City of Malibu

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September 30, 2014 *Sent via Email to sunger@waterboards.ca.gov*

Mr. Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

RE: Memorandum of Understanding (MOU) Quarterly Progress Report
Malibu Civic Center Wastewater Treatment Plan

Dear Sam:

The following is the quarterly progress report for the Malibu Civic Center Wastewater Treatment Plan, which covers work activities performed on this project during the period between July 1, 2014 and September 30, 2014. To date, the City continues to make progress on all MOU Milestone requirements.

Below is a list of the work performed during the last quarter:

- Continued work to further develop the Malibu Valley Joint Salt-Nutrient Management Plan (SNMP) and Groundwater Management Plan (GWMP). This quarter's work included refining development of the Management Plan's goals and objectives Technical Memorandum and the Assimilative Capacity/Anti-degradation Technical Memorandum (Attachment 1). These items were submitted to RWQCB staff for their review and comments. These plans are highly complex but necessary for recycled water use, management of the groundwater basin, and for funding purposes.

- Conducted a series of office and field meetings with the Los Angeles County Fire Department regarding fuel modification plans for the wastewater treatment plant site which are needed as part of the design. Landscape redesign work was performed to satisfy requirements of the Fire Department.

- Prepared and submitted the Title 22 Engineer's Report to the State Water Resources Control Board, Division of Drinking Water (DDW) for the Production, Distribution, and Use of Recycled Water – Phase 1(Attachment 2).

- On July 21, 2014, the City conducted a public hearing at the Malibu Planning Commission for comments on the project's Draft Environmental Impact Report (DEIR) (Attachment 3).

- On July 23, 2014, staff presented the Civic Center Wastewater Treatment Facility Project to the City of Malibu Environmental Review Board (ERB) for their review and recommendations (Attachment 4).

- Comment period for Draft Environmental Impact Report (DEIR) closed on July 28, 2014. Addressed all comments in preparation of release of the final EIR tentatively in October 2014.

- Continued to conduct regular monthly coordination meetings with RWQCB staff to discuss project progress, areas of regulatory concern, and basis of permitting the project (Attachment 5).

- Continued to work with Los Angeles County Water District 29 to seek possible recycled water demand opportunities further west of the Civic Center Area of Malibu.

- Continued to conduct regular monthly meetings with Stakeholders and Stakeholder groups to discuss the Civic Center Wastewater Treatment Facility Project (Attachments 6 & 7).

- Continued preparatory work necessary for the creation of an Assessment District (AD) such as benefits analysis which includes defining loads and flows from each parcel, capital cost estimates, operation and maintenance cost estimates, and initial modeling of alternative cost allocation methodologies. The Assessment Engineering Consultant presented an updated preliminary assessment analysis at the Malibu Civic Center Stakeholders Meeting on August 28, 2014 (Attachment 7).

- Continued with work to check and refine the project's final construction plans and specification (97% complete).

- Prepared and submitted to the RWQCB on July 7, 2014, Annual Self-Monitoring Reports for field injection testing wells NPDES Permit Nos. CI-9778 and CI-9779 (Attachment 8).

- Continued analysis of commercial and residential tie-in locations and hookup points along the project's wastewater collection and reclaimed water systems.

- Continued preforming independent expert review of the project's design concept, treatment processes, instrumentation controls, sizing, and site configuration of the wastewater treatment plant facility to ensure plant design and processes are effective and efficient.

Currently, the design of the wastewater treatment plant, the wastewater collection system, and the recycled water system is about 97% complete. The City's approach of performing tasks simultaneously and on parallel tracks continues to keep this project moving forward.

As noted in our last quarterly report, our design consultants completed the groundwater injection modeling and determined that there is sufficient injection capacity for all phases of the project. Furthermore, results of groundwater modeling work has also confirmed that the direction of the injected waters do not flow to Malibu Creek or the Lagoon for the full range of flows expected

through the phase 3 build-out conditions. This time consuming and highly scientific detailed groundwater modeling work confirms the engineering feasibility of the project.

The project's Draft Environmental Impact Report (Draft EIR) was released for public review on May 30, 2014 for a 60-day review period. A Recirculated Draft EIR was also released on June 12, 2014. The Recirculated Draft EIR is a partial recirculation of the original Draft EIR and contains revisions to the original Draft EIR. The Recirculated Draft EIR was circulated for 47 days for public review and comment. The public review and comment period for both documents ended on July 28, 2014. A Public Hearing for the Draft EIR was held on July 21, 2014 before the City of Malibu Planning Commission (Attachment 3). The Hearing included a detailed presentation of the project by City staff and the project consultant team. The Hearing also provided an opportunity for the Planning Commission and the public to ask detailed questions about the project. City staff also made a presentation of the project including the Draft EIR to the City of Malibu Environmental Review Board on July 23, 2014 for their review (Attachment 4).

Our design consultant and City staff continue to meet on a monthly basis with Dr. Eric Wu and Dr. T. Don Tsai of the Board's Groundwater & Permitting Unit (Attachment 5) to discuss the status and details of the project including the groundwater well injection and testing program, status of the City's regulatory requirements (CDP, CEQA, EIR), WDR permit limits and requirements, water balance and recycled water use, groundwater basin, Malibu Creek Nutrient TMDL, and local Agency Management Plan. Dr. Wu also attended our July 21, 2014 Public Hearing (Attachment 3). Dr. Wu and his staff continue to be very helpful to our staff and have provided our team with clarity and guidance where we continue to look forward to his and the Board's continued support throughout this project.

Our Assessment Engineering Consultant, David Taussig & Associates, continues to perform the required work necessary for the formation of the Civic Center Wastewater Treatment Facility Assessment District. They presented their third update of the preliminary assessment analysis at the Malibu Civic Center Stakeholders Meeting on August 28, 2014 (Attachment 7). As you are aware, commercial property owners approved establishment of a Community Facilities District (CFD) to fund the project's remaining field, design, and permitting work. Formation of an Assessment District (AD) will provide the funding necessary to construct and operate the wastewater treatment facility. City staff also continues to seek other possible sources of funding for this project including the State Revolving Fund.

Finally, the City continues to have monthly meetings with stakeholders, and stakeholder groups, about the CCWTF (Attachments 6 & 7). For several years, the City has met on a monthly basis with stakeholder groups comprised of commercial property owners, residential homeowners' association (HOA) representatives and other interested community members. The City also makes presentations to HOA organizations within the prohibition boundary area when requested. There appears to be continued support from the commercial property owners for the wastewater treatment plan moving forward. There is however much greater concern from residential property owners with regards to cost and overall impacts.

As you can see, the City is committed to working with the community and the Board in a diligent effort towards the design and completion of the wastewater treatment facility for the Civic Center

area. The Board and MOU have set out a very aggressive schedule that allowed for virtually no delays at all. Therefore, with the delay caused by funding and the formation of the CFD, the City will diligently pursue trying to comply with the deadlines. However, please realize that the MOU allows very little opportunity for time to be recouped and the City will need cooperation from the Board if additional time is needed to complete the project. Although we are very enthused about the monumental tasks we have accomplished thus far, we have not reduced our efforts to seek different ways to recapture additional time in order to reduce the overall critical path schedule for the completion of this highly complex project.

If you have any questions, or require additional clarification, please do not hesitate to contact me at (310) 456-2489, extension 247, or bbrager@malibucity.org.

Sincerely,

Robert L. Brager

Robert L. Brager, PE, JD
Public Works Director/City Engineer

Attachments:

1. Technical Memorandums for Assimilative Capacity and Anti-Degradation Analysis for Proposed Injection Dispersal and SNMP-GWMP Goals and Objectives.
2. Engineer's Report for the Production, Distribution, and Use of Recycled Water – Phase 1.
3. July 21, 2014 City of Malibu Planning Commission Regular Meeting Agenda and Power Point Presentation for the Civic Center Wastewater Treatment Facility Project.
4. July 23, 2014 City of Malibu Environmental Review Board Meeting Agenda and Agenda Report for the Civic Center Wastewater Treatment Facility Project.
5. Meeting Agenda and Minutes for monthly meetings held with the RWQCB staff for the Malibu CCWTF Project on August 14, 2014 and September 17, 2014.
6. Power Point Presentations to the Malibu Civic Center Stakeholders on July 31, 2014 and September 24, 2014.
7. August 28, 2014 Malibu Civic Center Stakeholders Meeting. Power Point Presentation by the project's Assessment Engineer regarding the updated preliminary assessment analysis.
8. Annual Self-Monitoring Reports for field injection testing wells NPDES Permit Nos. CI-9778 and CI-9779

cc: Mayor Skylar Peak and Honorable Members of the Malibu City Council
Jim Thorsen, City Manager
Vic Peterson, Environmental Sustainability Director
Joyce Parker-Bozylinski, Planning Director
Craig George, Environmental Sustainability Manager / Deputy Building Official
Eric Wu, Ph.D., P.E., RWQCB
T. Don Tsai, Ph.D., RWQCB

Recycled Paper

ATTACHMENT NO. 1

DRAFT Technical Memorandum

Malibu Civic Center Wastewater Treatment Facility Project

Subject: **Assimilative Capacity and Anti-Degradation Analysis for Proposed Injection Dispersal**

Prepared For: City of Malibu

Prepared by: Dominick Amador

Reviewed by: Leslie Dumas and Christy Kennedy

Date: May 15, 2014

Reference: 0127-006

This Technical Memorandum (TM) was prepared to evaluate the potential groundwater quality impacts of recycled water injections into the Malibu Valley Groundwater Basin and to evaluate those potential impacts against water quality objectives set forth for the groundwater basin in the Los Angeles Regional Water Quality Control Board's (LARWQCB's) *Water Quality Control Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan, 1994).

1 Introduction

On-site wastewater disposal systems (OWDS) have allegedly contributed to the non-point source pollution of Malibu Creek and Lagoon, resulting in the LARWQCB adopting Resolution R4-2009-007 in November 2009. This resolution approved an amendment to Chapter IV of the *Water Quality Control Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* prohibiting OWDS and OWDS discharges in the Malibu Civic Center Area. In 2010, the State Water Resources Control Board (SWRCB) adopted Resolution 2010-0045 which approved the amendment and established a phased schedule for compliance. The resolutions prohibit all new OWDS and discharges from existing systems based on a phased schedule to cease discharges from Phase 1 systems by November 5, 2015 and Phase 2 systems by November 5, 2019. A third phase may be implemented, if necessary, following operation of Phase 1 and 2, and upon completion of a water quality sampling program to determine if implementation of Phases 1 and 2 have resulted in a meaningful decrease in bacteria and nitrogen in Malibu Lagoon.

The Phase 1 and 2 boundaries were defined in the resolutions and have become known as "The Prohibition Zone." An August 2011 Memorandum of Understanding (MOU), signed by both the City of Malibu (City) and the LARWQCB, memorializes the requirements of the resolutions and defines the Prohibition Zone areas. Following execution of the MOU, the City embarked on a program to design and construct a centralized wastewater collection, treatment and disposal system for the Prohibition Zone. This program includes the construction of the Civic Center Wastewater Treatment Facility (CCWTF), where wastewater from the Prohibition Zone will be collected and treated to a standard set forth in Title 22 of the California Code of Regulations (CCR) for unrestricted reuse of disinfected tertiary recycled water. The resultant recycled water will be used for landscape irrigation within the Civic Center and surrounding areas to the maximum extent possible; however, anticipated irrigation demands are not expected to utilize all recycled water generated by the CCWTF. Recycled water not used for landscape irrigation will be injected into the underlying Malibu Valley Groundwater Basin for dispersal or percolated into the separate Winter Canyon aquifer.

2 Summary of Groundwater Basin Characteristics

The Malibu Valley Groundwater Basin (DWR Groundwater Basin No. 4-22) is a small alluvial basin, approximately 613 acres in size, located along the Los Angeles County coastline. The basin is bounded by the Pacific Ocean on the south, and by the Santa Monica Mountains, composed of non-water-bearing Tertiary age rocks, on all remaining sides. The valley is typified by steep canyons that generally run north to south, and is flanked on both sides by canyons - Sweetwater Canyon to the east, and Winter Canyon to the west. The basin is drained by Malibu Creek to the Pacific Ocean (DWR, 2003).

Water-bearing formations in the Malibu Valley Groundwater Basin are composed of Holocene alluvium, consisting of clays, silts, sands and gravels, overlying impermeable bedrock. Alluvial sediments deposited in the Civic Center area by Malibu Creek and other small drainages are estimated to range in thickness from a feather edge near the valley walls to around 175 feet in the central part of the main body of alluvium, and can be generally subdivided into three categories or strata (layers): (1) a shallow zone of permeable alluvial sediments, (2) underlain by a sequence of fine-grained estuarine deposits, with (3) an underlying coarse-grained stratum commonly referred to as the "Civic Center Gravels" (GeoSoils, 1989; Leighton, 1994; ECI, 2000; Ambrose and Orme, 2000; Fugro West, Inc., 2005; Geosyntec Consultants, 2007). Depth to the water table is typically on the order of 5 to 13 feet below ground surface and is deeper in upland canyon areas (such as Winter Canyon).

Alluvium

The shallow alluvial zone is capped by modern floodplain deposits and, in some locations, with artificial fill. This zone generally consists of silts and sands, and is underlain by a very fine grained, low-permeability zone containing clay and silt layers, especially in the central part of the alluvium. The shallow alluvium deposits tend to be coarser grained near the valley walls, along the northern edge of the alluvium, and to the east along the present day course of Malibu Creek and Lagoon. This zone appears to be in connection with Malibu Creek and Lagoon.

Low Permeability Zone

The low-permeability zone underlying the shallow alluvium consists of very fine grained clay and silt deposits that have been interpreted as extending from just north of Civic Center Way, south to Malibu Colony Road, and from the western edge of the groundwater basin (west of Stuart Ranch Road), to the west side of Cross Creek Road. This zone retards the downward movement of groundwater from the shallow alluvium to the underlying Civic Center Gravels, and appears to be deeper and somewhat thicker on the southeastern side of the basin.

Civic Center Gravels

The Civic Center Gravels underlie the shallow estuarine deposits and low permeability zone over much of the Civic Center area. These deposits are described (Leighton, 1994) and confirmed with subsequent borings in 2011 and 2013 as consisting of predominantly sands with gravel and cobbles. The top of the Civic Center Gravels is relatively flat, dipping slightly to the south and west. The Civic Center Gravels are interpreted to extend from just north of Civic Center Way, south to Malibu Road on the west side of the basin, and from just north of Civic Center Way to the Pacific Coast Highway near the eastern edge of Legacy Park. The full thickness and horizontal extent of the Civic Center Gravels is not known because of a lack of deep borings at the northern and western ends of the groundwater basin but they are estimated to be on the order of 10 to 140 feet thick.

In the summer of 2013, an electrical resistivity survey was conducted along the Malibu shoreline and immediately offshore of the Civic Center area. This survey used electrical current to identify high and low resistivity materials, indicating either the types of soils through which the current traveled (with clays and silts being less resistive than sands and gravels) and/or the type of water contained in the soils (with

saltier water being less resistive than fresher water). The survey identified the Civic Center Gravels as a higher resistivity zone (i.e., consisting of sands and gravels) present below a shallow zone consisting of low resistivity material. This low resistivity material layer is thought to consist of clay-rich unconsolidated material (Cardno Entrix, 2013), similar to materials identified in onshore borings, and correlates with the low permeability zone previously identified. The resistivity of the Civic Center Gravels was higher on the west side of the groundwater basin than on the east, suggesting that the aquifer contains fresher water and is more permeable on the west side of the basin, correlating with one of the identified ancient Malibu Creek channels (McDonald Morrissey Associates, 2014). The resistivity of the Civic Center Gravels zone was lower by about an order of magnitude on the east side, suggesting that the groundwater in this area is brackish or the aquifer contains more silt and clay, or both. Based on the survey results, the fresh to brackish water zone appears to rise towards the sea floor offshore and south of the beach on the western side of the groundwater basin, suggesting that groundwater is discharging through the sea floor offshore and that the Civic Center Gravels continue offshore beneath the sea floor.

Bedrock

A large bedrock valley lies beneath the City of Malibu and is overlain by unconsolidated materials containing zones of permeable sand and gravel deposits as previously described. Bedrock mapping shows that the lowest bedrock elevations occur in the western and central part of the basin, to the west of the current location of Malibu Creek and Lagoon. Onshore geophysical surveys conducted in 2009 show the bedrock layer dropping in elevation from -20 feet below the ground surface level at the foot of the hills on the north side of the Civic Center area, to an elevation of -120 to -140 feet from Legacy Park to Malibu Road (Cardno Entrix, 2013). The shape and characteristics of the bedrock layer are consistent with two ancient water courses carved by Malibu Creek 60,000 and 20,000 years ago, leading to the ocean.

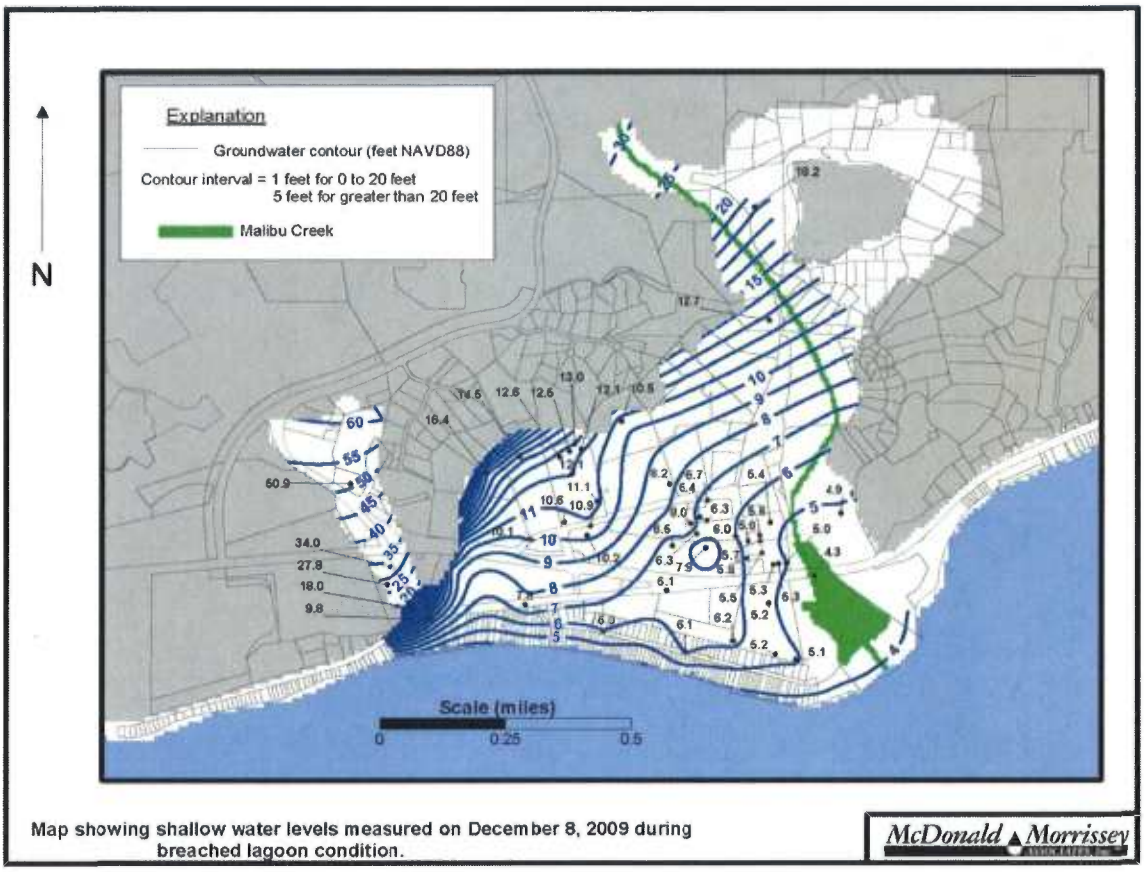
McDonald Morrissey and Associates (2013) estimated that the total average annual inflow to the Malibu Valley Groundwater Basin is approximately 222,000 cubic feet per day (ft^3/d) or 1.7 million gallons per day (mgd). Sources of recharge to the system are infiltration from Malibu Creek, infiltration from OWDSs, irrigation return, upland runoff, and infiltration of precipitation.

Groundwater flow directions are generally from upland areas to the south and southeast toward the Pacific Ocean and Malibu Lagoon (Figure 2-1). Groundwater elevations are influenced by tidal fluctuations and by lagoon stage elevation (as determined by breached or open conditions). In general, groundwater level variations in Winter Canyon, and on the west side of the alluvium, are most closely related to variations in precipitation. Groundwater levels at wells in the vicinity of the lagoon, especially east of Cross Creek Road, are closely related to variations in lagoon stage. Groundwater levels in wells completed in the Civic Center Gravels also exhibit water-level variations that are affected by lagoon stage. Groundwater levels in wells closest to the coast, especially those wells south of the Pacific Coast Highway, are most directly influenced by tidal variations.

Average groundwater travel times to Malibu Creek and Lagoon in the shallow alluvium are generally faster than to the ocean because of the high hydraulic conductivity of subsurface materials near the Creek and Lagoon. McDonald Morrissey and Associates estimated that groundwater discharges to Malibu Creek and Lagoon at an annual average rate of 75,000 ft^3/d. Analysis under both conditions (breached or open lagoon) revealed a very-slow-moving groundwater flow system, with as great as a 50-year travel time from the upstream OWDSs to the Lagoon and/or ocean (RMC, 2013).

