



Technical Memorandum

To: Stormwater Quality Standards Task Force

From: CDM

Date: July 2, 2009

Subject: Recreational Use Survey Data Report – Demens Channel

Introduction

To support basin planning efforts in the Santa Ana River watershed, an evaluation of the appropriateness of REC-1 beneficial use designations and associated bacteria water quality objectives in the Santa Ana River Watershed is being performed by the Stormwater Quality Standards Task Force (“Task Force”). The Task Force consists of representatives from a variety of stakeholder interests, including the Santa Ana Watershed Project Authority; the counties of Orange, Riverside, and San Bernardino; special districts; the Santa Ana Regional Water Quality Control Board; EPA Region 9; and local environmental groups. CDM and Risk Sciences, Inc. provide assistance to the Task Force. As part of study efforts, recreational use surveys were performed upon select waterbodies to obtain information regarding current levels of recreational use. This technical memorandum summarizes results from use surveys conducted at Demens Channel.

Study Location

The location for this study was Demens Channel located downstream of the intersection of Banyan Street and Sapphire Street in the City of Rancho Cucamonga. Figure 1 presents an aerial photo of the survey location. The predominant land use immediately surrounding the survey location is residential. As shown in Figure 2, Demens Channel is a vertical walled, concrete lined channel in the vicinity of the survey location.



Figure 1
Demens Channel Survey Location



Figure 2
Photo of Demens Channel Survey Location

Survey Design

Digital field observation cameras and data transfer technology, coupled with weekly on-location physical surveys were used to collect recreational use data. Observer IV™ cameras were equipped with cellular data transmission equipment to collect an image every fifteen minutes, and transfer the image to a secure data storage server via a file transfer protocol (FTP) site. Site visits were conducted to log recreational use observations, and to monitor and maintain the image collection equipment. This survey design was selected to provide unprecedented levels of data to characterize recreational use.

A camera was installed at the intersection of Banyan Street and Sapphire Street where the Sapphire Street bridge crosses over Demens Channel. Figure 3 shows the camera installation.



Figure 3
Photo of the Recreational Use Survey Camera Installation for Demens Channel

Table 1 summarizes the survey duration and number of images collected from Demens Channel. An image was collected every fifteen minutes throughout the study duration unless signal strength fluctuations or equipment failures precluded collection and transmission. Images were not collected at night due to darkness.

Table 1 Recreational Use Survey Duration			
Survey Location	Start Date	End Date	Number of Images
Demens Channel	2/1/08	2/9/09	21,382

Due to signal strength fluctuation issues and other equipment functionality issues, periodic, short term gaps in image collection occurred. These gaps ranged from relatively minor single, fifteen-minute interval image gaps, which occurred on numerous days, to gaps in image collection spanning several days. Table 2 summarizes the data gaps of one week or longer.

Table 2 Recreational Use Survey Data Gaps		
Location	Data Gap Period	Cause
Demens Channel	February 29 – March 7, 2008	Battery Failure
	May 31 – June 9, 2008	Battery Failure

Images were stored and individually reviewed for activity. A use/activity categorization protocol was established for logging and categorizing observed activity from both image review and physical surveys. As part of the protocol, information regarding water contact activity (including the type or magnitude of contact) and non-water contact activity, was collected and logged in the following categories:

- Date / Time
- Number of People
- Type of Contact
 - Incidental Contact
 - Contact below Ankle
 - Contact between Ankle and Waist
 - Contact between Waist and Neck
 - Contact above Neck
 - Non-Recreation Contact
- Non-Contact Activity

Images containing a person or persons within channel fencing or boundaries were considered “events”. On-site surveys where a person or persons were observed were also considered events.

An event could include one or more persons. For each event, each person’s activity (type), and its duration and magnitude were logged per the established protocol. If an activity was captured within one image, an activity duration was reported as <30 minutes. Similarly, if an activity was observed within two consecutive fifteen-minute interval images, the duration was reported as <45 minutes.

Survey Results

At the Demens Channel survey location, no water contact nor non-water contact activity was observed throughout the survey period.

Summary of Findings

Over 21,000 recreational use data points (images) were collected over a one-year period from the Demens Channel survey location. Results indicate no water contact nor non-water contact activity in Demens Channel over the survey period.