businesses, residents, and recreational users of the land about the importance of protecting the watershed. Establish a telephone number for reporting spills and illegal dumping.
- 2) Conduct public information sessions about the impact of various activities on water quality and supply.
- 3) Encourage a 'Friends of the Watershed' type of volunteer organization.
- 4) Launch a public awareness and signage campaign along transportation corridors.

*Review*

- 1) Anyone who purchases a lake permit is given a brochure that details the importance of keeping the reservoir clean because it is a source of our drinking water. In addition, posters are placed on kiosks at the reservoirs that ask people to recycle and help protect water quality.
- 2) No change in status
- 3) No change in status
- 4) Signage has been developed for placement on major corridors that let travelers know they are entering a watershed. The City is working with CalTrans on locations to place the signs.