Field and modeling studies have concluded that the shallow depth to the groundwater table (shallow alluvium) in the Project area is essentially under the influence of surface water. Approximately 23 percent of the groundwater flowing into the alluvium beneath the Project area is from percolation of OWDS discharges.

Figure 2-1: Groundwater Flow Direction



Previous groundwater modeling efforts in the basin indicated that 208 monitoring wells were known within the basin; however, none are deep wells that intersected the Civic Center Gravels. Therefore, in order to gain direct information regarding deeper hydrogeologic formations, three deep test/monitoring wells were installed in 2011 and nine additional deep monitoring wells were installed in 2013 to provide more information about the Civic Center Gravels. Aquifer pumping and injection testing was conducted in these wells, in addition to the geophysical surveys previously described.

3 Existing Groundwater Quality Analysis

Determining the existing (baseline) groundwater quality is a critical step in evaluating the potential impacts of the proposed recycled water injections on groundwater basin quality. A summary of the existing groundwater quality is presented below; additional details are provided in Appendix A to this TM.

3.1 Indicator Parameters of Salts and Nutrients

The major dissolved ions potentially included in recycled water that reflect its salinity and nutrient content are many and varied, and include sulfate, chloride, nitrate, iron, boron and manganese. Simulation of each constituent is beyond the scope of this study; therefore, indicators of salt and nutrient loading to the Malibu Valley Groundwater Basin were selected for further study.

In choosing which constituents to consider in this analysis, the following criteria/questions were used to identify a select number of constituents for further consideration:

1. Is the constituent regularly monitored and detected in source waters?
2. Is the constituent representative of other salts and nutrients?
3. Is the constituent conservative and mobile in the environment?
4. Is the constituent found in source waters at concentrations above those found in ambient groundwater?
5. Does the constituent have high toxicity for human health or will it otherwise affect beneficial use?
6. Is the constituent a known contaminant in groundwater in the study area?
7. Have the concentrations of the constituents been shown to be increasing in the study area?
8. Is the constituent subject to a water quality objective (WQO) within the Basin Plan?

Each selected indicator constituent of salts and nutrients is not required to meet all the criteria, but as a group, at least one should meet each criterion.

Very little groundwater quality data current exist for the Civic Center Gravels; therefore, to a great extent, the selection of indicator constituents was driven by what data are presently available for use in establishing background water quality. To that end, total dissolved solids (TDS) and nitrate were selected as the indicator constituents for salts and nutrients, respectively, for the Malibu Valley Groundwater Basin. These selections are justifiable as total salinity is commonly expressed in terms of TDS in milligrams per liter (mg/L). TDS (and electrical conductivity data that can be converted to TDS) are available for source waters (both inflows and outflows) into and from the groundwater basin. While TDS can be an indicator of anthropogenic impacts, such as infiltration of runoff, soil leaching, saltwater intrusion and land use, there is also a natural background TDS concentration in groundwater.

Nitrate is a widespread contaminant in California groundwater. High levels of nitrate in groundwater are generally associated with agricultural activities, septic systems, landscape fertilization, and wastewater treatment facility discharges. Nitrate is the primary form of nitrogen detected in groundwater. Natural nitrate levels in groundwater are generally very low, with concentrations typically less than 10 mg/L for nitrate as nitrate (nitrate-NO3) or 2 to 3 mg/L for nitrate as nitrogen (nitrate-N). Nitrate is commonly reported as either nitrate-NO3 or nitrate-N; and one can be converted to the other. Nitrate-N is selected for the assessment of nutrients in this analysis.

3.2 Water Quality Objectives

Water quality objectives (WQOs) provide a reference for assessing groundwater quality in the Malibu Valley Groundwater Basin. The California Department of Public Health (CDPH) has adopted a Secondary Maximum Contaminant Level (SMCL) for TDS. SMCLs address aesthetic issues related to taste, odor, or appearance of the water and are not related to health effects, although elevated TDS concentrations in water can damage crops, affect plant growth, and damage municipal and industrial equipment. While the U.S. Environmental Protection Agency (USEPA) recommended SMCL for TDS is 500 mg/L, the SWRCB has established a Basin Plan WQO of 2,000 mg/L for TDS in the Malibu Valley Groundwater Basin.

The Primary Maximum Contaminant Level (PMCL) for nitrate-nitrogen plus nitrite-nitrogen (as N) is 10 mg/L. Unlike SMCLs, PMCLs are set to be protective of human health. The SWRCB has utilized the PMCL for nitrate-N as the numerical WQO for the Malibu Valley Groundwater Basin in its Basin Plan for groundwater. Water Quality Objectives for nitrate-N are not included in the California Ocean Plan; however, numeric limits for ammonia are included (600 micrograms per liter [µg/L] for a 6-month median, 2,400 µg/L for a daily maximum, and 6,000 µg/L as an instantaneous maximum). For the

assimilative capacity analysis and subsequent anti-degradation analysis, a reference value of 10 mg/L of nitrate-N is used. Ammonia is not considered in this analysis as the recycled water is expected to contain little to no ammonia. Table 3-1 summarizes the numerical WQOs for the Malibu Valley Groundwater Basin, designated as a Potential Municipal (MUN) supply in the LARWQCB Basin Plan.

Table 3-1: Basin Plan Objectives

Constituent	Units	WQOs
TDS	mg/L	2,000
Nitrate-N	mg/L	10

3.3 TDS and Nitrate Fate and Transport

Salt and nutrient fate and transport describes the way salts and nutrients move and change through an environment or media. In groundwater, it is determined by groundwater flow directions and rate, the characteristics of individual salts and nutrients, and the characteristics of the aquifer media.

Water has the ability to naturally dissolve salts and nutrients along its journey in the hydrologic cycle. The types and quantity of salts and nutrients present determine whether the water is of suitable quality for its intended uses. Salts and nutrients present in natural water result from many different sources, including atmospheric gases and aerosols, weathering and erosion of soil and rocks, and from dissolution of existing minerals below the ground surface. Additional changes in concentrations can result from ion exchange, precipitation of minerals previously dissolved, and reactions resulting in conversion of some solutes from one form to another (such as the conversion of nitrate to gaseous nitrogen). In addition to naturally occurring salts and nutrients, anthropogenic activities can add salts and nutrients to groundwater.

TDS and nitrate are contained in source waters that recharge the Malibu Valley Groundwater Basin. Addition of new water supply sources, either through intentional or unintentional recharge, can change the groundwater quality either for the worse, by introducing contamination, or for the better, by diluting some existing contaminants in the aquifer. This effect can occur, for example, when irrigation water exceeds evaporation and plant needs and infiltrates into the aquifer (i.e., irrigation return flow). Irrigation return flows can carry fertilizers high in nitrogen and soil amendments high in salts from the yard or field into the aquifer. Similarly, recycled water used for irrigation also introduces salts and nutrients.

TDS is considered conservative in that it does not readily attenuate in the environment. In contrast, processes that affect the fate and transport of nitrogen compounds are complex, with transformation, attenuation, uptake, and leaching in various environments. Nitrogen is relatively stable once in the saturated groundwater zone, and nitrate is the primary form of nitrogen detected in groundwater. It is soluble in water and can easily pass through soil to the groundwater table.

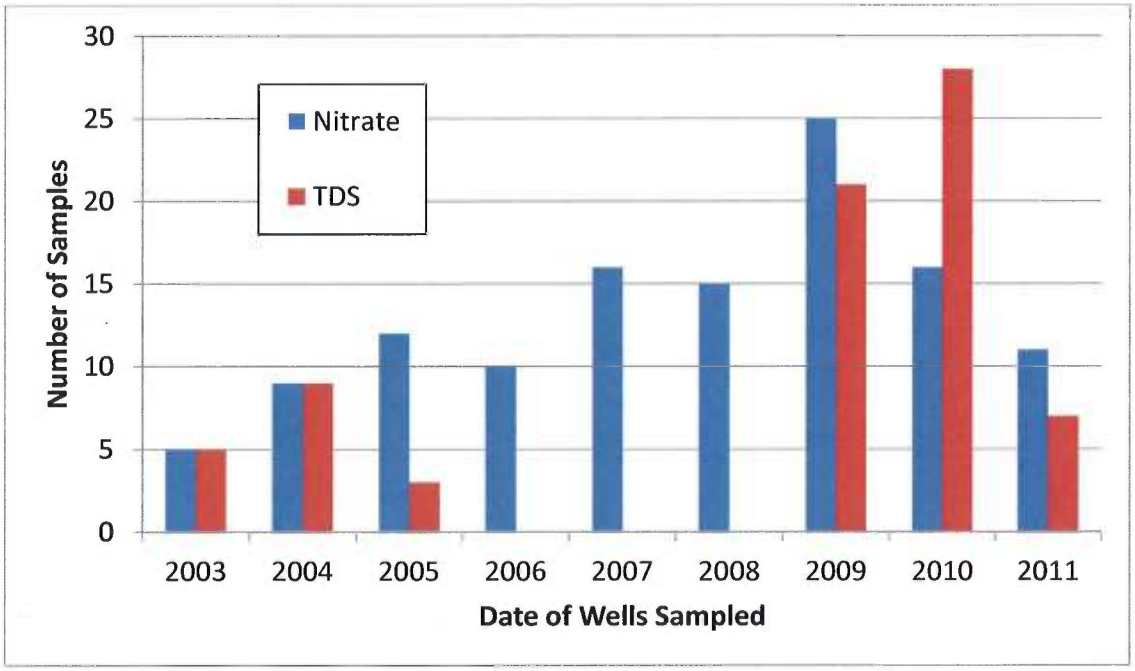
3.4 Indicator Parameter Analysis Methodologies

3.4.1 Groundwater Quality Averaging Period

Initial characteristics of ambient (existing) groundwater quality were developed though the analysis of historical salt and nutrient concentrations in the groundwater basin over the available historical record of data extending back to 2003. While the Statewide Recycled Water Policy requires existing conditions to be established using only the last five years of data, the baseline period for this analysis utilizes roughly the last ten years of data to provide a more robust data set, given the lack of information available for the basin. Figure 3-1 shows the number of wells sampled over the history of sampling data available for the Malibu Valley Groundwater Basin. Water quality data were compiled from a variety of sources, primarily, but not limited to, monitoring and test wells installed as part of the conceptual feasibility

testing for the CCWTF Project, monitoring wells at the commercial development commonly referred to as the "Lumber Yard," wells sampled by the United States Geological Survey (USGS), and wells owned by private parties whose groundwater quality data were publicly available. A number of private, shallow wells are believed to exist within the groundwater basin for irrigation purposes, but data from these wells were unavailable for this analysis. In addition, a number of environmental remediation site monitoring wells exist; however, data from these wells were not used in the baseline water quality analysis as these wells are typically in place to monitor contaminant plumes and thus do not show average ambient conditions. Figures 3-2 and 3-3, shown in subsequent sections, depict the locations of wells (as black dots) whose data were used to determine baseline water quality.

Figure 3-1: Summary of Available Water Quality Data



3.4.2 Evaluation of Existing Ambient Groundwater Quality

The median groundwater concentrations for both TDS and nitrate were developed by averaging concentrations from individual wells basinwide (both shallow and deep wells), and then employing a spatial averaging and interpolation across the entire groundwater basin. The results of these analyses, shown below in Figures 3-2 and 3-3 for TDS and nitrate, respectively, shows average groundwater concentrations of approximately 2,100 mg/L for TDS and 3.23 mg/L for nitrate-N.

3.5 Existing Groundwater Quality

3.5.1 Total Dissolved Solids

Table 3-2 summarizes the average TDS concentration in the Malibu Valley Groundwater Basin and compares it against the Basin Plan WQO for that constituent. The difference between these two values, if the WQO is higher than the average groundwater quality concentration, is known as the assimilative capacity of the groundwater basin for that constituent (SWRCB, 2009). Assimilative capacity is the groundwater basin's ability to absorb constituents without exceeding WQOs. In this case, the average

TDS concentration of groundwater in the Malibu Valley Groundwater Basin presently exceeds the Basin Plan WQO and therefore no assimilative capacity exists for TDS in the groundwater basin.

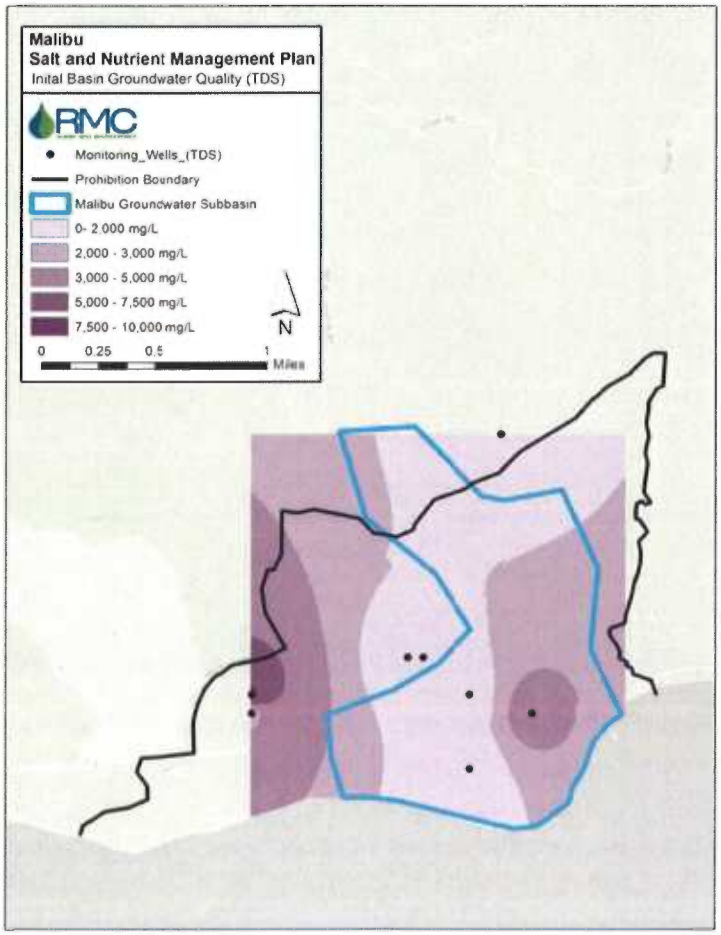
Figure 3-2 shows TDS concentration contours across the groundwater basin. Generally, relatively low TDS concentrations (less than 2,000 mg/L) are observed throughout most of the basin; however some areas of the groundwater basin do have elevated TDS levels, primarily as a result of either direct connection with ocean waters and/or as a result of historical sea water intrusion. One well in particular, on the east side of the basin shows elevated concentrations (above 4,000 mg/L) and results in a significant impact on the groundwater basin's spatial average.

Table 3-2: Average TDS Concentrations and Water Quality Objective

Malibu Valley Groundwater Basin	
Average Concentration	2,100
WQO	2,000
Available Assimilative Capacity	0

Note: All concentrations are in mg/L

Figure 3-2: Total Dissolved Solids Concentrations in the Malibu Valley Groundwater Basin



3.5.2 Nitrate in Groundwater

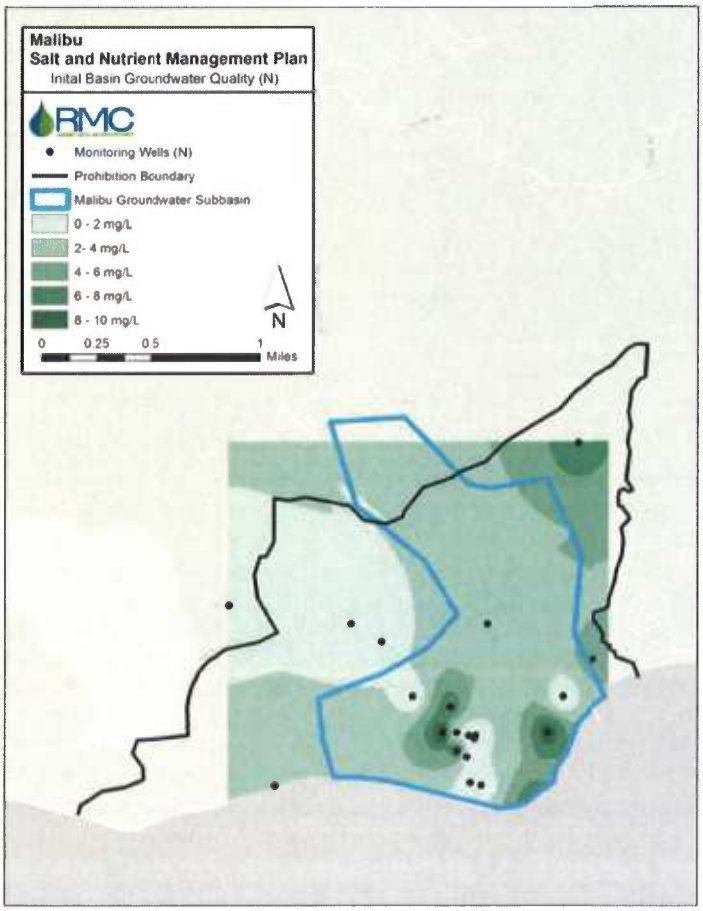
Table 3-3 summarizes the average nitrate-N concentration in the Malibu Valley Groundwater Basin and compares it against the Basin Plan WQO for that constituent. Based on these concentrations, there is an assimilative capacity of 6.77 mg/L for nitrate in the groundwater basin. A nitrate concentration contour map is shown in Figure 3-3. Generally low nitrate concentrations are observed throughout most of the groundwater basin, with higher readings outside of the basin near the western boundary of the Prohibition Zone, and higher concentrations found in the shallow groundwater as compared to the deeper aquifer. Background data is limited, so time concentration plots could not be developed to determine if nitrate-N concentrations across the groundwater basin have been increasing, decreasing, or showing no significant change (stable).

Table 3-3: Average Nitrate-N Concentrations and Available Assimilative Capacity

Malibu Valley Groundwater Basin	
Average Concentration	3.23
WQO	10.00
Available Assimilative Capacity	6.77

Note: All concentrations are in mg/L

Figure 3-3: Nitrate-N Concentration in the Malibu Valley Groundwater Basin



4 Source Identification and Loading Analysis

An analysis of salt and nutrient loadings to the groundwater basin occurring as a result of surface activities is presented to identify sources of salt and nutrients, evaluate their linkages with the groundwater system, and estimate the mass of salts and nutrients loaded to the Malibu Valley Groundwater Basin as associated with those sources.

Salt and nutrient loading from land surface activities to the groundwater basin are due to a variety of sources, predominantly:

- Irrigation water (potable water, surface water and recycled water)
- Residential and commercial inputs (septic systems, fertilizer, soil amendments, and applied water)

Most of these sources, or "inputs," are associated with urban septic and turf irrigation in commercial and residential areas. Urban area salt and nutrient loads due to indoor water use are initially assumed to be primarily percolated though individual parcel-operated OWDSs; although future conditions will involve the centralized collection and treatment of wastewater with subsequent groundwater injection of disinfected tertiary-treated recycled water. Other surface inputs of salts and nutrients, such as atmospheric loading, are not considered a significant source contributing salts and nutrients and are not captured in the loading analysis. In addition to surface salinity loading, other potential inputs of salts and nutrients to the groundwater basin include precipitation, infiltration water from Malibu Creek/Lagoon, and seepage from the Pacific Ocean.

4.1 Loading Analysis Methodology

To better understand the significance of various surface loading factors to the concentrations of salts and nutrients in the groundwater basin, a GIS-based loading model was developed. The loading model is a simple, spatially-based mass balance tool that represents TDS and nitrogen loading on an annual-average basis. Stakeholder coordination was performed to refine the parameters in the loading model, including land use, applied water, TDS and nitrogen application (in applied water, as well as fertilizers and amendments), and source water quality. Given these activities, the model is considered suitable for this analysis of basin groundwater quality conditions.

Primary inputs to the loading model are land use, source water volume and quality, septic system areas and loading, and soil characteristics. These datasets are described in the following sections. The general process used to arrive at the salt and nutrient loads was to:

- Identify the analysis units to be used in the model. In the case of the Malibu Valley Groundwater Basin, land use parcels from the City of Malibu are the analysis units.
- Categorize land use into discrete groups. These land use groups represent land uses that have similar water demands as well as salt and nutrient loading and uptake characteristics.
- Apply the land use group characteristics to the analysis units.
- Apply the irrigation water source to the analysis units. Each water source is assigned concentrations of TDS and nitrogen.
- Apply the septic system assumption to the analysis units.
- Estimate the water demand for the parcel based on the irrigated area of the parcel, the land use group, billed water data, and evapotranspiration (ET) requirements.
- Estimate the TDS load applied to each parcel based on the land use practices, irrigation water source and quantity, septic load, and infrastructure load. The loading model makes the conservative assumption that no salt is removed from the system once it enters the system. Other transport mechanisms (such as runoff draining to creeks exiting the basin) likely reduce

the total quantity of salt in the groundwater basin; however, this methodology provides conservative results.

- Estimate the nitrogen load applied to each parcel based on the land use practices, irrigation water source and quantity, and septic load. The loading model assumes that a portion of the applied nitrogen is taken up by plants and (in some cases) removed from the system (through harvest of plant material). Additional nitrogen is converted to gaseous forms and lost to the atmosphere. Remaining nitrogen is assumed to convert to nitrate and to be subject to leaching. A basin-wide attenuation value is used to estimate and account for mobility of leaching water and the efficiency of nitrate transport through the root zone.

4.2 Data Inputs

Data inputs to the loading model include the spatial distribution of land uses (with associated loading factors), applied water sources (with associated water quality), septic inputs, and water use data. These inputs are summarized below.

4.2.1 Land Use

Land use data were obtained from the Los Angeles County Department of Regional Planning (2013). This dataset contains nearly 150 discrete land use categories. These categories are consolidated into the following land use groups for the Malibu Valley Groundwater Basin:

- Urban Commercial and Industrial – areas containing both commercial and industrial parcels
- Urban Residential (Low Water Use) – areas where parcels are smaller with much less landscaping that other residential areas
- Urban Residential – residential areas where parcels have a significant portion of lawn/turf
- Urban Landscape – large turf areas such as parks and golf courses
- Vacant and Beaches – open space areas (upland), and beach areas

These land use classifications were updated and confirmed to be within the accuracy requirements of this type of analysis using aerial imagery. The spatial distribution of land uses is shown in Figure 4-1.

Each land use group is assigned characteristics including:

- Applied water
- Percent irrigated
- Applied nitrogen
- Used nitrogen
- Leachable nitrogen
- Applied TDS

An estimated loss of nitrogen in gaseous form in the soil is assumed to be approximately 10 percent for this analysis. This value was developed by an agronomist through an extensive nutrient loading study for a groundwater basin in Northern California with very similar land uses, and is an appropriate proxy value for this planning-level analysis in-lieu of extensive site-specific soil chemistry information within the Malibu Valley Groundwater Basin. Table 4-1 consists of a matrix of values for the land use categories and characteristics.

Figure 4-1: Land Use

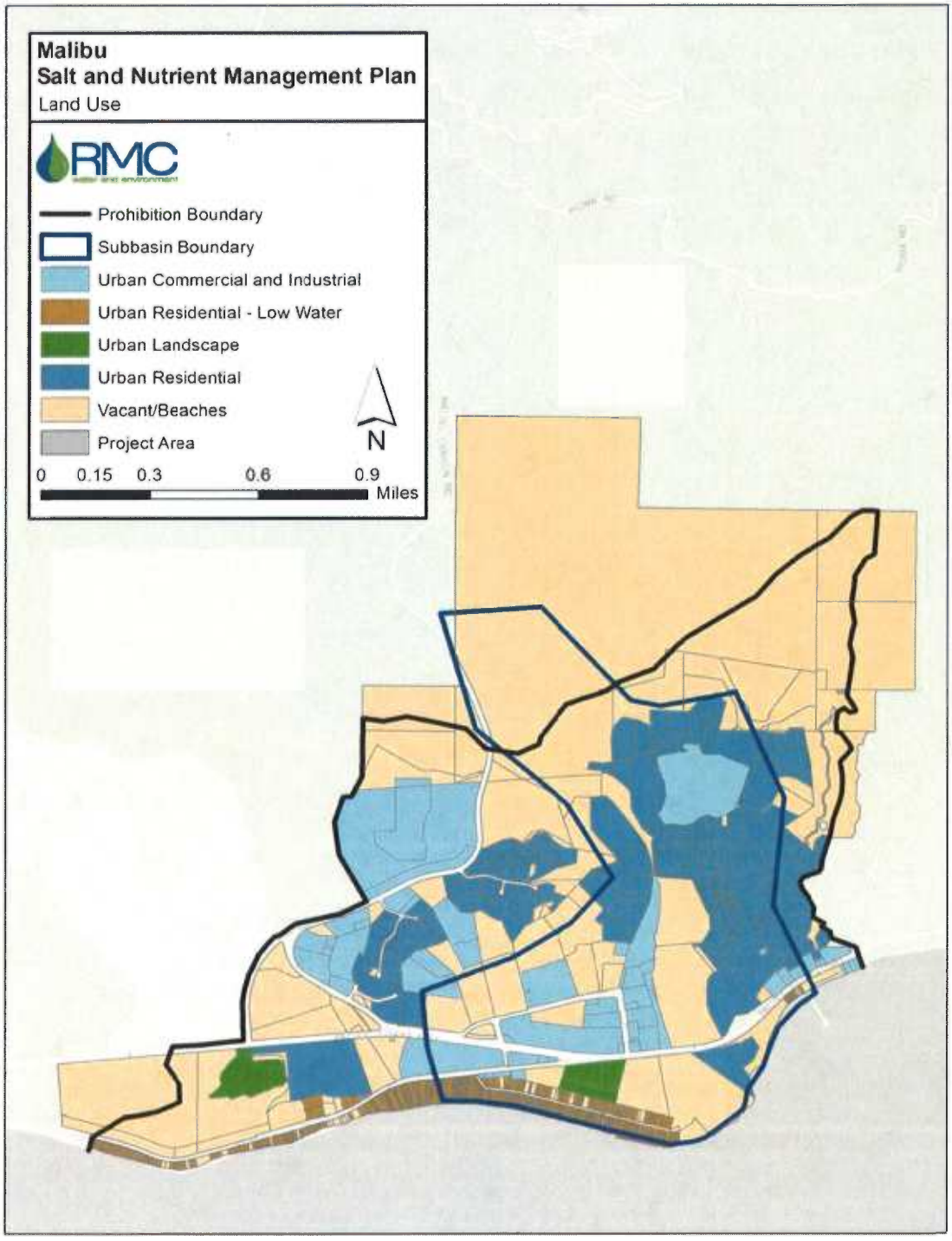


Table 4-1: Land Use-Related Loading Factors

Land Use Group	Total Area (acres)	Percent Irrigated[1]	Applied Water[2] (in/yr)	Applied Nitrogen[3] (lbs/ac-yr)	Nitrogen Uptake[4] (lbs/ac-yr)	Leachable Nitrogen[5] (lbs/ac-yr)	Applied TDS[6] (lbs/ac-yr)
Urban Commercial & Industrial	97	6%	47	44	35	8	245
Urban Residential (Low Water)	26	-	-	-	-	-	-
Urban Residential	173	20%	47	44	35	8	245
Urban Landscape	10	100%	47	44	35	8	245
Vacant/Beaches	272	-	-	-	-	-	-

Notes:

1 Percent of land area assumed to be irrigated within each class is estimated based on review of aerial photography and professional judgment of a reasonable, broad average for each class.

2 Applied water values were calculated to reflect localized water billing data, and verified with 20-year averaged ET from CIMIS stations near the Malibu Valley Groundwater Basin.

3 Applied nitrogen estimates are based on the literature review of the University of California's Publication 8065 *Practical Lawn Fertilization*

4 Uptake of nitrogen was estimated from available literature by multiplying reported yield figures by reported nitrogen concentrations for harvested plant parts.

5 Maximum nitrogen leaching calculations for each land cover unit were calculated based on the balance between application, gaseous loss (volatilization and denitrification), and uptake. The maximum was then reduced based on soil conditions mapped for the area.

6 Applied TDS estimates are based on literature review for individual land cover classes, verified by the U.S. Bureau of Reclamation (2003) *Central Arizona Salinity Study*, and professional judgment.

4.2.2 Applied Water Source

Applied water sources form the basis for determining the TDS and nitrate loads that result from irrigation of the land uses described above. Parcels within the Malibu Valley Groundwater Basin are primarily supplied from potable municipal water sources (imported by Los Angeles County Waterworks District 29) and/or potentially, for future conditions, recycled water. Table 4-2 summarizes the water quality inputs used for each irrigation water source. Recycled water TDS concentration is estimated based on a potable water concentration approximately 290 mg/L, which is then concentrated through wastewater treatment processes resulting in the addition of approximately 200 mg/L of additional TDS; therefore, the resulting TDS of recycled water is estimated to be approximately 500 mg/L. The nitrate-N concentration for recycled water is estimated based on treatment process efficacy.

Table 4-2: Water Quality Parameters for Loading Model Water Sources

Source	TDS (mg/L)	Nitrate (as N) (mg/L)
Potable Water from Water District 29	290	0.5
Recycled Water	500	7 - 8

4.2.3 Ocean Water Quality

Ocean water quality was modeled using publically-available data from near-shore water quality sampling that has occurred in the Project area, and from published average concentrations. Ocean water is assumed to have a TDS concentration of 33,500 mg/L and a nitrate-N concentration of 1.50 mg/L (consistent with groundwater nitrate concentrations from the deeper Civic Center Gravels).

4.2.4 Septic Systems

Salt and nutrient loads due to septic systems were estimated based on typical wastewater production and TDS and nitrate concentrations. All developed parcels within the groundwater basin presently utilize either an individual or combined septic or treatment system. Each residential parcel with a septic system is assumed to produce up to 400 gallons per day (gpd), based on billed potable water data and landscaped area. Septic wastewater discharge is assumed to have TDS concentrations of 490 mg/L based on potable water quality plus an assumed household contribution of 200 mg/L (Metcalf & Eddy, 2003), with nitrate-N concentrations of 20 mg/L for residential and commercial systems. These nitrate-N concentrations are based on typical wastewater concentrations for medium strength wastewater (Metcalf & Eddy, 2003) of 40 mg/L minus an assumed volatization rate of 25 percent within the OWDS and another 15 percent for attenuation in the soils.

4.2.5 Wastewater/Recycled Water Infrastructure

Under current conditions, there are no centralized wastewater treatment facilities within the groundwater basin. However, with implementation of the CCWTF, existing septic loadings to the groundwater will cease over time with implementation of the centralized collection and treatment of wastewaters. The resulting treated effluent from the new wastewater treatment facility will meet Title 22 standards for disinfected tertiary-treated effluent and will be used for irrigation and other non-potable water uses in the groundwater basin to the maximum extent possible, with remaining, unused recycled water injected into the Civic Center Gravels. Project implementation will occur over three distinct phases with a delineated time series by parcel as required by the MOU. In the case of recycled injection, recycled water treatment standards of 8 mg/L and 7 mg/L were both evaluated.

4.2.6 Soil Textures

Soil textures were obtained from the National Resources Conservation Service (NRCS) Soil Survey (NRCS, 2013). Each soil texture was assigned a hydraulic conductivity (NRCS, 1993), with that value used to develop an adjustment factor with a basin-wide average of 0.15. The adjustment factor is used to represent the proportion of nitrate that will migrate to the aquifer, relative to the other textural classes. Where conductivity is lower, it is reasoned (and observed) that nitrogen resides longer in the soil, increasing the proportion that is either taken up or lost through conversion to gaseous species. Similar logic is not applied to TDS as salts are conservative, mostly not subject to conversion to gaseous forms, and rapidly saturate soil capacity to absorb and retain them.

4.3 Loading Model Results

Based on the loading parameters and methodology described above, the loading model was used to develop TDS and nitrogen loading rates across the Malibu Valley Groundwater Basin. Table 4-3 summarizes the overall contribution of each land use group to total TDS and nitrogen loading. The spatial distribution of TDS and nitrogen loading rates are shown in Figure 4-2 and Figure 4-3, respectively. The highest levels of nitrogen loading, per area, occur in low water residential areas while urban landscaping parcels develop the highest densities of TDS loading.

Table 4-3: TDS and Nitrate Loading Results

Land Use Group	Total Area (acres)	Percent of Total Area	Percentage of Total TDS Loading	Percentage of Nitrogen Loading
Urban Commercial & Industrial	97	17%	25%	34%
Urban Residential (Low Water)	26	5%	12%	7%
Urban Residential	173	30%	41%	49%
Urban Landscape	10	2%	15%	7%
Vacant/Beaches	272	47%	7%	2%

The relative proportion of the land uses by area, TDS loading, and nitrate-N loading are shown in Figures 4-4, 4-5 and 4-6, respectively.

Figure 4-2: TDS Loading in the Malibu Valley Groundwater Basin

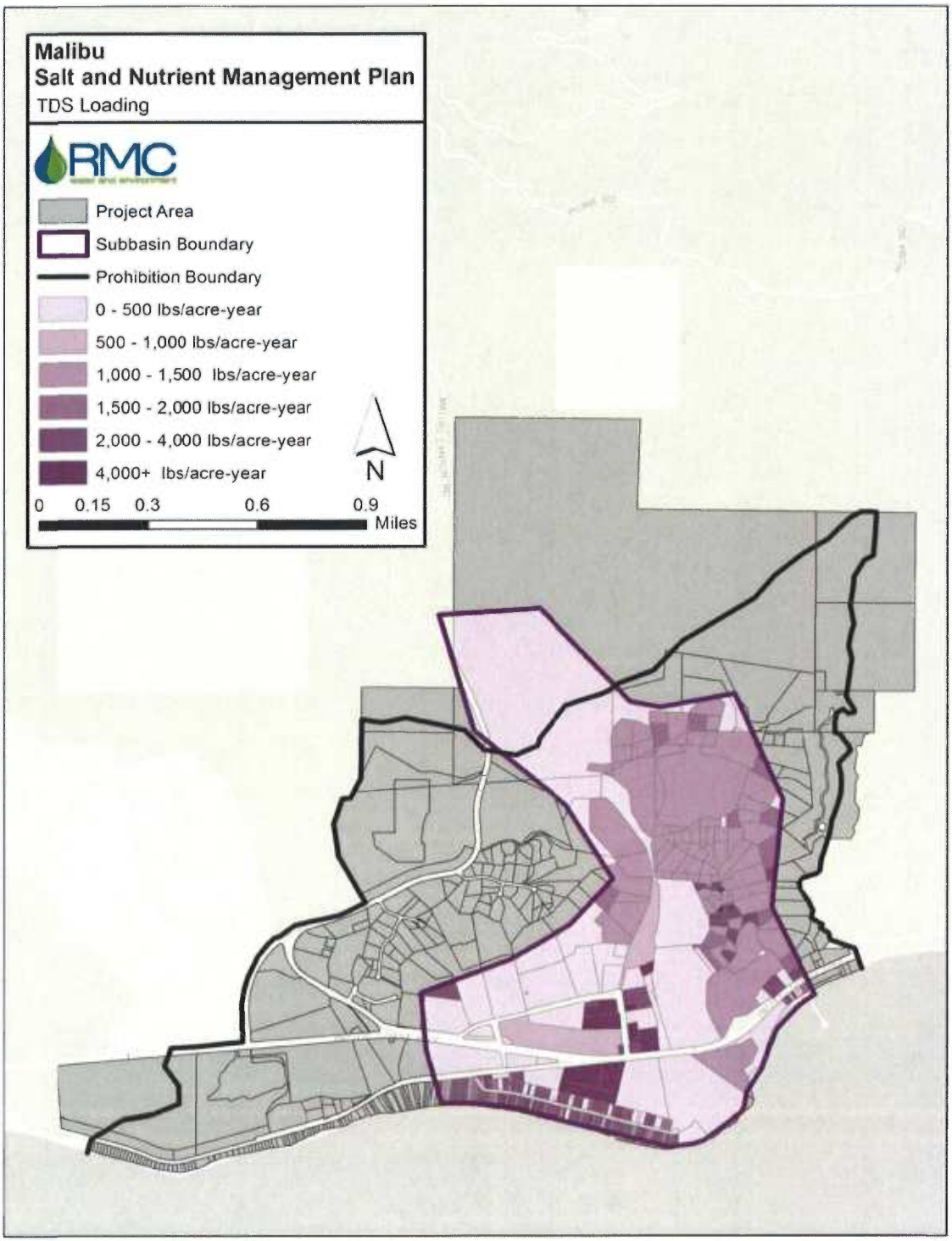


Figure 4-3: Nitrate-N Loading in the Malibu Valley Groundwater Basin

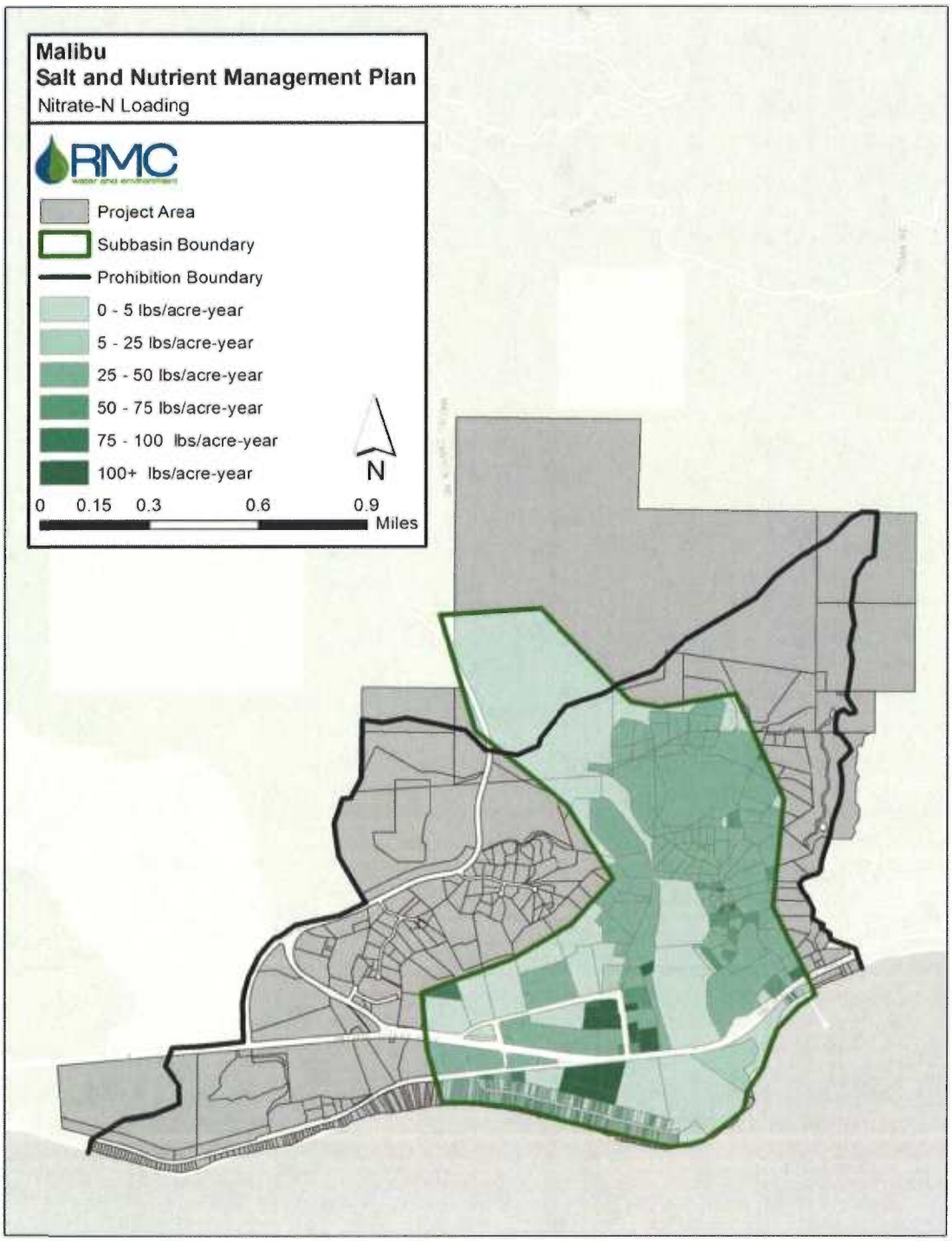


Figure 4-4: Percentage of Land Use in Study Area

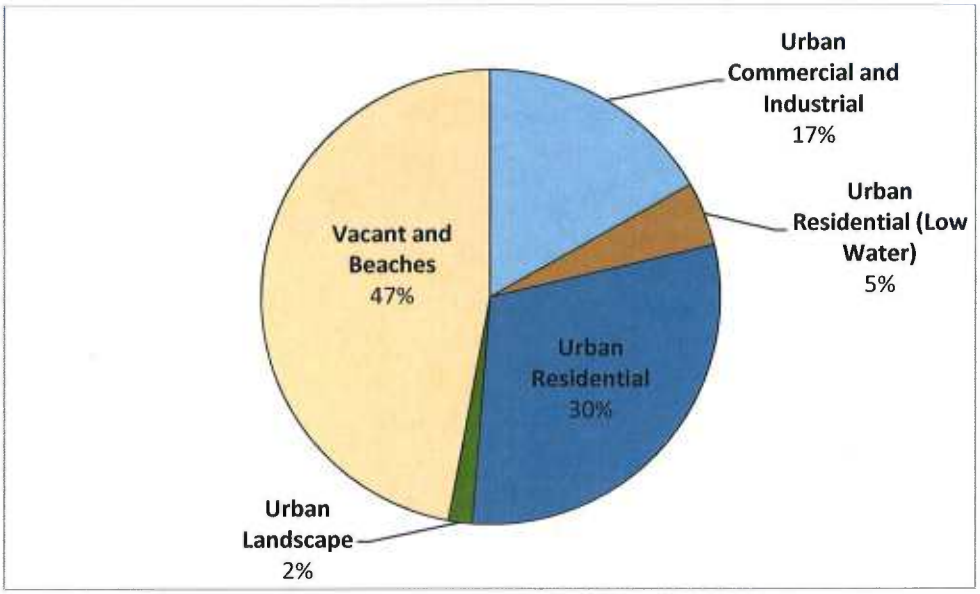


Figure 4-5: Percentage of TDS Loading in Study Area, by Land Use

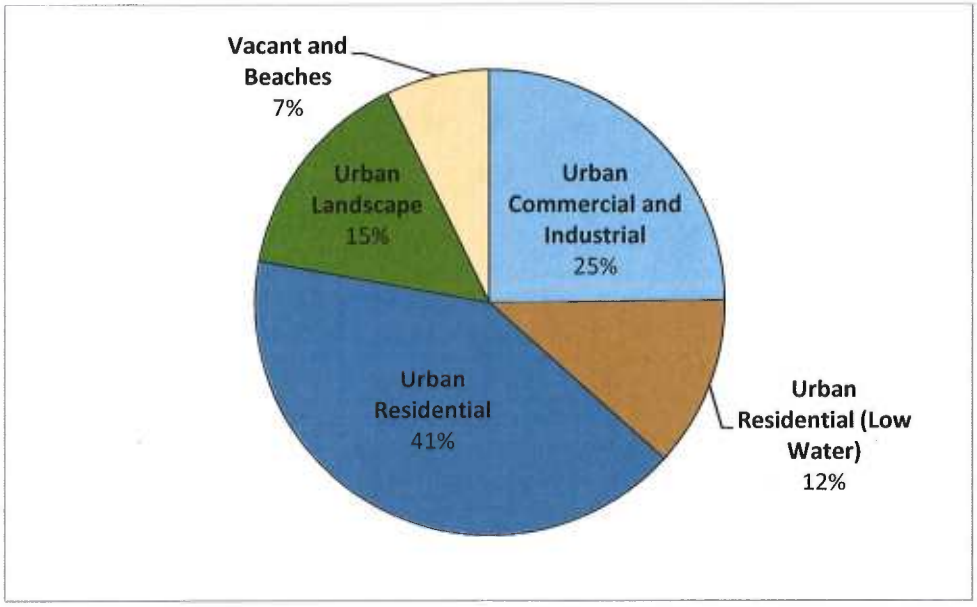
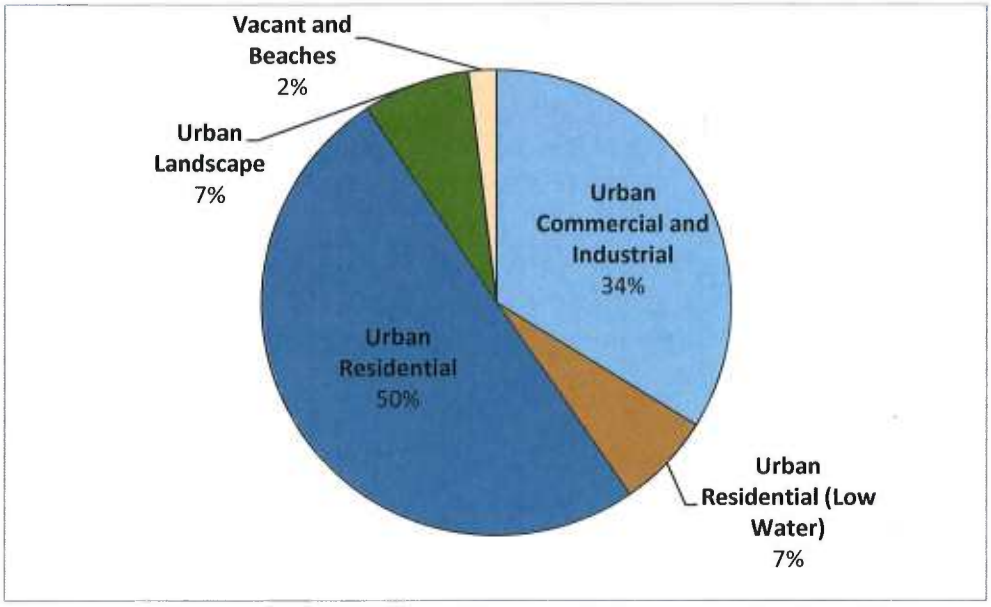


Figure 4-6: Percentage of Nitrogen Loading in Study Area, by Land Use



5 Future Groundwater Quality Analysis

This section describes the results from the analysis of future groundwater quality as a result of Project implementation. The future groundwater quality analysis is described in more detail in Appendix A.

5.1 Simulation of Baseline and Future Groundwater Quality

Groundwater quality concentrations for TDS and nitrate were simulated for the baseline (current) period and for the future (planning) period using a spreadsheet-based analytical mixing model. Concentration estimates were based on water and mass inflows and outflows (balances), mixed with the volume of water in storage in the groundwater basin and the average ambient groundwater quality (as previously described). The water balance components are based upon groundwater historic flow models (2003-2013) and are further extrapolated such that the future groundwater quality analysis simulates the period of 2010 to 2039.

The baseline (current) period water balances estimate all groundwater inflows and outflows for the baseline period and the associated change in storage based on estimates provided by the MODFLOW groundwater flow model of the basin. Future changes in water balance components simulated the cessation of septic system use by phase and the introduction of recycled water reuse (irrigation) and well injection.

TDS and nitrate concentrations are associated with each water balance inflow and outflow component. In order to simulate the effect of current and future salt and nutrient loading on groundwater quality in the groundwater basin, the spreadsheet mixing model 'mixed' the volume and quality of each inflow and outflow with the existing volume of groundwater and mass of TDS and nitrate in storage and tracked the annual change in groundwater storage and salt and nutrient masses for each year of simulation.

5.2 Baseline Analysis

The baseline (current) simulation period provided estimates of groundwater inflows and outflows to/from the groundwater basin and changes in groundwater storage from 2003 to 2013. This period represents existing groundwater basin conditions as characterized by average climatic conditions. The primary source of data for the water balance components was the Malibu MODFLOW groundwater flow model (McDonald Morrissey and Associates, 2014).

Major inflows in the baseline water balance include:

- Well injection of recycled water
- Ocean water inflow
- Precipitation recharge
- Inflow from septic systems
- Deep percolation from irrigation
- Natural stream inflow from Malibu Creek and Lagoon

Figures 5-1, 5-2, 5-3 and 5-4 show the breakdown of inflows to the groundwater basin by component for each phase.

Figure 5-1: Inflows to Malibu Valley Groundwater Basin by Component - Baseline

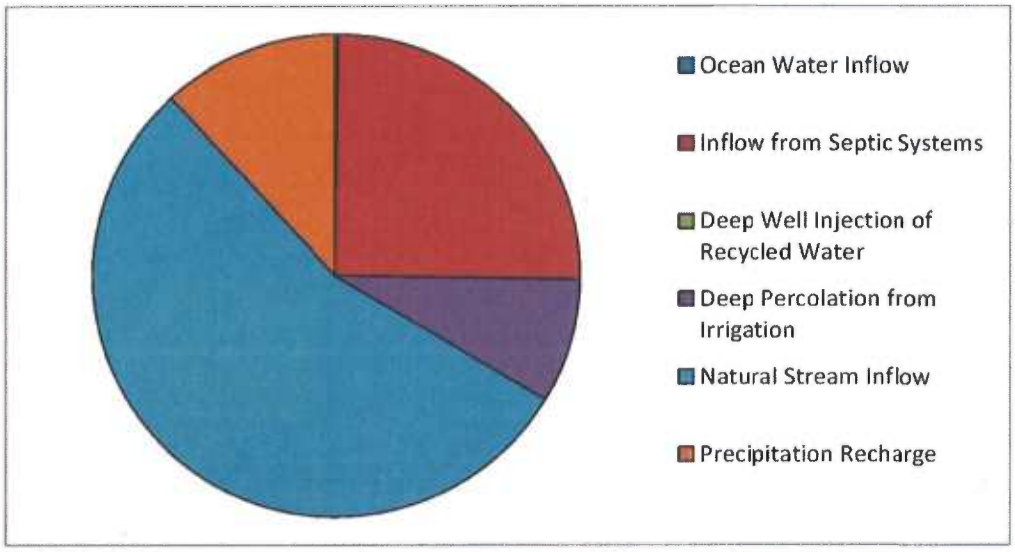


Figure 5-2: Inflows to Malibu Valley Groundwater Basin by Component – Phase 1

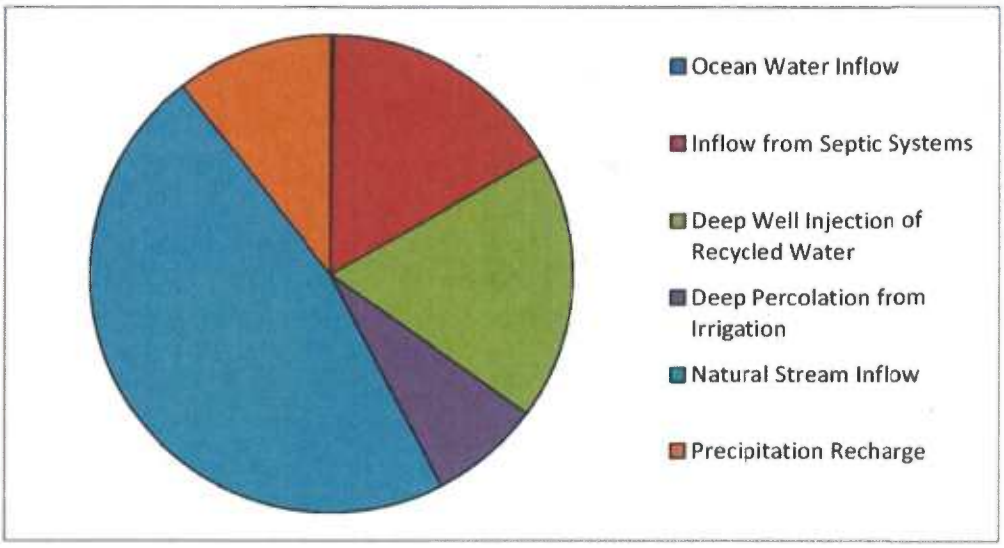


Figure 5-3: Inflows to Malibu Valley Groundwater Basin by Component – Phase 2

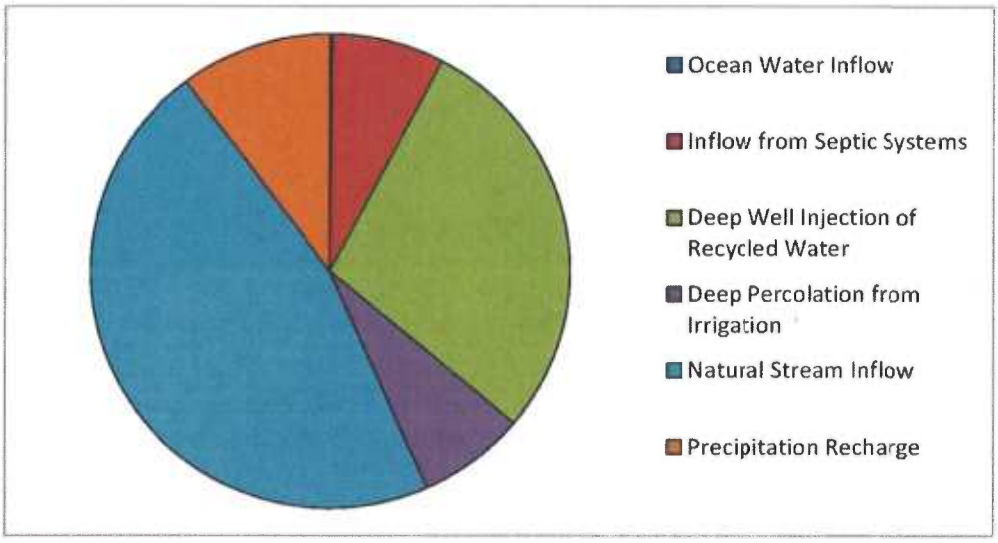
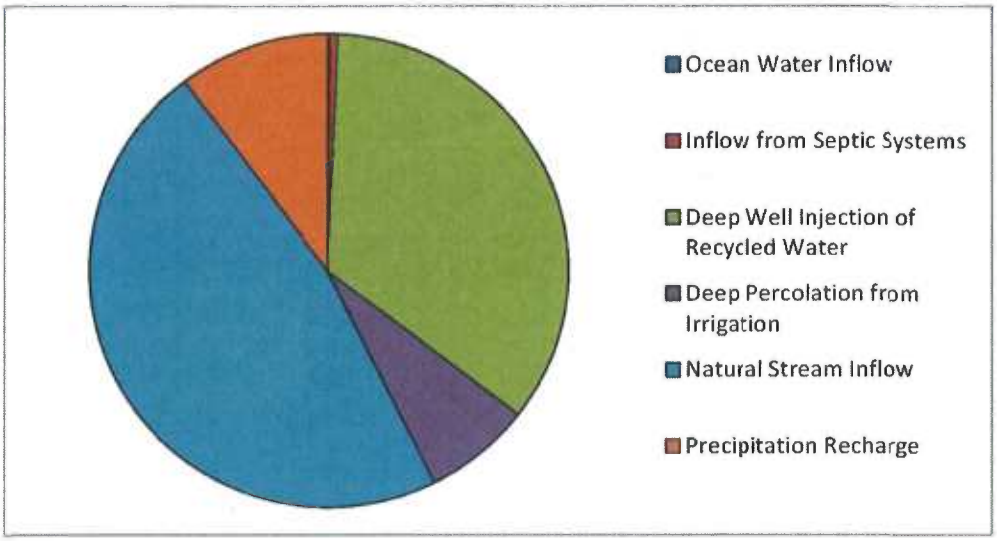


Figure 5-4: Inflows to Malibu Valley Groundwater Basin by Component – Phase 3



Major outflows in the baseline water balance include:

- Subsurface drainage to land features (e.g. wetlands)
- Evapotranspiration
- Groundwater flow to the ocean
- Stream gain from groundwater to the Malibu Creek and Lagoon

Areal anthropogenic recharge sources (irrigation deep percolation and septic systems) are not independently considered in the flow model but instead are subsumed within the model areal recharge rates. Model areal recharge rates were apportioned into natural sources (precipitation) and anthropogenic sources (return flows) based on the results of the surface loading model.

5.3 Water Quality of Inflows and Outflows

TDS and nitrate concentration estimates for groundwater basin inflows and outflows in the water balance are described below, followed by a discussion of the baseline mixing model calibration and results.

5.3.1 Natural Interface with Groundwater System

TDS and nitrate data from available surface water quality monitoring stations in the watershed were assessed to characterize the water quality of stream leakage from Malibu Creek and Lagoon. Based on recent water quality sampling, an average TDS concentration of 1,275 mg/L and average nitrate-N concentration of 2.46 mg/L were applied to Malibu Creek/Lagoon leakage for the baseline period (data were based on water quality testing completed as part of the Malibu Creek and Lagoon Total Maximum Daily Load (TMDL) setting process, USEPA, 2013). The coastal interface primarily facilitates a basin outflow; based on available data, ocean water quality facilitates a nitrogen input of 1.50 mg/L to the groundwater basin. Additionally, basin-wide nitrogen precipitation concentrations of 0.56 mg/L contribute further loading to the basin (NADP, 2014).

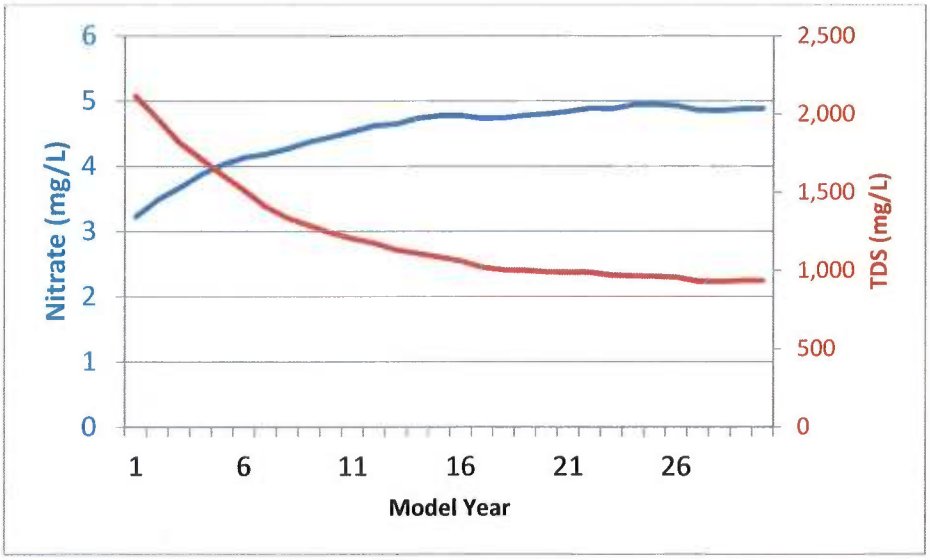
5.3.2 Anthropogenic Interface with Groundwater System

Salt and nutrient loads from agricultural, municipal, and septic sources are described in Section 4 - Source Identification and Loading Analysis. For the mixing model, the TDS and nitrogen mass loads for each return flow component were mixed with their respective annual return flow volumes to obtain an associated concentration. For the loading estimate, it was conservatively assumed that all nitrogen mass is converted to nitrate.

5.4 Mixing Model and Salt and Nutrient Balance

A spreadsheet mixing model was developed in order to simulate the effects of current salt and nutrient loading on groundwater quality in the Malibu Valley Groundwater Basin. In the mixing model, the simulated baseline period concentrations and trends were compared to the predominant pattern of observed concentrations and trends. Figure 5-5 shows the simulated average groundwater TDS and nitrate concentrations over the 30-year simulation period.

Figure 5-5: Final Simulated Baseline Average Groundwater Concentrations for Inland Area of the Malibu Valley Groundwater Basin



5.5 Future Conditions and Scenario Analysis

The spreadsheet mixing model developed for the baseline analysis was subsequently modified to evaluate the effects of planned changes to the study area, including future salt and nutrient loadings on overall groundwater quality in the Malibu Valley Groundwater Basin for the future planning period from 2010 to 2039. Future Project changes are superimposed over average water balance conditions during the 30-year baseline period (described above) to simulate future groundwater quality.

The mixing model was used to predict future water quality trends. This model is designed to incorporate the existing volume of groundwater and masses of TDS and nitrate in storage, and to track the annual change in groundwater storage and salt and nutrient mass for the groundwater basin as a whole over the study period. Three future scenarios were simulated using the mixing model assuming build-out conditions:

- Future Baseline (No-Project): Assumes average baseline water balance conditions with no additional wastewater treatment (i.e., continued use of OWDSs) or recycled water injection.

- Future Scenario 1: Assumes recycled water injection with centralized wastewater treatment/recycled water generation resulting in a total nitrogen concentration of 7 mg/L. No percolation in Winter Canyon is included in this scenario.
- Future Scenario 2: Assumes recycled water injection with centralized wastewater treatment/recycled water generation resulting in a total nitrogen concentration of 8 mg/L. No percolation in Winter Canyon is included in this scenario.

The average TDS and nitrate concentrations for the baseline period which were held constant across the three scenarios were:

- Deep percolation of areal precipitation
- Leakage from Malibu Creek and Lagoon
- Subsurface inflow from the Pacific Ocean

5.5.1 Simulated Water Quality Results

Simulated TDS Groundwater Concentrations

Future changes in land use and implementation of the proposed Project will not result in significant adverse changes to TDS loading to the groundwater basin. In fact, the TDS concentration of recycled water to be injected into the Malibu Valley Groundwater Basin will be less than existing ambient groundwater concentrations. Consequently, the proposed recycled water injection will not result in an altered future groundwater quality, and if anything, will result in improvements to groundwater quality with respect to TDS in the injection area (see Figure 5-5).

Simulated Nitrate-N Groundwater Concentrations

Figure 5-6 shows the results of the mixing model for nitrate-N for the three future conditions simulated. This figure plots the simulated future concentration trends for each scenario against the Basin Plan WQO of 10 mg/L. Table 5-1 summarizes the simulated average groundwater nitrate-N concentration at the end of the modeled period.

Figure 5-6: Simulated Future Groundwater Nitrate-N Concentrations

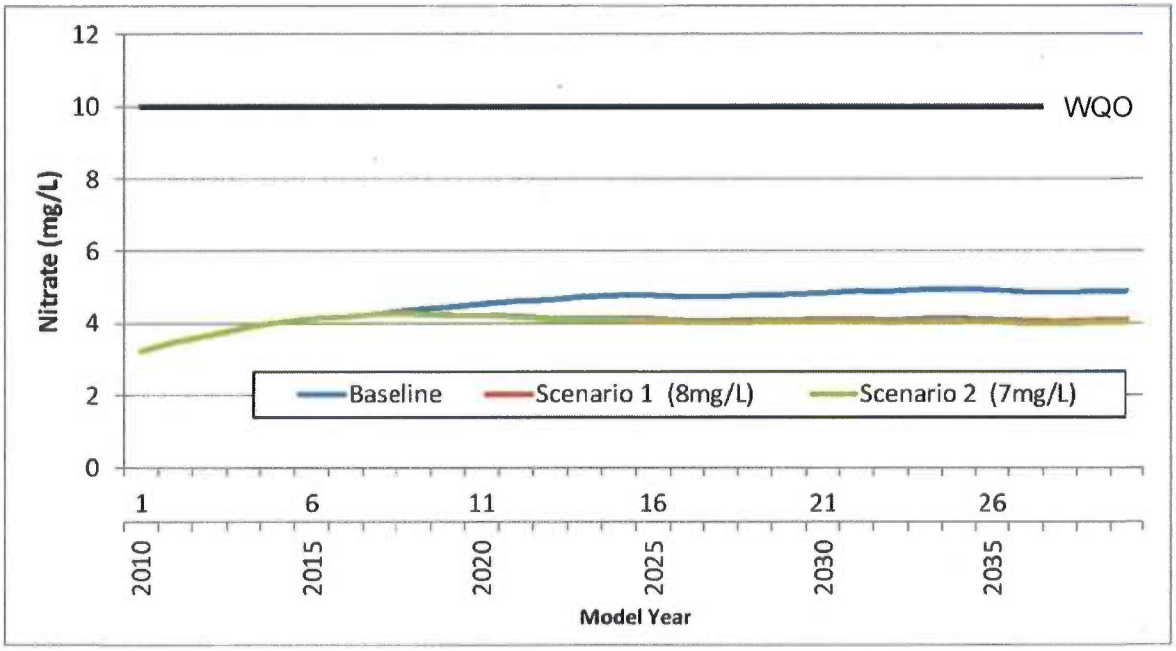


Table 5-1: Long-Term Nitrate-N Concentrations in Groundwater

Scenario	Nitrate- N (mg/L) at End of Model Period
Baseline (Current) Conditions	4.91
Injection of Effluent with 8 mg/L nitrate-N	4.10
Injection of Effluent with 7 mg/L nitrate-N	4.03

6 Modeling Findings

Based on the analysis documented herein, the following findings can be made:

- Proposed recycled water injections into the Malibu Valley Groundwater Basin will have no apparent negative impact on average TDS concentrations in the Malibu Valley Groundwater Basin. If anything, the injections will reduce groundwater TDS concentrations as the injected water will contain a lower TDS concentration than the ambient background quality.
- Since recycled water injection represents only about a third of the nitrogen loading to the groundwater basin, only about 13 percent of the groundwater basin's assimilative capacity for nitrate-N is utilized by the Project.
- Average nitrate concentrations in the Malibu Valley Groundwater Basin are projected to increase similarly under all three scenarios for the simulation period from 2010 to 2019 (by which point, the first two phases of the Project will have been implemented). Starting around 2019, the proposed Project will have significant enough effects on groundwater quality such that the

concentration trends diverge from baseline conditions and approach lower steady-state concentration at the end of the model period (2039).

- When considering the difference in modeled results between Scenarios 1 and 2 (reduction in groundwater nitrate-N concentrations resulting from a 1 mg/L nitrate-N concentration reduction in recycled water), the degree of treatment (nitrogen removal) relative to the resulting impacts on groundwater quality is minor (0.07 mg/L) as compared to scale of groundwater nitrate-N concentration reduction resulting from Project implementation (or the No-Project scenario, reducing average groundwater nitrate-N concentration by 0.81 mg/L).
- Reducing recycled water effluent standards for nitrate-N from 8 mg/L to 7 mg/L has a very small change on future groundwater quality, with long-term resultant groundwater concentrations of 4.10 mg/L and 4.03 mg/L, respectively.

In summary, the projected future increases in nitrate-N concentrations in the Malibu Valley Groundwater Basin remain below the WQO established for nitrate-N in the Basin Plan. Approximately 13 percent of the groundwater basin's overall assimilative capacity will be utilized by the Project and planned future land uses, of which only about 7 percent of the assimilative capacity for nitrate-N is utilized by the Project and the remaining portion is utilized by future land uses (i.e. development of currently vacant lands and changes to existing land uses). Finally, it is important to note that the modeling documented herein is conservative, given the assumptions incorporated in the mixing model for nitrate, and will therefore overestimate the actual nitrogen loadings to the groundwater basin.

7 Anti-Degradation Analysis

7.1 Summary

The SWRCB's *Statement of Policy with Respect to Maintaining High Quality of Waters in California* (otherwise known as Resolution No. 68-16) states that it is the policy of the State to maintain and promote high water quality. The purpose of this Resolution is to allow the State of California to grant permits and licenses for water and waste disposals into water bodies while providing maximum benefit and maintaining the health, safety, and welfare of Californians. In general, Resolution 68-16 establishes that:

- Whenever the existing water quality is better than the quality prescribed in policies, such high quality shall be maintained unless it can be demonstrated that any change is consistent with the maximum benefit to the people, will not affect present and future beneficial use of such water and will not result in water quality less than that prescribed in the policies.
- Waste discharges that lead to increased volume or concentration of waste is required to meet waste discharge requirements which will result in the best practicable treatment of control of discharges necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people will be maintained.

In summary, the California Anti-Degradation Policy requires that existing high quality waters be maintained to the maximum extent possible. However, there is leniency in discharge quality if the action is part of the best overall solution that provides benefits that outweigh the costs of lowered water quality.

The Recycled Water Policy, adopted by the SWRCB in 2009, established evaluation criteria for projects utilizing recycled water for groundwater recharge, such that a single recycled water project may use less than 10 percent of the available assimilative capacity, and multiple recycled water projects may use less than 20 percent of the available assimilative capacity, until such time as a Salt and Nutrient Management Plan is adopted.

- A project that utilizes less than 10 percent of the available assimilative capacity in a basin/sub-basin (or multiple projects utilizing less than 20 percent of the available assimilative capacity in a basin/sub-basin) need only conduct an anti-degradation analysis verifying the use of the assimilative capacity. For those basins/sub-basins where the Regional Water Boards have not determined the baseline assimilative capacity, the baseline assimilative capacity shall be calculated by the initial project proponent, with review and approval by the Regional Water Board, until such time as the salt/nutrient plan is approved by the Regional Water Board and is in effect. For compliance with this subparagraph, the available assimilative capacity shall be calculated by comparing the mineral water quality objective with the average concentration of the basin/sub-basin, either over the most recent five years of data available or using a data set approved by the Regional Water Board Executive Officer. In determining whether the available assimilative capacity will be exceeded by the project or projects, the Regional Water Board shall calculate the impacts of the project or projects over at least a ten year time frame.
- In the event a project or multiple projects utilize more than the fraction of the assimilative capacity designated, then a Regional Water Board-deemed acceptable anti-degradation analysis shall be performed to comply with the Resolution No. 68-16.

7.2 Applicability to Project

Overall, the net effect of the proposed Project will be to significantly reduce the mass of nitrogen loading to the Malibu Valley Groundwater Basin. Under current conditions, the existing OWDSs are contributing approximately 7,266 lbs of nitrogen per year to the groundwater basin, whereas recycled water injections associated with the proposed Project will contribute approximately 2,925 lbs per year at buildout (assuming an effluent nitrate concentration of 8 mg/L), a reduction of 4,340 lbs of nitrogen each year (an approximate reduction of 60%). Other significant findings applicable to the proposed Project include the following:

- The proposed Project will minimally increase the concentration of nitrate (measured as N) within the groundwater basin (specifically the deeper Civic Center Gravels zone); however, the net increase of nutrients will not exceed WQOs and therefore will "not result in water quality less than that prescribed in the policies."
- The portion of the groundwater basin downgradient of the proposed injection well locations is adjacent to the shoreline and would not be used for potable water supply in the future due to elevated TDS levels and high connectedness with the ocean (and associated increased risk for seawater intrusion).

Three injection wells are planned along Malibu Road, all of which will penetrate the Civic Center Gravels to a maximum depth of approximately 160 feet and all of which will be located within approximately 1,200 feet of the ocean. As shown in Figure 2-1, an offshore hydraulic gradient exits this area of the groundwater basin and therefore the discharge from the injection wells will be directed south toward the ocean/Santa Monica Bay where it will exit the groundwater basin at the southwestern edge of the basin through ocean floor seeps. Given the location of the injection wells and presence of an offshore gradient, the majority of the groundwater basin will be unaffected by the injected recycled water with higher nutrient concentrations and is viability as a future potential potable supply as required by the municipal designation in the Basin Plan will not be compromised by the Project. Additional water quality benefits anticipated from the Project include:

1. A seawater intrusion barrier will be created by the injections to further protect the municipal designation; and
2. The reduction in nutrient loadings to the shallow alluvial aquifer and Malibu Creek and Lagoon (and areas immediately downstream from the Lagoon) by the elimination of OWDS discharges.

However, as a precaution due to the Project's contribution of nitrate to the groundwater basin, conservative measures to protect public health are planned as part of the Project. Specifically, public health will be protected by a new well ordinance proposed by the City that will restrict the installation of news wells and pumping of groundwater in the Civic Center area.

In summary, the benefits to be achieved by the Project, which include the removal of OWDS discharges with high nutrients from shallow groundwater and connected surface water, groundwater basin protection from seawater intrusion, and potable water offset through the use of recycled water for irrigation (including indirect impacts such as reduced treatment costs and greenhouse gas emissions), far outweigh the anticipated slight increase in groundwater nutrient concentrations.

It is our conclusion that, while a slight degradation of groundwater water quality within the Malibu Valley Groundwater Basin is anticipated as a result of Project implementation, the overall water quality changes associated with the Project are consistent with the maximum benefit of the people of the State and the use of the groundwater basin's assimilative capacity should be granted.

Table 7-1: Summary of Anti-Degradation Assessment

SWRCB Resolution No. 68-16 Component	Anti-Degradation Assessment
Water quality changes associated with proposed project are consistent with the maximum benefit of the people of the State.	• The Project will not cause groundwater quality to exceed applicable WQOs • Use of recycled water for irrigation reduces groundwater pumping, while injection of recycled water helps mitigate saline water intrusion into the basin to protect municipal use designation
The water quality changes associated with proposed project will not unreasonably affect present and anticipated beneficial uses.	
The water quality changes will not result in water quality less than prescribed in the Basin Plan.	
The projects are consistent with the use of best practicable treatment or control to avoid pollution or nuisance and maintain the highest water quality consistent with maximum benefit to the people of the State.	• The concentration of nitrate-N in recycled water produced by the Project will be 8 mg/L; this concentration is well below the Basin Plan WQO of 10 mg/L
The proposed project is necessary to accommodate important economic or social development.	• The Project is necessary to help achieve the TMDLs established for Malibu Creek and Lagoon • The recycled water supply and potable offset are an integral part of the City's water supply portfolio • A de facto building moratorium has been created due to the OWDS prohibition, creating economic uncertainty for property owners affected by the Prohibition Resolution.

8 References

Ambrose, Richard F. and Anthony R. Orme. 2000. *Lower Malibu Creek and Lagoon Resource Enhancement and Management: Final Report to the California Coastal Conservancy.*

California Department of Water Resources. 2003. *California's Ground Water.* Bulletin 118.

Cardno Entrix. 2013. *The City of Malibu Shoreline Geophysical Survey.* July 10

Earth Consultants International. 2000. *IOKI and Chili Cookoff Parcels, Malibu, California: Civic Center Groundwater Report.*

Fugro West, Inc. 2005. *A steady-state groundwater flow model for the proposed Malibu-La Paz Ranch development.* Prepared for Sterling Capitol.

GeoSoils. 1989. *Response to County of Los Angeles Geologic Review of 18.4 Acre Parcel NW of Cross Creek Road and Civic Center Way.* April 17.

Geosyntec Consultants. 2007. *Geotechnical Site Exploration and Interpretation of Subsurface Conditions, Malibu Legacy Park Site, Malibu, California.* Report prepared for RMC Water and Environment. July 30.

Leighton and Associates, Inc. 1994. *Report for Geotechnical Studies for Planning Purposes in the Civic Center Area. City of Malibu, California.* Volumes I and II.

Los Angeles County. 2013. Los Angeles County GIS Data Portal as viewed at www.egis3.lacounty.gov/dataportal/category/theme/cadastral.

Los Angeles Regional Water Quality Control Board (LARWQCB). 2011. *Memorandum of Understanding between City of Malibu and Regional Water Quality Control Board, Los Angeles Region and State Water Resources Control Board Regarding Phased Implementation of Basin Plan Amendment Prohibiting On-Site Wastewater Disposal Systems in the Malibu Civic Center Area.* August.

LARWQCB. 1994. *Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties.* June.

Metcalf & Eddy. 2003. *Wastewater Engineering: Treatment and Reuse.* New York: McGraw-Hill.

McDonald Morrissey Associates, Inc. (MMA). 2014. *Groundwater Modeling Analysis of Proposed Wastewater Dispersal – City of Malibu, Malibu, California.*

MMA 2010. *Malibu Modeling Report.* August 27.

National Atmospheric Deposition Program (NADP). 2014. NTN Data Set for Channel Islands National Park (Station CA85) as viewed at www.nadp.sws.uiuc.edu/NTN/ntnData.aspx on viewed on March 13, 2014.

RMC Water and Environment. 2013. *Conceptual Groundwater Injection Plan.* June 29, 2012; updated February 27.

State Water Resources Control Board (SWRCB). 2012. *Water Quality Control Plan, Ocean Waters of California* (California Ocean Plan). August 19.

SWRCB. 2009. *Recycled Water Policy.* May 2009, Amended April 2013.

SWRCB 1968. State Water Resources Control Board, Resolution 68-16 *Statement of Policy With Respect to Maintaining High Quality of Waters in California.*

U.S. Environmental Protection Agency (USEPA), Region IX. 2013. *Malibu Creek & Lagoon TMDL for Sedimentation and Nutrients to Address Benthic Community Impairments.* July.

Appendix A – Results of Malibu Valley Groundwater Basin Loading and Mixing Model

Nitrogen Loading to Malibu Valley Groundwater Basin
Baseline (Current) Conditions

		Initial Basin Characteristics			Inflow									
					Stream Seepage			Surface Loading		Precipitation			Ocean Inflow	
	Year	Concentration (mg/L)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)
1	2010	3.23	1.48E+10	4.78E+10	2.46	1.19E+09	2.93E+09	5.93E+08	6.87E+09	0.56	2.47E+08	1.37E+08	1.50	4.60E+06
2	2011	3.49	1.48E+10	5.15E+10	2.46	1.07E+09	2.64E+09	6.46E+08	6.87E+09	0.56	3.71E+08	2.06E+08	1.50	4.79E+06
3	2012	3.67	1.48E+10	5.43E+10	2.46	9.86E+08	2.42E+09	6.78E+08	6.87E+09	0.56	1.60E+08	8.88E+07	1.50	4.72E+06
4	2013	3.87	1.48E+10	5.71E+10	2.46	1.17E+09	2.89E+09	7.22E+08	6.87E+09	0.56	1.81E+08	1.00E+08	1.50	4.61E+06
5	2014	4.03	1.47E+10	5.93E+10	2.46	1.22E+09	3.00E+09	7.89E+08	6.87E+09	0.56	2.03E+08	1.13E+08	1.50	4.70E+06
6	2015	4.13	1.48E+10	6.11E+10	2.46	1.07E+09	2.64E+09	7.20E+08	6.87E+09	0.56	5.24E+08	2.91E+08	1.50	4.56E+06
7	2016	4.19	1.48E+10	6.19E+10	2.46	1.19E+09	2.94E+09	7.30E+08	6.87E+09	0.56	3.06E+08	1.70E+08	1.50	4.44E+06
8	2017	4.27	1.48E+10	6.31E+10	2.46	1.25E+09	3.07E+09	7.61E+08	6.87E+09	0.56	1.20E+08	6.69E+07	1.50	4.51E+06
9	2018	4.37	1.48E+10	6.45E+10	2.46	1.18E+09	2.91E+09	7.43E+08	6.87E+09	0.56	1.84E+08	1.02E+08	1.50	4.74E+06
10	2019	4.45	1.47E+10	6.55E+10	2.46	1.19E+09	2.94E+09	6.73E+08	6.87E+09	0.56	1.99E+08	1.11E+08	1.50	4.70E+06
11	2020	4.53	1.47E+10	6.69E+10	2.46	1.19E+09	2.93E+09	5.93E+08	6.87E+09	0.56	2.47E+08	1.37E+08	1.50	4.60E+06
12	2021	4.62	1.47E+10	6.81E+10	2.46	1.07E+09	2.64E+09	6.46E+08	6.87E+09	0.56	3.71E+08	2.06E+08	1.50	4.79E+06
13	2022	4.65	1.47E+10	6.86E+10	2.46	9.86E+08	2.42E+09	6.78E+08	6.87E+09	0.56	1.60E+08	8.88E+07	1.50	4.72E+06
14	2023	4.74	1.47E+10	6.97E+10	2.46	1.17E+09	2.89E+09	7.22E+08	6.87E+09	0.56	1.81E+08	1.00E+08	1.50	4.61E+06
15	2024	4.78	1.47E+10	7.01E+10	2.46	1.22E+09	3.00E+09	7.89E+08	6.87E+09	0.56	2.03E+08	1.13E+08	1.50	4.70E+06
16	2025	4.78	1.47E+10	7.04E+10	2.46	1.07E+09	2.64E+09	7.20E+08	6.87E+09	0.56	5.24E+08	2.91E+08	1.50	4.56E+06
17	2026	4.74	1.47E+10	6.97E+10	2.46	1.19E+09	2.94E+09	7.30E+08	6.87E+09	0.56	3.06E+08	1.70E+08	1.50	4.44E+06
18	2027	4.74	1.47E+10	6.98E+10	2.46	1.25E+09	3.07E+09	7.61E+08	6.87E+09	0.56	1.20E+08	6.69E+07	1.50	4.51E+06
19	2028	4.78	1.47E+10	7.03E+10	2.46	1.18E+09	2.91E+09	7.43E+08	6.87E+09	0.56	1.84E+08	1.02E+08	1.50	4.74E+06
20	2029	4.80	1.47E+10	7.05E+10	2.46	1.19E+09	2.94E+09	6.73E+08	6.87E+09	0.56	1.99E+08	1.11E+08	1.50	4.70E+06
21	2030	4.84	1.47E+10	7.11E+10	2.46	1.19E+09	2.93E+09	5.93E+08	6.87E+09	0.56	2.47E+08	1.37E+08	1.50	4.60E+06
22	2031	4.89	1.47E+10	7.17E+10	2.46	1.07E+09	2.64E+09	6.46E+08	6.87E+09	0.56	3.71E+08	2.06E+08	1.50	4.79E+06
23	2032	4.88	1.47E+10	7.17E+10	2.46	9.86E+08	2.42E+09	6.78E+08	6.87E+09	0.56	1.60E+08	8.88E+07	1.50	4.72E+06
24	2033	4.94	1.46E+10	7.24E+10	2.46	1.17E+09	2.89E+09	7.22E+08	6.87E+09	0.56	1.81E+08	1.00E+08	1.50	4.61E+06
25	2034	4.95	1.46E+10	7.24E+10	2.46	1.22E+09	3.00E+09	7.89E+08	6.87E+09	0.56	2.03E+08	1.13E+08	1.50	4.70E+06
26	2035	4.93	1.47E+10	7.23E+10	2.46	1.07E+09	2.64E+09	7.20E+08	6.87E+09	0.56	5.24E+08	2.91E+08	1.50	4.56E+06
27	2036	4.86	1.47E+10	7.14E+10	2.46	1.19E+09	2.94E+09	7.30E+08	6.87E+09	0.56	3.06E+08	1.70E+08	1.50	4.44E+06
28	2037	4.85	1.47E+10	7.11E+10	2.46	1.25E+09	3.07E+09	7.61E+08	6.87E+09	0.56	1.20E+08	6.69E+07	1.50	4.51E+06
29	2038	4.88	1.46E+10	7.14E+10	2.46	1.18E+09	2.91E+09	7.43E+08	6.87E+09	0.56	1.84E+08	1.02E+08	1.50	4.74E+06
30	2039	4.89	1.46E+10	7.14E+10	2.46	1.19E+09	2.94E+09	6.73E+08	6.87E+09	0.56	1.99E+08	1.11E+08	1.50	4.70E+06

Nitrogen Loading to Malibu Valley Groundwater Basin
Baseline (Current) Conditions

			Outflow								
	Water Balance		Ocean Outflow			Stream Outflow			ET	Concluding Basin Characteristics		
Mass (mg)	Volume (L)	Concentration (mg/L)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)	Volume (L)	Volume (L)	Mass (mg)	Concentration (mg/L)
6.91E+06	0.00E+00	3.23	1.18E+09	3.81E+09	3.23	7.47E+08	2.41E+09	1.29E+08	1.48E+10	5.15E+10	3.49
7.19E+06	0.00E+00	3.49	1.12E+09	3.92E+09	3.49	8.68E+08	3.03E+09	8.50E+07	1.48E+10	5.43E+10	3.67
7.08E+06	0.00E+00	3.67	9.79E+08	3.59E+09	3.67	8.10E+08	2.97E+09	8.81E+07	1.48E+10	5.71E+10	3.87
6.92E+06	0.00E+00	3.87	1.20E+09	4.66E+09	3.87	7.82E+08	3.03E+09	1.10E+08	1.47E+10	5.93E+10	4.03
7.05E+06	0.00E+00	4.03	1.30E+09	5.22E+09	4.03	7.35E+08	2.96E+09	1.32E+08	1.48E+10	6.11E+10	4.13
6.84E+06	0.00E+00	4.13	1.19E+09	4.90E+09	4.13	1.00E+09	4.15E+09	1.34E+08	1.48E+10	6.19E+10	4.19
6.66E+06	0.00E+00	4.19	1.29E+09	5.38E+09	4.19	8.12E+08	3.40E+09	1.51E+08	1.48E+10	6.31E+10	4.27
6.76E+06	0.00E+00	4.27	1.39E+09	5.93E+09	4.27	6.15E+08	2.63E+09	1.47E+08	1.48E+10	6.45E+10	4.37
7.11E+06	0.00E+00	4.37	1.29E+09	5.65E+09	4.37	7.42E+08	3.25E+09	1.11E+08	1.47E+10	6.55E+10	4.45
7.05E+06	0.00E+00	4.45	1.23E+09	5.48E+09	4.45	7.02E+08	3.12E+09	1.17E+08	1.47E+10	6.69E+10	4.53
6.91E+06	0.00E+00	4.53	1.18E+09	5.35E+09	4.53	7.47E+08	3.39E+09	1.29E+08	1.47E+10	6.81E+10	4.62
7.19E+06	0.00E+00	4.62	1.12E+09	5.19E+09	4.62	8.68E+08	4.02E+09	8.50E+07	1.47E+10	6.86E+10	4.65
7.08E+06	0.00E+00	4.65	9.79E+08	4.56E+09	4.65	8.10E+08	3.77E+09	8.81E+07	1.47E+10	6.97E+10	4.74
6.92E+06	0.00E+00	4.74	1.20E+09	5.71E+09	4.74	7.82E+08	3.71E+09	1.10E+08	1.47E+10	7.01E+10	4.78
7.05E+06	0.00E+00	4.78	1.30E+09	6.19E+09	4.78	7.35E+08	3.51E+09	1.32E+08	1.47E+10	7.04E+10	4.78
6.84E+06	0.00E+00	4.78	1.19E+09	5.66E+09	4.78	1.00E+09	4.80E+09	1.34E+08	1.47E+10	6.97E+10	4.74
6.66E+06	0.00E+00	4.74	1.29E+09	6.09E+09	4.74	8.12E+08	3.84E+09	1.51E+08	1.47E+10	6.98E+10	4.74
6.76E+06	0.00E+00	4.74	1.39E+09	6.59E+09	4.74	6.15E+08	2.92E+09	1.47E+08	1.47E+10	7.03E+10	4.78
7.11E+06	0.00E+00	4.78	1.29E+09	6.18E+09	4.78	7.42E+08	3.55E+09	1.11E+08	1.47E+10	7.05E+10	4.80
7.05E+06	0.00E+00	4.80	1.23E+09	5.91E+09	4.80	7.02E+08	3.37E+09	1.17E+08	1.47E+10	7.11E+10	4.84
6.91E+06	0.00E+00	4.84	1.18E+09	5.72E+09	4.84	7.47E+08	3.62E+09	1.29E+08	1.47E+10	7.17E+10	4.89
7.19E+06	0.00E+00	4.89	1.12E+09	5.49E+09	4.89	8.68E+08	4.25E+09	8.50E+07	1.47E+10	7.17E+10	4.88
7.08E+06	0.00E+00	4.88	9.79E+08	4.78E+09	4.88	8.10E+08	3.95E+09	8.81E+07	1.46E+10	7.24E+10	4.94
6.92E+06	0.00E+00	4.94	1.20E+09	5.95E+09	4.94	7.82E+08	3.87E+09	1.10E+08	1.46E+10	7.24E+10	4.95
7.05E+06	0.00E+00	4.95	1.30E+09	6.42E+09	4.95	7.35E+08	3.64E+09	1.32E+08	1.47E+10	7.23E+10	4.93
6.84E+06	0.00E+00	4.93	1.19E+09	5.84E+09	4.93	1.00E+09	4.95E+09	1.34E+08	1.47E+10	7.14E+10	4.86
6.66E+06	0.00E+00	4.86	1.29E+09	6.25E+09	4.86	8.12E+08	3.95E+09	1.51E+08	1.47E+10	7.11E+10	4.85
6.76E+06	0.00E+00	4.85	1.39E+09	6.74E+09	4.85	6.15E+08	2.99E+09	1.47E+08	1.46E+10	7.14E+10	4.88
7.11E+06	0.00E+00	4.88	1.29E+09	6.30E+09	4.88	7.42E+08	3.62E+09	1.11E+08	1.46E+10	7.14E+10	4.89
7.05E+06	0.00E+00	4.89	1.23E+09	6.01E+09	4.89	7.02E+08	3.43E+09	1.17E+08	1.46E+10	7.19E+10	4.91

Nitrogen Loading to Malibu Valley Groundwater Model
Future Scenario with Effluent at 8 mg/L Nitrate-N

		Inflow													
		Initial Basin Characteristics			Stream Seepage			Surface Loading		Precipitation			Ocean Inflow		
	Year	Concentration (mg/L)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)
1	2010	3.23	1.48E+10	4.78E+10	2.46	1.19E+09	2.93E+09	5.93E+08	6.87E+09	0.56	2.47E+08	1.37E+08	1.50	4.60E+06	6.91E+06
2	2011	3.49	1.48E+10	5.15E+10	2.46	1.07E+09	2.64E+09	6.46E+08	6.87E+09	0.56	3.71E+08	2.06E+08	1.50	4.79E+06	7.19E+06
3	2012	3.67	1.48E+10	5.43E+10	2.46	9.86E+08	2.42E+09	6.78E+08	6.87E+09	0.56	1.60E+08	8.88E+07	1.50	4.72E+06	7.08E+06
4	2013	3.87	1.48E+10	5.71E+10	2.46	1.17E+09	2.89E+09	7.22E+08	6.87E+09	0.56	1.81E+08	1.00E+08	1.50	4.61E+06	6.92E+06
5	2014	4.03	1.47E+10	5.93E+10	2.46	1.22E+09	3.00E+09	7.89E+08	6.87E+09	0.56	2.03E+08	1.13E+08	1.50	4.70E+06	7.05E+06
6	2015	4.13	1.48E+10	6.11E+10	2.46	1.07E+09	2.64E+09	7.20E+08	6.87E+09	0.56	5.24E+08	2.91E+08	1.50	4.56E+06	6.84E+06
7	2016	4.19	1.48E+10	6.19E+10	2.46	1.19E+09	2.94E+09	7.30E+08	6.87E+09	0.56	3.06E+08	1.70E+08	1.50	4.44E+06	6.66E+06
8	2017	4.27	1.48E+10	6.31E+10	2.46	1.22E+09	3.00E+09	7.78E+08	6.30E+09	0.56	1.20E+08	6.69E+07	1.50	4.45E+06	6.67E+06
9	2018	4.26	1.48E+10	6.29E+10	2.46	1.14E+09	2.81E+09	7.65E+08	6.30E+09	0.56	1.84E+08	1.02E+08	1.50	4.76E+06	7.14E+06
10	2019	4.24	1.47E+10	6.24E+10	2.46	1.14E+09	2.80E+09	7.13E+08	6.30E+09	0.56	1.99E+08	1.11E+08	1.50	4.64E+06	6.95E+06
11	2020	4.23	1.47E+10	6.23E+10	2.46	1.13E+09	2.78E+09	5.56E+08	6.18E+09	0.56	2.47E+08	1.37E+08	1.50	4.56E+06	6.84E+06
12	2021	4.20	1.47E+10	6.18E+10	2.46	1.05E+09	2.58E+09	5.89E+08	6.18E+09	0.56	3.71E+08	2.06E+08	1.50	4.86E+06	7.29E+06
13	2022	4.14	1.47E+10	6.09E+10	2.46	9.65E+08	2.37E+09	6.13E+08	6.18E+09	0.56	1.60E+08	8.88E+07	1.50	4.65E+06	6.97E+06
14	2023	4.14	1.47E+10	6.07E+10	2.46	1.17E+09	2.88E+09	4.92E+08	6.50E+09	0.56	1.81E+08	1.00E+08	1.50	4.63E+06	6.95E+06
15	2024	4.14	1.46E+10	6.06E+10	2.46	1.22E+09	2.99E+09	5.23E+08	6.50E+09	0.56	2.03E+08	1.13E+08	1.50	4.93E+06	7.39E+06
16	2025	4.12	1.47E+10	6.06E+10	2.46	1.07E+09	2.63E+09	4.54E+08	6.50E+09	0.56	5.24E+08	2.91E+08	1.50	4.51E+06	6.77E+06
17	2026	4.07	1.47E+10	5.98E+10	2.46	1.19E+09	2.94E+09	4.69E+08	6.50E+09	0.56	3.06E+08	1.70E+08	1.50	4.39E+06	6.58E+06
18	2027	4.07	1.47E+10	5.97E+10	2.46	1.25E+09	3.09E+09	5.04E+08	6.50E+09	0.56	1.20E+08	6.69E+07	1.50	4.51E+06	6.76E+06
19	2028	4.09	1.47E+10	6.00E+10	2.46	1.18E+09	2.90E+09	4.97E+08	6.50E+09	0.56	1.84E+08	1.02E+08	1.50	4.98E+06	7.47E+06
20	2029	4.09	1.46E+10	5.98E+10	2.46	1.18E+09	2.90E+09	4.64E+08	6.50E+09	0.56	1.99E+08	1.11E+08	1.50	4.87E+06	7.30E+06
21	2030	4.10	1.46E+10	6.01E+10	2.46	1.15E+09	2.83E+09	4.34E+08	6.50E+09	0.56	2.47E+08	1.37E+08	1.50	4.66E+06	6.99E+06
22	2031	4.12	1.46E+10	6.01E+10	2.46	1.07E+09	2.63E+09	4.60E+08	6.50E+09	0.56	3.71E+08	2.06E+08	1.50	4.95E+06	7.43E+06
23	2032	4.09	1.46E+10	5.97E+10	2.46	9.83E+08	2.42E+09	4.70E+08	6.50E+09	0.56	1.60E+08	8.88E+07	1.50	4.74E+06	7.11E+06
24	2033	4.12	1.46E+10	6.00E+10	2.46	1.17E+09	2.88E+09	4.92E+08	6.50E+09	0.56	1.81E+08	1.00E+08	1.50	4.63E+06	6.95E+06
25	2034	4.12	1.45E+10	5.99E+10	2.46	1.22E+09	2.99E+09	5.23E+08	6.50E+09	0.56	2.03E+08	1.13E+08	1.50	4.93E+06	7.39E+06
26	2035	4.11	1.46E+10	6.00E+10	2.46	1.07E+09	2.63E+09	4.54E+08	6.50E+09	0.56	5.24E+08	2.91E+08	1.50	4.51E+06	6.77E+06
27	2036	4.06	1.46E+10	5.92E+10	2.46	1.19E+09	2.94E+09	4.69E+08	6.50E+09	0.56	3.06E+08	1.70E+08	1.50	4.39E+06	6.58E+06
28	2037	4.06	1.46E+10	5.91E+10	2.46	1.25E+09	3.09E+09	5.04E+08	6.50E+09	0.56	1.20E+08	6.69E+07	1.50	4.51E+06	6.76E+06
29	2038	4.08	1.46E+10	5.94E+10	2.46	1.18E+09	2.90E+09	4.97E+08	6.50E+09	0.56	1.84E+08	1.02E+08	1.50	4.98E+06	7.47E+06
30	2039	4.09	1.45E+10	5.93E+10	2.46	1.18E+09	2.90E+09	4.64E+08	6.50E+09	0.56	1.99E+08	1.11E+08	1.50	4.87E+06	7.30E+06

** Scenario 1 utilizes an injection effluent limit of 8 mg/L

Nitrogen Loading to Malibu Valley Groundwater Model
Future Scenario with Effluent at 8 mg/L Nitrate-N

	Outflow									
Water Balance	Ocean Outflow			Stream Outflow			ET	Concluding Basin Characteristics		
Volume (L)	Concentration (mg/L)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)	Volume (L)	Volume (L)	Mass (mg)	Concentration (mg/L)
0.00E+00	3.23	1.18E+09	3.81E+09	3.23	7.47E+08	2.41E+09	1.29E+08	1.48E+10	5.15E+10	3.49
0.00E+00	3.49	1.12E+09	3.92E+09	3.49	8.68E+08	3.03E+09	8.50E+07	1.48E+10	5.43E+10	3.67
0.00E+00	3.67	9.79E+08	3.59E+09	3.67	8.10E+08	2.97E+09	8.81E+07	1.48E+10	5.71E+10	3.87
0.00E+00	3.87	1.20E+09	4.66E+09	3.87	7.82E+08	3.03E+09	1.10E+08	1.47E+10	5.93E+10	4.03
0.00E+00	4.03	1.30E+09	5.22E+09	4.03	7.35E+08	2.96E+09	1.32E+08	1.48E+10	6.11E+10	4.13
0.00E+00	4.13	1.19E+09	4.90E+09	4.13	1.00E+09	4.15E+09	1.34E+08	1.48E+10	6.19E+10	4.19
0.00E+00	4.19	1.29E+09	5.38E+09	4.19	8.12E+08	3.40E+09	1.51E+08	1.48E+10	6.31E+10	4.27
2.60E+08	4.27	1.52E+09	6.48E+09	4.27	7.27E+08	3.10E+09	1.47E+08	1.48E+10	6.29E+10	4.26
2.60E+08	4.26	1.43E+09	6.08E+09	4.26	8.59E+08	3.66E+09	1.11E+08	1.47E+10	6.24E+10	4.24
2.60E+08	4.24	1.37E+09	5.78E+09	4.24	8.22E+08	3.48E+09	1.17E+08	1.47E+10	6.23E+10	4.23
4.32E+08	4.23	1.36E+09	5.77E+09	4.23	9.16E+08	3.87E+09	1.29E+08	1.47E+10	6.18E+10	4.20
4.32E+08	4.20	1.31E+09	5.49E+09	4.20	1.03E+09	4.34E+09	8.50E+07	1.47E+10	6.09E+10	4.14
4.32E+08	4.14	1.16E+09	4.82E+09	4.14	9.76E+08	4.04E+09	8.81E+07	1.47E+10	6.07E+10	4.14
5.58E+08	4.14	1.40E+09	5.79E+09	4.14	9.16E+08	3.79E+09	1.10E+08	1.46E+10	6.06E+10	4.14
5.58E+08	4.14	1.47E+09	6.07E+09	4.14	8.55E+08	3.54E+09	1.32E+08	1.47E+10	6.06E+10	4.12
5.58E+08	4.12	1.35E+09	5.58E+09	4.12	1.13E+09	4.65E+09	1.34E+08	1.47E+10	5.98E+10	4.07
5.58E+08	4.07	1.46E+09	5.96E+09	4.07	9.19E+08	3.74E+09	1.51E+08	1.47E+10	5.97E+10	4.07
5.58E+08	4.07	1.57E+09	6.38E+09	4.07	7.48E+08	3.04E+09	1.47E+08	1.47E+10	6.00E+10	4.09
5.58E+08	4.09	1.48E+09	6.04E+09	4.09	8.78E+08	3.59E+09	1.11E+08	1.46E+10	5.98E+10	4.09
5.58E+08	4.09	1.42E+09	5.82E+09	4.09	8.50E+08	3.48E+09	1.17E+08	1.46E+10	6.01E+10	4.10
5.58E+08	4.10	1.39E+09	5.72E+09	4.10	9.10E+08	3.73E+09	1.29E+08	1.46E+10	6.01E+10	4.12
5.58E+08	4.12	1.33E+09	5.49E+09	4.12	1.02E+09	4.20E+09	8.50E+07	1.46E+10	5.97E+10	4.09
5.58E+08	4.09	1.19E+09	4.85E+09	4.09	9.61E+08	3.93E+09	8.81E+07	1.46E+10	6.00E+10	4.12
5.58E+08	4.12	1.40E+09	5.77E+09	4.12	9.16E+08	3.77E+09	1.10E+08	1.45E+10	5.99E+10	4.12
5.58E+08	4.12	1.47E+09	6.05E+09	4.12	8.55E+08	3.52E+09	1.32E+08	1.46E+10	6.00E+10	4.11
5.58E+08	4.11	1.35E+09	5.56E+09	4.11	1.13E+09	4.64E+09	1.34E+08	1.46E+10	5.92E+10	4.06
5.58E+08	4.06	1.46E+09	5.94E+09	4.06	9.19E+08	3.73E+09	1.51E+08	1.46E+10	5.91E+10	4.06
5.58E+08	4.06	1.57E+09	6.36E+09	4.06	7.48E+08	3.04E+09	1.47E+08	1.46E+10	5.94E+10	4.08
5.58E+08	4.08	1.48E+09	6.02E+09	4.08	8.78E+08	3.58E+09	1.11E+08	1.45E+10	5.93E+10	4.09
5.58E+08	4.09	1.42E+09	5.81E+09	4.09	8.50E+08	3.47E+09	1.17E+08	1.45E+10	5.95E+10	4.10

Nitrogen Loading to Malibu Valley Groundwater Model
Future Scenario with Effluent at 7 mg/L Nitrate-N

		Inflow													
		Initial Basin Characteristics			Stream Seepage			Surface Loading		Precipitation			Ocean Inflow		
	Year	Concentration (mg/L)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)
1	2010	3.23	1.48E+10	4.78E+10	2.46	1.19E+09	2.93E+09	5.93E+08	6.87E+09	0.56	2.47E+08	1.37E+08	1.50	4.60E+06	6.91E+06
2	2011	3.49	1.48E+10	5.15E+10	2.46	1.07E+09	2.64E+09	6.46E+08	6.87E+09	0.56	3.71E+08	2.06E+08	1.50	4.79E+06	7.19E+06
3	2012	3.67	1.48E+10	5.43E+10	2.46	9.86E+08	2.42E+09	6.78E+08	6.87E+09	0.56	1.60E+08	8.88E+07	1.50	4.72E+06	7.08E+06
4	2013	3.87	1.48E+10	5.71E+10	2.46	1.17E+09	2.89E+09	7.22E+08	6.87E+09	0.56	1.81E+08	1.00E+08	1.50	4.61E+06	6.92E+06
5	2014	4.03	1.47E+10	5.93E+10	2.46	1.22E+09	3.00E+09	7.89E+08	6.87E+09	0.56	2.03E+08	1.13E+08	1.50	4.70E+06	7.05E+06
6	2015	4.13	1.48E+10	6.11E+10	2.46	1.07E+09	2.64E+09	7.20E+08	6.87E+09	0.56	5.24E+08	2.91E+08	1.50	4.56E+06	6.84E+06
7	2016	4.19	1.48E+10	6.19E+10	2.46	1.19E+09	2.94E+09	7.30E+08	6.87E+09	0.56	3.06E+08	1.70E+08	1.50	4.44E+06	6.66E+06
8	2017	4.27	1.48E+10	6.31E+10	2.46	1.22E+09	3.00E+09	7.78E+08	6.24E+09	0.56	1.20E+08	6.69E+07	1.50	4.45E+06	6.67E+06
9	2018	4.26	1.48E+10	6.28E+10	2.46	1.14E+09	2.81E+09	7.65E+08	6.24E+09	0.56	1.84E+08	1.02E+08	1.50	4.76E+06	7.14E+06
10	2019	4.23	1.47E+10	6.22E+10	2.46	1.14E+09	2.80E+09	7.13E+08	6.24E+09	0.56	1.99E+08	1.11E+08	1.50	4.64E+06	6.95E+06
11	2020	4.22	1.47E+10	6.22E+10	2.46	1.13E+09	2.78E+09	5.56E+08	6.04E+09	0.56	2.47E+08	1.37E+08	1.50	4.56E+06	6.84E+06
12	2021	4.19	1.47E+10	6.15E+10	2.46	1.05E+09	2.58E+09	5.89E+08	6.04E+09	0.56	3.71E+08	2.06E+08	1.50	4.86E+06	7.29E+06
13	2022	4.11	1.47E+10	6.05E+10	2.46	9.65E+08	2.37E+09	6.13E+08	6.04E+09	0.56	1.60E+08	8.88E+07	1.50	4.65E+06	6.97E+06
14	2023	4.11	1.47E+10	6.02E+10	2.46	1.17E+09	2.88E+09	4.92E+08	6.34E+09	0.56	1.81E+08	1.00E+08	1.50	4.63E+06	6.95E+06
15	2024	4.10	1.46E+10	6.01E+10	2.46	1.22E+09	2.99E+09	5.23E+08	6.34E+09	0.56	2.03E+08	1.13E+08	1.50	4.93E+06	7.39E+06
16	2025	4.08	1.47E+10	6.00E+10	2.46	1.07E+09	2.63E+09	4.54E+08	6.34E+09	0.56	5.24E+08	2.91E+08	1.50	4.51E+06	6.77E+06
17	2026	4.02	1.47E+10	5.91E+10	2.46	1.19E+09	2.94E+09	4.69E+08	6.34E+09	0.56	3.06E+08	1.70E+08	1.50	4.39E+06	6.58E+06
18	2027	4.02	1.47E+10	5.90E+10	2.46	1.25E+09	3.09E+09	5.04E+08	6.34E+09	0.56	1.20E+08	6.69E+07	1.50	4.51E+06	6.76E+06
19	2028	4.03	1.47E+10	5.92E+10	2.46	1.18E+09	2.90E+09	4.97E+08	6.34E+09	0.56	1.84E+08	1.02E+08	1.50	4.98E+06	7.47E+06
20	2029	4.04	1.46E+10	5.90E+10	2.46	1.18E+09	2.90E+09	4.64E+08	6.34E+09	0.56	1.99E+08	1.11E+08	1.50	4.87E+06	7.30E+06
21	2030	4.04	1.46E+10	5.92E+10	2.46	1.15E+09	2.83E+09	4.34E+08	6.34E+09	0.56	2.47E+08	1.37E+08	1.50	4.66E+06	6.99E+06
22	2031	4.06	1.46E+10	5.92E+10	2.46	1.07E+09	2.63E+09	4.60E+08	6.34E+09	0.56	3.71E+08	2.06E+08	1.50	4.95E+06	7.43E+06
23	2032	4.02	1.46E+10	5.88E+10	2.46	9.83E+08	2.42E+09	4.70E+08	6.34E+09	0.56	1.60E+08	8.88E+07	1.50	4.74E+06	7.11E+06
24	2033	4.05	1.46E+10	5.90E+10	2.46	1.17E+09	2.88E+09	4.92E+08	6.34E+09	0.56	1.81E+08	1.00E+08	1.50	4.63E+06	6.95E+06
25	2034	4.06	1.45E+10	5.90E+10	2.46	1.22E+09	2.99E+09	5.23E+08	6.34E+09	0.56	2.03E+08	1.13E+08	1.50	4.93E+06	7.39E+06
26	2035	4.04	1.46E+10	5.90E+10	2.46	1.07E+09	2.63E+09	4.54E+08	6.34E+09	0.56	5.24E+08	2.91E+08	1.50	4.51E+06	6.77E+06
27	2036	3.99	1.46E+10	5.82E+10	2.46	1.19E+09	2.94E+09	4.69E+08	6.34E+09	0.56	3.06E+08	1.70E+08	1.50	4.39E+06	6.58E+06
28	2037	3.99	1.46E+10	5.82E+10	2.46	1.25E+09	3.09E+09	5.04E+08	6.34E+09	0.56	1.20E+08	6.69E+07	1.50	4.51E+06	6.76E+06
29	2038	4.01	1.46E+10	5.84E+10	2.46	1.18E+09	2.90E+09	4.97E+08	6.34E+09	0.56	1.84E+08	1.02E+08	1.50	4.98E+06	7.47E+06
30	2039	4.02	1.45E+10	5.83E+10	2.46	1.18E+09	2.90E+09	4.64E+08	6.34E+09	0.56	1.99E+08	1.11E+08	1.50	4.87E+06	7.30E+06

** Scenario 2 utilizes an injection effluent limit of 7 mg/L

Nitrogen Loading to Malibu Valley Groundwater Model
Future Scenario with Effluent at 7 mg/L Nitrate-N

	Outflow									
Water Balance	Ocean Outflow			Stream Outflow			ET	Concluding Basin Characteristics		
Volume (L)	Concentration (mg/L)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)	Volume (L)	Volume (L)	Mass (mg)	Concentration (mg/L)
0.00E+00	3.23	1.18E+09	3.81E+09	3.23	7.47E+08	2.41E+09	1.29E+08	1.48E+10	5.15E+10	3.49
0.00E+00	3.49	1.12E+09	3.92E+09	3.49	8.68E+08	3.03E+09	8.50E+07	1.48E+10	5.43E+10	3.67
0.00E+00	3.67	9.79E+08	3.59E+09	3.67	8.10E+08	2.97E+09	8.81E+07	1.48E+10	5.71E+10	3.87
0.00E+00	3.87	1.20E+09	4.66E+09	3.87	7.82E+08	3.03E+09	1.10E+08	1.47E+10	5.93E+10	4.03
0.00E+00	4.03	1.30E+09	5.22E+09	4.03	7.35E+08	2.96E+09	1.32E+08	1.48E+10	6.11E+10	4.13
0.00E+00	4.13	1.19E+09	4.90E+09	4.13	1.00E+09	4.15E+09	1.34E+08	1.48E+10	6.19E+10	4.19
0.00E+00	4.19	1.29E+09	5.38E+09	4.19	8.12E+08	3.40E+09	1.51E+08	1.48E+10	6.31E+10	4.27
2.60E+08	4.27	1.52E+09	6.48E+09	4.27	7.27E+08	3.10E+09	1.47E+08	1.48E+10	6.28E+10	4.26
2.60E+08	4.26	1.43E+09	6.07E+09	4.26	8.59E+08	3.66E+09	1.11E+08	1.47E+10	6.22E+10	4.23
2.60E+08	4.23	1.37E+09	5.77E+09	4.23	8.22E+08	3.48E+09	1.17E+08	1.47E+10	6.22E+10	4.22
4.32E+08	4.22	1.36E+09	5.76E+09	4.22	9.16E+08	3.86E+09	1.29E+08	1.47E+10	6.15E+10	4.19
4.32E+08	4.19	1.31E+09	5.47E+09	4.19	1.03E+09	4.32E+09	8.50E+07	1.47E+10	6.05E+10	4.11
4.32E+08	4.11	1.16E+09	4.79E+09	4.11	9.76E+08	4.02E+09	8.81E+07	1.47E+10	6.02E+10	4.11
5.58E+08	4.11	1.40E+09	5.75E+09	4.11	9.16E+08	3.76E+09	1.10E+08	1.46E+10	6.01E+10	4.10
5.58E+08	4.10	1.47E+09	6.02E+09	4.10	8.55E+08	3.51E+09	1.32E+08	1.47E+10	6.00E+10	4.08
5.58E+08	4.08	1.35E+09	5.52E+09	4.08	1.13E+09	4.60E+09	1.34E+08	1.47E+10	5.91E+10	4.02
5.58E+08	4.02	1.46E+09	5.89E+09	4.02	9.19E+08	3.70E+09	1.51E+08	1.47E+10	5.90E+10	4.02
5.58E+08	4.02	1.57E+09	6.30E+09	4.02	7.48E+08	3.01E+09	1.47E+08	1.47E+10	5.92E+10	4.03
5.58E+08	4.03	1.48E+09	5.96E+09	4.03	8.78E+08	3.54E+09	1.11E+08	1.46E+10	5.90E+10	4.04
5.58E+08	4.04	1.42E+09	5.74E+09	4.04	8.50E+08	3.43E+09	1.17E+08	1.46E+10	5.92E+10	4.04
5.58E+08	4.04	1.39E+09	5.64E+09	4.04	9.10E+08	3.68E+09	1.29E+08	1.46E+10	5.92E+10	4.06
5.58E+08	4.06	1.33E+09	5.41E+09	4.06	1.02E+09	4.14E+09	8.50E+07	1.46E+10	5.88E+10	4.02
5.58E+08	4.02	1.19E+09	4.78E+09	4.02	9.61E+08	3.87E+09	8.81E+07	1.46E+10	5.90E+10	4.05
5.58E+08	4.05	1.40E+09	5.68E+09	4.05	9.16E+08	3.71E+09	1.10E+08	1.45E+10	5.90E+10	4.06
5.58E+08	4.06	1.47E+09	5.95E+09	4.06	8.55E+08	3.47E+09	1.32E+08	1.46E+10	5.90E+10	4.04
5.58E+08	4.04	1.35E+09	5.47E+09	4.04	1.13E+09	4.56E+09	1.34E+08	1.46E+10	5.82E+10	3.99
5.58E+08	3.99	1.46E+09	5.84E+09	3.99	9.19E+08	3.67E+09	1.51E+08	1.46E+10	5.82E+10	3.99
5.58E+08	3.99	1.57E+09	6.26E+09	3.99	7.48E+08	2.99E+09	1.47E+08	1.46E+10	5.84E+10	4.01
5.58E+08	4.01	1.48E+09	5.92E+09	4.01	8.78E+08	3.52E+09	1.11E+08	1.45E+10	5.83E+10	4.02
5.58E+08	4.02	1.42E+09	5.72E+09	4.02	8.50E+08	3.41E+09	1.17E+08	1.45E+10	5.85E+10	4.03

Total Dissolved Solids Loading to Malibu Valley Groundwater Model
Baseline (Current) Conditions

		Initial Basin Characteristics			Inflow											
					Stream Seepage			Surface Loading		Precipitation			Ocean Inflow			
Year		Concentration (mg/L)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)	
1	2010	2,115	1.48E+10	3.13E+13	1,275	1.19E+09	1.52E+12	5.93E+08	2.08E+11	0.00	2.47E+08	0.00E+00	33500.00	4.60E+06	1.54E+11	
2	2011	1,969	1.48E+10	2.91E+13	1,275	1.07E+09	1.37E+12	6.46E+08	2.08E+11	0.00	3.71E+08	0.00E+00	33500.00	4.79E+06	1.61E+11	
3	2012	1,819	1.48E+10	2.69E+13	1,275	9.86E+08	1.26E+12	6.78E+08	2.08E+11	0.00	1.60E+08	0.00E+00	33500.00	4.72E+06	1.58E+11	
4	2013	1,715	1.48E+10	2.53E+13	1,275	1.17E+09	1.50E+12	7.22E+08	2.08E+11	0.00	1.81E+08	0.00E+00	33500.00	4.61E+06	1.55E+11	
5	2014	1,611	1.47E+10	2.37E+13	1,275	1.22E+09	1.55E+12	7.89E+08	2.08E+11	0.00	2.03E+08	0.00E+00	33500.00	4.70E+06	1.58E+11	
6	2015	1,514	1.48E+10	2.24E+13	1,275	1.07E+09	1.37E+12	7.20E+08	2.08E+11	0.00	5.24E+08	0.00E+00	33500.00	4.56E+06	1.53E+11	
7	2016	1,407	1.48E+10	2.08E+13	1,275	1.19E+09	1.52E+12	7.30E+08	2.08E+11	0.00	3.06E+08	0.00E+00	33500.00	4.44E+06	1.49E+11	
8	2017	1,336	1.48E+10	1.97E+13	1,275	1.25E+09	1.59E+12	7.61E+08	2.08E+11	0.00	1.20E+08	0.00E+00	33500.00	4.51E+06	1.51E+11	
9	2018	1,288	1.48E+10	1.90E+13	1,275	1.18E+09	1.51E+12	7.43E+08	2.08E+11	0.00	1.84E+08	0.00E+00	33500.00	4.74E+06	1.59E+11	
10	2019	1,240	1.47E+10	1.83E+13	1,275	1.19E+09	1.52E+12	6.73E+08	2.08E+11	0.00	1.99E+08	0.00E+00	33500.00	4.70E+06	1.57E+11	
11	2020	1,204	1.47E+10	1.78E+13	1,275	1.19E+09	1.52E+12	5.93E+08	2.08E+11	0.00	2.47E+08	0.00E+00	33500.00	4.60E+06	1.54E+11	
12	2021	1,176	1.47E+10	1.73E+13	1,275	1.07E+09	1.37E+12	6.46E+08	2.08E+11	0.00	3.71E+08	0.00E+00	33500.00	4.79E+06	1.61E+11	
13	2022	1,133	1.47E+10	1.67E+13	1,275	9.86E+08	1.26E+12	6.78E+08	2.08E+11	0.00	1.60E+08	0.00E+00	33500.00	4.72E+06	1.58E+11	
14	2023	1,110	1.47E+10	1.63E+13	1,275	1.17E+09	1.50E+12	7.22E+08	2.08E+11	0.00	1.81E+08	0.00E+00	33500.00	4.61E+06	1.55E+11	
15	2024	1,087	1.47E+10	1.60E+13	1,275	1.22E+09	1.55E+12	7.89E+08	2.08E+11	0.00	2.03E+08	0.00E+00	33500.00	4.70E+06	1.58E+11	
16	2025	1,064	1.47E+10	1.57E+13	1,275	1.07E+09	1.37E+12	7.20E+08	2.08E+11	0.00	5.24E+08	0.00E+00	33500.00	4.56E+06	1.53E+11	
17	2026	1,023	1.47E+10	1.51E+13	1,275	1.19E+09	1.52E+12	7.30E+08	2.08E+11	0.00	3.06E+08	0.00E+00	33500.00	4.44E+06	1.49E+11	
18	2027	1,006	1.47E+10	1.48E+13	1,275	1.25E+09	1.59E+12	7.61E+08	2.08E+11	0.00	1.20E+08	0.00E+00	33500.00	4.51E+06	1.51E+11	
19	2028	1,003	1.47E+10	1.47E+13	1,275	1.18E+09	1.51E+12	7.43E+08	2.08E+11	0.00	1.84E+08	0.00E+00	33500.00	4.74E+06	1.59E+11	
20	2029	994	1.47E+10	1.46E+13	1,275	1.19E+09	1.52E+12	6.73E+08	2.08E+11	0.00	1.99E+08	0.00E+00	33500.00	4.70E+06	1.57E+11	
21	2030	990	1.47E+10	1.45E+13	1,275	1.19E+09	1.52E+12	5.93E+08	2.08E+11	0.00	2.47E+08	0.00E+00	33500.00	4.60E+06	1.54E+11	
22	2031	990	1.47E+10	1.45E+13	1,275	1.07E+09	1.37E+12	6.46E+08	2.08E+11	0.00	3.71E+08	0.00E+00	33500.00	4.79E+06	1.61E+11	
23	2032	972	1.47E+10	1.43E+13	1,275	9.86E+08	1.26E+12	6.78E+08	2.08E+11	0.00	1.60E+08	0.00E+00	33500.00	4.72E+06	1.58E+11	
24	2033	968	1.46E+10	1.42E+13	1,275	1.17E+09	1.50E+12	7.22E+08	2.08E+11	0.00	1.81E+08	0.00E+00	33500.00	4.61E+06	1.55E+11	
25	2034	965	1.46E+10	1.41E+13	1,275	1.22E+09	1.55E+12	7.89E+08	2.08E+11	0.00	2.03E+08	0.00E+00	33500.00	4.70E+06	1.58E+11	
26	2035	958	1.47E+10	1.41E+13	1,275	1.07E+09	1.37E+12	7.20E+08	2.08E+11	0.00	5.24E+08	0.00E+00	33500.00	4.56E+06	1.53E+11	
27	2036	933	1.47E+10	1.37E+13	1,275	1.19E+09	1.52E+12	7.30E+08	2.08E+11	0.00	3.06E+08	0.00E+00	33500.00	4.44E+06	1.49E+11	
28	2037	929	1.47E+10	1.36E+13	1,275	1.25E+09	1.59E+12	7.61E+08	2.08E+11	0.00	1.20E+08	0.00E+00	33500.00	4.51E+06	1.51E+11	
29	2038	936	1.46E+10	1.37E+13	1,275	1.18E+09	1.51E+12	7.43E+08	2.08E+11	0.00	1.84E+08	0.00E+00	33500.00	4.74E+06	1.59E+11	
30	2039	936	1.46E+10	1.37E+13	1,275	1.19E+09	1.52E+12	6.73E+08	2.08E+11	0.00	1.99E+08	0.00E+00	33500.00	4.70E+06	1.57E+11	

Total Dissolved Solids Loading to Malibu Valley Groundwater Model
Baseline (Current) Conditions

	Outflow									
Water Balance	Ocean Outflow			Stream Outflow			ET	Concluding Basin Characteristics		
Volume (L)	Concentration (mg/L)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)	Volume (L)	Volume (L)	Mass (mg)	Concentration (mg/L)
0.00E+00	2114.70	1.18E+09	2.50E+12	2114.70	7.47E+08	1.58E+12	1.29E+08	1.48E+10	2.91E+13	1969.25
0.00E+00	1969.25	1.12E+09	2.21E+12	1969.25	8.68E+08	1.71E+12	8.50E+07	1.48E+10	2.69E+13	1819.11
0.00E+00	1819.11	9.79E+08	1.78E+12	1819.11	8.10E+08	1.47E+12	8.81E+07	1.48E+10	2.53E+13	1714.56
0.00E+00	1714.56	1.20E+09	2.06E+12	1714.56	7.82E+08	1.34E+12	1.10E+08	1.47E+10	2.37E+13	1611.45
0.00E+00	1611.45	1.30E+09	2.09E+12	1611.45	7.35E+08	1.18E+12	1.32E+08	1.48E+10	2.24E+13	1514.22
0.00E+00	1514.22	1.19E+09	1.79E+12	1514.22	1.00E+09	1.52E+12	1.34E+08	1.48E+10	2.08E+13	1407.19
0.00E+00	1407.19	1.29E+09	1.81E+12	1407.19	8.12E+08	1.14E+12	1.51E+08	1.48E+10	1.97E+13	1335.96
0.00E+00	1335.96	1.39E+09	1.86E+12	1335.96	6.15E+08	8.22E+11	1.47E+08	1.48E+10	1.90E+13	1288.19
0.00E+00	1288.19	1.29E+09	1.66E+12	1288.19	7.42E+08	9.56E+11	1.11E+08	1.47E+10	1.83E+13	1240.23
0.00E+00	1240.23	1.23E+09	1.53E+12	1240.23	7.02E+08	8.70E+11	1.17E+08	1.47E+10	1.78E+13	1203.95
0.00E+00	1203.95	1.18E+09	1.42E+12	1203.95	7.47E+08	8.99E+11	1.29E+08	1.47E+10	1.73E+13	1175.85
0.00E+00	1175.85	1.12E+09	1.32E+12	1175.85	8.68E+08	1.02E+12	8.50E+07	1.47E+10	1.67E+13	1133.38
0.00E+00	1133.38	9.79E+08	1.11E+12	1133.38	8.10E+08	9.18E+11	8.81E+07	1.47E+10	1.63E+13	1109.64
0.00E+00	1109.64	1.20E+09	1.34E+12	1109.64	7.82E+08	8.68E+11	1.10E+08	1.47E+10	1.60E+13	1087.36
0.00E+00	1087.36	1.30E+09	1.41E+12	1087.36	7.35E+08	7.99E+11	1.32E+08	1.47E+10	1.57E+13	1063.91
0.00E+00	1063.91	1.19E+09	1.26E+12	1063.91	1.00E+09	1.07E+12	1.34E+08	1.47E+10	1.51E+13	1023.33
0.00E+00	1023.33	1.29E+09	1.32E+12	1023.33	8.12E+08	8.30E+11	1.51E+08	1.47E+10	1.48E+13	1006.18
0.00E+00	1006.18	1.39E+09	1.40E+12	1006.18	6.15E+08	6.19E+11	1.47E+08	1.47E+10	1.47E+13	1002.82
0.00E+00	1002.82	1.29E+09	1.30E+12	1002.82	7.42E+08	7.44E+11	1.11E+08	1.47E+10	1.46E+13	993.65
0.00E+00	993.65	1.23E+09	1.22E+12	993.65	7.02E+08	6.97E+11	1.17E+08	1.47E+10	1.45E+13	990.02
0.00E+00	990.02	1.18E+09	1.17E+12	990.02	7.47E+08	7.39E+11	1.29E+08	1.47E+10	1.45E+13	989.61
0.00E+00	989.61	1.12E+09	1.11E+12	989.61	8.68E+08	8.59E+11	8.50E+07	1.47E+10	1.43E+13	972.49
0.00E+00	972.49	9.79E+08	9.52E+11	972.49	8.10E+08	7.87E+11	8.81E+07	1.46E+10	1.42E+13	967.78
0.00E+00	967.78	1.20E+09	1.16E+12	967.78	7.82E+08	7.57E+11	1.10E+08	1.46E+10	1.41E+13	964.54
0.00E+00	964.54	1.30E+09	1.25E+12	964.54	7.35E+08	7.09E+11	1.32E+08	1.47E+10	1.41E+13	958.45
0.00E+00	958.45	1.19E+09	1.14E+12	958.45	1.00E+09	9.62E+11	1.34E+08	1.47E+10	1.37E+13	933.43
0.00E+00	933.43	1.29E+09	1.20E+12	933.43	8.12E+08	7.58E+11	1.51E+08	1.47E+10	1.36E+13	928.99
0.00E+00	928.99	1.39E+09	1.29E+12	928.99	6.15E+08	5.72E+11	1.47E+08	1.46E+10	1.37E+13	936.09
0.00E+00	936.09	1.29E+09	1.21E+12	936.09	7.42E+08	6.95E+11	1.11E+08	1.46E+10	1.37E+13	936.04
0.00E+00	936.04	1.23E+09	1.15E+12	936.04	7.02E+08	6.57E+11	1.17E+08	1.46E+10	1.38E+13	940.08

Total Dissolved Solids Loading to Malibu Valley Groundwater Model
Future Scenario

		Inflow													
		Initial Basin Characteristics			Stream Seepage			Surface Loading		Precipitation			Ocean Inflow		
	Year	Concentration (mg/L)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)
1	2010	2,115	1.48E+10	3.13E+13	1,275	1.19E+09	1.52E+12	5.93E+08	2.08E+11	0.00	2.47E+08	0.00E+00	33500.00	4.60E+06	1.54E+11
2	2011	1,969	1.48E+10	2.91E+13	1,275	1.07E+09	1.37E+12	6.46E+08	2.08E+11	0.00	3.71E+08	0.00E+00	33500.00	4.79E+06	1.61E+11
3	2012	1,819	1.48E+10	2.69E+13	1,275	9.86E+08	1.26E+12	6.78E+08	2.08E+11	0.00	1.60E+08	0.00E+00	33500.00	4.72E+06	1.58E+11
4	2013	1,715	1.48E+10	2.53E+13	1,275	1.17E+09	1.50E+12	7.22E+08	2.08E+11	0.00	1.81E+08	0.00E+00	33500.00	4.61E+06	1.55E+11
5	2014	1,611	1.47E+10	2.37E+13	1,275	1.22E+09	1.55E+12	7.89E+08	2.08E+11	0.00	2.03E+08	0.00E+00	33500.00	4.70E+06	1.58E+11
6	2015	1,514	1.48E+10	2.24E+13	1,275	1.07E+09	1.37E+12	7.20E+08	2.08E+11	0.00	5.24E+08	0.00E+00	33500.00	4.56E+06	1.53E+11
7	2016	1,407	1.48E+10	2.08E+13	1,275	1.19E+09	1.52E+12	7.30E+08	2.08E+11	0.00	3.06E+08	0.00E+00	33500.00	4.44E+06	1.49E+11
8	2017	1,336	1.48E+10	1.97E+13	1,275	1.22E+09	1.55E+12	7.78E+08	2.12E+11	0.00	1.20E+08	0.00E+00	33500.00	4.45E+06	1.49E+11
9	2018	1,271	1.47E+10	1.87E+13	1,275	1.14E+09	1.46E+12	7.65E+08	2.12E+11	0.00	1.84E+08	0.00E+00	33500.00	4.76E+06	1.59E+11
10	2019	1,209	1.45E+10	1.76E+13	1,275	1.14E+09	1.45E+12	7.13E+08	2.12E+11	0.00	1.99E+08	0.00E+00	33500.00	4.64E+06	1.55E+11
11	2020	1,159	1.45E+10	1.67E+13	1,275	1.13E+09	1.44E+12	5.56E+08	2.42E+11	0.00	2.47E+08	0.00E+00	33500.00	4.56E+06	1.53E+11
12	2021	1,120	1.42E+10	1.59E+13	1,275	1.05E+09	1.34E+12	5.89E+08	2.42E+11	0.00	3.71E+08	0.00E+00	33500.00	4.86E+06	1.63E+11
13	2022	1,070	1.41E+10	1.51E+13	1,275	9.65E+08	1.23E+12	6.13E+08	2.42E+11	0.00	1.60E+08	0.00E+00	33500.00	4.65E+06	1.56E+11
14	2023	1,040	1.39E+10	1.44E+13	1,275	1.17E+09	1.49E+12	4.92E+08	2.66E+11	0.00	1.81E+08	0.00E+00	33500.00	4.63E+06	1.55E+11
15	2024	1,026	1.36E+10	1.39E+13	1,275	1.22E+09	1.55E+12	5.23E+08	2.66E+11	0.00	2.03E+08	0.00E+00	33500.00	4.93E+06	1.65E+11
16	2025	1,013	1.33E+10	1.35E+13	1,275	1.07E+09	1.36E+12	4.54E+08	2.66E+11	0.00	5.24E+08	0.00E+00	33500.00	4.51E+06	1.51E+11
17	2026	978	1.31E+10	1.28E+13	1,275	1.19E+09	1.52E+12	4.69E+08	2.66E+11	0.00	3.06E+08	0.00E+00	33500.00	4.39E+06	1.47E+11
18	2027	968	1.28E+10	1.24E+13	1,275	1.25E+09	1.60E+12	5.04E+08	2.66E+11	0.00	1.20E+08	0.00E+00	33500.00	4.51E+06	1.51E+11
19	2028	972	1.25E+10	1.22E+13	1,275	1.18E+09	1.50E+12	4.97E+08	2.66E+11	0.00	1.84E+08	0.00E+00	33500.00	4.98E+06	1.67E+11
20	2029	968	1.22E+10	1.18E+13	1,275	1.18E+09	1.50E+12	4.64E+08	2.66E+11	0.00	1.99E+08	0.00E+00	33500.00	4.87E+06	1.63E+11
21	2030	966	1.19E+10	1.15E+13	1,275	1.15E+09	1.47E+12	4.34E+08	2.66E+11	0.00	2.47E+08	0.00E+00	33500.00	4.66E+06	1.56E+11
22	2031	963	1.16E+10	1.12E+13	1,275	1.07E+09	1.36E+12	4.60E+08	2.66E+11	0.00	3.71E+08	0.00E+00	33500.00	4.95E+06	1.66E+11
23	2032	942	1.14E+10	1.07E+13	1,275	9.83E+08	1.25E+12	4.70E+08	2.66E+11	0.00	1.60E+08	0.00E+00	33500.00	4.74E+06	1.59E+11
24	2033	939	1.10E+10	1.04E+13	1,275	1.17E+09	1.49E+12	4.92E+08	2.66E+11	0.00	1.81E+08	0.00E+00	33500.00	4.63E+06	1.55E+11
25	2034	940	1.08E+10	1.01E+13	1,275	1.22E+09	1.55E+12	5.23E+08	2.66E+11	0.00	2.03E+08	0.00E+00	33500.00	4.93E+06	1.65E+11
26	2035	941	1.05E+10	9.91E+12	1,275	1.07E+09	1.36E+12	4.54E+08	2.66E+11	0.00	5.24E+08	0.00E+00	33500.00	4.51E+06	1.51E+11
27	2036	912	1.03E+10	9.35E+12	1,275	1.19E+09	1.52E+12	4.69E+08	2.66E+11	0.00	3.06E+08	0.00E+00	33500.00	4.39E+06	1.47E+11
28	2037	913	9.98E+09	9.11E+12	1,275	1.25E+09	1.60E+12	5.04E+08	2.66E+11	0.00	1.20E+08	0.00E+00	33500.00	4.51E+06	1.51E+11
29	2038	930	9.69E+09	9.01E+12	1,275	1.18E+09	1.50E+12	4.97E+08	2.66E+11	0.00	1.84E+08	0.00E+00	33500.00	4.98E+06	1.67E+11
30	2039	934	9.38E+09	8.76E+12	1,275	1.18E+09	1.50E+12	4.64E+08	2.66E+11	0.00	1.99E+08	0.00E+00	33500.00	4.87E+06	1.63E+11

Total Dissolved Solids Loading to Malibu Valley Groundwater Model
Future Scenario

				Outflow						
Water Balance	Ocean Outflow			Stream Outflow			ET	Concluding Basin Characteristics		
Volume (L)	Concentration (mg/L)	Volume (L)	Mass (mg)	Concentration (mg/L)	Volume (L)	Mass (mg)	Volume (L)	Concentration (mg/L)	Volume (L)	Mass (mg)
0.00E+00	2114.70	1.18E+09	2.50E+12	2114.70	7.47E+08	1.58E+12	1.29E+08	1969.25	1.48E+10	2.91E+13
0.00E+00	1969.25	1.12E+09	2.21E+12	1969.25	8.68E+08	1.71E+12	8.50E+07	1819.11	1.48E+10	2.69E+13
0.00E+00	1819.11	9.79E+08	1.78E+12	1819.11	8.10E+08	1.47E+12	8.81E+07	1714.56	1.48E+10	2.53E+13
0.00E+00	1714.56	1.20E+09	2.06E+12	1714.56	7.82E+08	1.34E+12	1.10E+08	1611.45	1.47E+10	2.37E+13
0.00E+00	1611.45	1.30E+09	2.09E+12	1611.45	7.35E+08	1.18E+12	1.32E+08	1514.22	1.48E+10	2.24E+13
0.00E+00	1514.22	1.19E+09	1.79E+12	1514.22	1.00E+09	1.52E+12	1.34E+08	1407.19	1.48E+10	2.08E+13
0.00E+00	1407.19	1.29E+09	1.81E+12	1407.19	8.12E+08	1.14E+12	1.51E+08	1335.96	1.48E+10	1.97E+13
1.70E+08	1335.96	1.52E+09	2.03E+12	1335.96	7.27E+08	9.71E+11	1.50E+08	1271.47	1.47E+10	1.87E+13
1.70E+08	1271.47	1.43E+09	1.82E+12	1271.47	8.59E+08	1.09E+12	1.13E+08	1208.85	1.45E+10	1.76E+13
1.70E+08	1208.85	1.37E+09	1.65E+12	1208.85	8.22E+08	9.94E+11	1.20E+08	1158.56	1.45E+10	1.67E+13
2.56E+08	1158.56	1.36E+09	1.58E+12	1158.56	9.16E+08	1.06E+12	1.32E+08	1119.83	1.42E+10	1.59E+13
2.56E+08	1119.83	1.31E+09	1.46E+12	1119.83	1.03E+09	1.15E+12	8.67E+07	1069.97	1.41E+10	1.51E+13
2.56E+08	1069.97	1.16E+09	1.24E+12	1069.97	9.76E+08	1.04E+12	9.01E+07	1040.15	1.39E+10	1.44E+13
2.88E+08	1040.15	1.40E+09	1.46E+12	1040.15	9.16E+08	9.53E+11	1.10E+08	1025.81	1.36E+10	1.39E+13
2.88E+08	1025.81	1.47E+09	1.51E+12	1025.81	8.55E+08	8.77E+11	1.31E+08	1012.65	1.33E+10	1.35E+13
2.88E+08	1012.65	1.35E+09	1.37E+12	1012.65	1.13E+09	1.14E+12	1.34E+08	977.90	1.31E+10	1.28E+13
2.88E+08	977.90	1.46E+09	1.43E+12	977.90	9.19E+08	8.99E+11	1.50E+08	967.75	1.28E+10	1.24E+13
2.88E+08	967.75	1.57E+09	1.52E+12	967.75	7.48E+08	7.24E+11	1.46E+08	972.20	1.25E+10	1.22E+13
2.88E+08	972.20	1.48E+09	1.44E+12	972.20	8.78E+08	8.54E+11	1.10E+08	968.13	1.22E+10	1.18E+13
2.88E+08	968.13	1.42E+09	1.38E+12	968.13	8.50E+08	8.23E+11	1.17E+08	966.29	1.19E+10	1.15E+13
2.88E+08	966.29	1.39E+09	1.35E+12	966.29	9.10E+08	8.79E+11	1.30E+08	962.99	1.16E+10	1.12E+13
2.88E+08	962.99	1.33E+09	1.29E+12	962.99	1.02E+09	9.83E+11	8.51E+07	942.34	1.14E+10	1.07E+13
2.88E+08	942.34	1.19E+09	1.12E+12	942.34	9.61E+08	9.06E+11	8.77E+07	939.15	1.10E+10	1.04E+13
2.88E+08	939.15	1.40E+09	1.31E+12	939.15	9.16E+08	8.60E+11	1.10E+08	940.08	1.08E+10	1.01E+13
2.88E+08	940.08	1.47E+09	1.38E+12	940.08	8.55E+08	8.04E+11	1.31E+08	940.54	1.05E+10	9.91E+12
2.88E+08	940.54	1.35E+09	1.27E+12	940.54	1.13E+09	1.06E+12	1.34E+08	911.78	1.03E+10	9.35E+12
2.88E+08	911.78	1.46E+09	1.33E+12	911.78	9.19E+08	8.38E+11	1.50E+08	912.75	9.98E+09	9.11E+12
2.88E+08	912.75	1.57E+09	1.43E+12	912.75	7.48E+08	6.83E+11	1.46E+08	929.98	9.69E+09	9.01E+12
2.88E+08	929.98	1.48E+09	1.37E+12	929.98	8.78E+08	8.17E+11	1.10E+08	933.89	9.38E+09	8.76E+12
2.88E+08	933.89	1.42E+09	1.33E+12	933.89	8.50E+08	7.94E+11	1.17E+08	939.05	9.12E+09	8.57E+12

DRAFT Technical Memorandum

Malibu Valley Joint Salt-Nutrient Management Plan and Groundwater Management Plan

Subject: **SNMP-GWMP Goals and Objectives**

Prepared For: City of Malibu

Prepared by: Christy Kennedy

Reviewed by: Leslie Dumas

Date: May 10, 2014

1 Purpose of Joint SNMP-GWMP

The purpose of the Malibu Valley Groundwater Basin combined Salt and Nutrient Management Plan and Groundwater Management Plan (SNMP-GWMP) is to provide a framework to manage, protect and enhance the groundwater basin in order to sustain the beneficial uses of local groundwater resource. In developing this plan, the City and basin stakeholders hope to achieve the following objectives:

- Develop a better technical understanding of the groundwater basin's hydrogeology, the implications of overlying land uses on the underlying groundwater quality, and groundwater-surface water interactions.
- Develop a forum and collaborative process for defining issues and identifying and implementing actions to manage the groundwater resource (both quality and supply).
- Define implementation measures (if necessary) to ensure the long-term sustainability of the groundwater resource.
- Develop a groundwater monitoring program to coordinate ongoing and future data collection efforts and to facilitate analysis of water quality trends into the future.
- Provide a framework for adaptively managing the groundwater basin and implementing future management activities.

This SNMP-GWMP is being prepared for the Malibu Valley Groundwater Basin in Los Angeles County, California.

2 Overview

The Malibu Valley Groundwater Basin (DWR groundwater basin no. 4-22) is a small alluvial basin, approximately 613 acres in size, located along the Los Angeles County coastline. The basin is bounded by the Pacific Ocean on the south, and by the Santa Monica Mountains, composed of non-water-bearing Tertiary age rocks, on all remaining sides. The valley is typified by steep canyons that generally run north to south, and is drained by Malibu Creek to the Pacific Ocean (DWR, 2003).

The Malibu Valley Groundwater Basin is located in a Mediterranean climate, characterized by cool wet winters and warm dry summers with the majority of precipitation occurs between November and April. This area lies in the semi-permanent high-pressure zone of the eastern pacific. As a result, the climate is mild, tempered by cool sea breezes occasionally interrupted by infrequent periods of extremely hot weather, winter storms or Santa Ana winds. Average annual rainfall is about 12 inches (Jones and Stokes, 2009).

Development overlying the groundwater basin is predominantly urban in nature, and includes a significant amount of residential development and undeveloped land. The basin is flanked on both sides by canyons - the Sweetwater Canyon to the east, and the Winter Canyon to the west. The Malibu Coast Fault is mapped across the basin in an east-west direction and is aligned approximately along Civic Center Way (Leighton, 1994); however, this fault is not a groundwater barrier (DWR, 1975). In general, there are four hydrostratigraphic units within the Malibu Valley Groundwater Basin (from shallowest to deepest): alluvium, a low permeability zone that covers most of the groundwater basin, Civic Center Gravels, and bedrock. Bedrock is at or near land surface in the upland areas, and beneath the unconsolidated sediments that are present in the Civic Center area along Malibu Creek and Lagoon. Historical groundwater use has been from the shallower alluvium, which has been shown to be in hydraulic connection with the adjacent Malibu Creek.

3 Regulations Governing Groundwater Management

3.1 Regulatory Requirements Related to Groundwater Management

Groundwater is a resource shared by numerous users; it does not recognize or adhere to jurisdictional boundaries and cannot be tagged for use by certain users. Groundwater rights in California have evolved through case law since the late 1800s. Currently, four basic methods are available for managing groundwater resources in the State:

- Local agency management under authority granted by the California Water Code;
- Local agency management granted under other applicable state statutes (such as through a GWMP);
- Local government groundwater ordinances or joint powers agreements (JPA);
- Court adjudication

No law requires that any of these forms be applied within a basin. As such, management is often instituted after local agencies or landowners recognize specific issues in groundwater conditions. The level of groundwater management in any basin or subbasin is often dependent on water availability and demand, as well as groundwater quality.

In an effort to standardize groundwater management, the California Legislature passed Assembly Bill (AB) 255 (Stats. 1991, Ch. 903) in 1991. This legislation authorized local agencies overlying basins subject to critical overdraft conditions, as defined in DWR's Bulletin 118-80 (DWR, 1980), to establish programs for groundwater management within their service areas. Water Code §10750 *et seq.* provided these agencies with the powers of a water replenishment district to raise revenue for facilities to manage the basin for the purposes of extraction, recharge, conveyance, and water quality management. Seven local agencies adopted plans under this authority. The Malibu Valley Groundwater Basin has been critically overdrafted in the past. Seawater intrusion occurred in 1950 and again in 1960, when seawater advanced 0.5 miles inland (DWR, 2004). In response to this situation, Los Angeles County Waterworks District 29 (Water District 29) was established as a special district in 1959 by a public election that authorized the formation of the district (reference http://dpw.lacounty.gov/wwd/web/About/Overview.aspx). Once established, Water District 29 constructed water distribution systems in Malibu between 1962 and 1970 and started distribution of imported potable water into the basin. Most private potable supply wells were subsequently abandoned.

The provisions of AB 255 were repealed in 1992 with the passage of AB 3030 (Stats. 1992, Ch. 947). This legislation greatly increased the number of local agencies authorized to develop a GWMP and set forth a common management framework for local agencies throughout California. AB 3030, codified in

California Water Code § 10750 *et seq.*, provides a systematic procedure for developing a groundwater management plan by local agencies overlying the groundwater basins defined by DWR's Bulletin 118 (DWR, 1975) and updates (DWR, 1980, 2003). Upon adoption of a plan, the authorizing agency(ies) identified in the GWMP could possess the same authority as a water replenishment district to "fix and collect fees and assessments for groundwater management" (Water Code, §10754). However, the authority to fix and collect these fees and assessments is contingent on receiving a majority of votes in favor of the proposal in a local election (Water Code, §10754.3)

In 2002, the California Legislature passed Senate Bill (SB) 1938 (Stats. 2002, ch. 603) providing local agencies with incentives for improved groundwater management. While not providing a new vehicle for groundwater management, SB 1938 modified the Water Code by requiring specific elements be included in a GWMP for an agency to be eligible for certain funding administered by DWR for groundwater projects. Through AB 3030 and SB 1938, local agencies can now develop GWMPs that guide the sustainable use of the groundwater resource while also providing access to certain State funding sources.

3.2 Regulatory Requirements Related to Salt and Nutrient Management

In February 2009, the State Water Resources Control Board (SWRCB) adopted Resolution No. 2009-0011 establishing a statewide Recycled Water Policy. The policy encourages increased use of recycled water and local stormwater capture and reuse. It also requires local water and wastewater entities, together with local salt and nutrient-contributing stakeholders to develop an SNMP for each groundwater basin or subbasin in California. The Malibu Valley SNMP-GWMP will be developed through a collaborative process initiated in December 2013.

As outlined in the Recycled Water Policy, the required elements of an SNMP are the following:

- A basin/sub-basin wide monitoring plan that includes an appropriate network of monitoring locations.
- A provision for annual monitoring of constituents of emerging concern (CECs) consistent with recommendations by California Department of Public Health (CDPH) and SWRCB.
- Water recycling and stormwater recharge/use goals and objectives.
- Salt and nutrient source identification, basin/sub-basin assimilative capacity and loading estimates, together with fate and transport of salts and nutrients.
- Implementation measures to manage salt and nutrient loading in the basin on a sustainable basis.
- An antidegradation analysis demonstrating that the projects included within the plan will, collectively, satisfy the requirements of Resolution No. 68-16.

The degree of specificity of the SNMP is dependent on the complexity of the groundwater basin, source water quality, stormwater recharge, and other factors. The SNMP should be tailored toward local water conditions, and may address other constituents beyond salts and nutrients that adversely affect groundwater quality.

4 Goals and Objectives

At a December 11, 2013 stakeholder meeting, and again at the December 12, 2013 Technical Advisory Committee (TAC) meeting, RMC, in conjunction with stakeholders, identified preferred basin management objectives (BMOs) and goals that the SNMP-GWMP will aim to achieve. This process identified specific goals and objectives for future groundwater use, water recycling, and the reuse of stormwater that will align with anticipated future development overlying the Basin. A critical element of

goal setting was development of goals and objectives for the SNMP-GWMP that did not conflict with those of other plans, studies and projects, and that presented a comprehensive picture of regional groundwater management and current and projected future groundwater use.

Basin management goals and objectives will result in a more reliable supply for the long-term protection of the groundwater basin and will depend on the needs seen by area stakeholders. This chapter also discusses the goals for using recycled water and stormwater in the basin as required for the SNMP.

4.1 Basin Management Goals and Objectives

Basin management objectives to achieve the SNMP-GWMP goals that were identified and discussed with stakeholders during the December meetings include:

- **BMO-1**: Avoidance of groundwater overdraft and associated undesirable effects (such as seawater intrusion)
- **BMO-2**: Protection of surface water resources
- **BMO-3**: Minimize impacts on local water supply
- **BMO-4**: Minimize impacts on groundwater quality

These qualitative BMOs address issues related to groundwater levels, groundwater quality, subsidence, and the interaction of groundwater with surface water. The BMOs will be further developed throughout the plan development process and will be stated quantitatively with triggers and actions to be considered when thresholds are crossed. Additionally, the BMOs will be supported by management actions such as:

- Monitoring;
- Integration of recycled water resources;
- Public education and conservation programs;
- Well ordinances including construction, abandonment, and destruction policies; and
- Identification and mitigation of soil and groundwater contamination.

4.2 SNMP-Specific Goals

Goals for recycling and stormwater capture and use will be based on stakeholder input and on the information contained in relative Urban Water Management Plans (UWMPs) and other planning documents. Additionally, water conservation programs and ordinances will provide a useful basis for understanding and assessing recycling activities. The City and Water District 29 implement extensive water conservation programs, ranging from residential, commercial, industrial and municipal to programs, and the City has implemented a stormwater capture and program through development and implementation of its Legacy Park project.

4.3 Recycled Water Goals

Recycled water goals were based on information provided in Water District 29's 2010 UWMP and current and projected future recycled water usage data. Existing recycled water use is presented in Table 4-1, and is based on current recycled water usage data provided by the City. These values represent present recycled water use within the basin, which is currently used for recharge only. Future plans for the City's recycled water system include providing recycled water to areas of the City for irrigation plus additional groundwater recharge.

Table 4-1 also presents the projected 2035 recycled water use in the basin. These future estimates represent the recycled water goals for the basin.

Table 4-1: Current Use and Future Goals for Recycled Water

Provider	Current Use (AFY)	2035 Use (AFY)
Water District 29	0	0
City of Malibu (Irrigation)	0	140
City of Malibu (Recharge)	30	2,750

4.4 Stormwater Recharge Goals

The City and stakeholders in the Malibu Valley Groundwater Basin are actively working to increase the ability to put stormwater to beneficial use through irrigation and other non-potable uses. The City is engaged in several scientific studies and engineering projects to improve water quality in nearby surface water bodies which include a significant stormwater treatment element. For example in 2007, the City began operating its Civic Center Stormwater Treatment Facility (SWTF), which processes up to 1,400 gallons per minute (gpm) of stormwater runoff from the Civic Center area to remove trash, suspended solids, metals, and indicator bacteria.

In 2010, the Legacy Park Project was completed; this project included developing the Legacy Park site into a public amenity providing education, passive recreation and habitat improvements, in addition to providing stormwater treatment to remove pathogens. Treated stormwater flows are then reused to the maximum extent possible as an irrigation supply for Legacy Park and other landscaping. Dry-and wet-weather flows that exceed the irrigation demand are directed to a 33,000 gallons per day (gpd) dispersal field in the southeast corner of the Legacy Park Site. The project also includes Low Impact Development (LID) features such as bioswales and permeable pavement that increase recharge of stormwater.

The City also recently constructed the Malibu Civic Center Linear Park, which incorporates LID features including stormwater capture and treatment. The linear park includes a 0.5 acre greenbelt planted with native trees and plants and irrigated with either treated stormwater or recycled water.

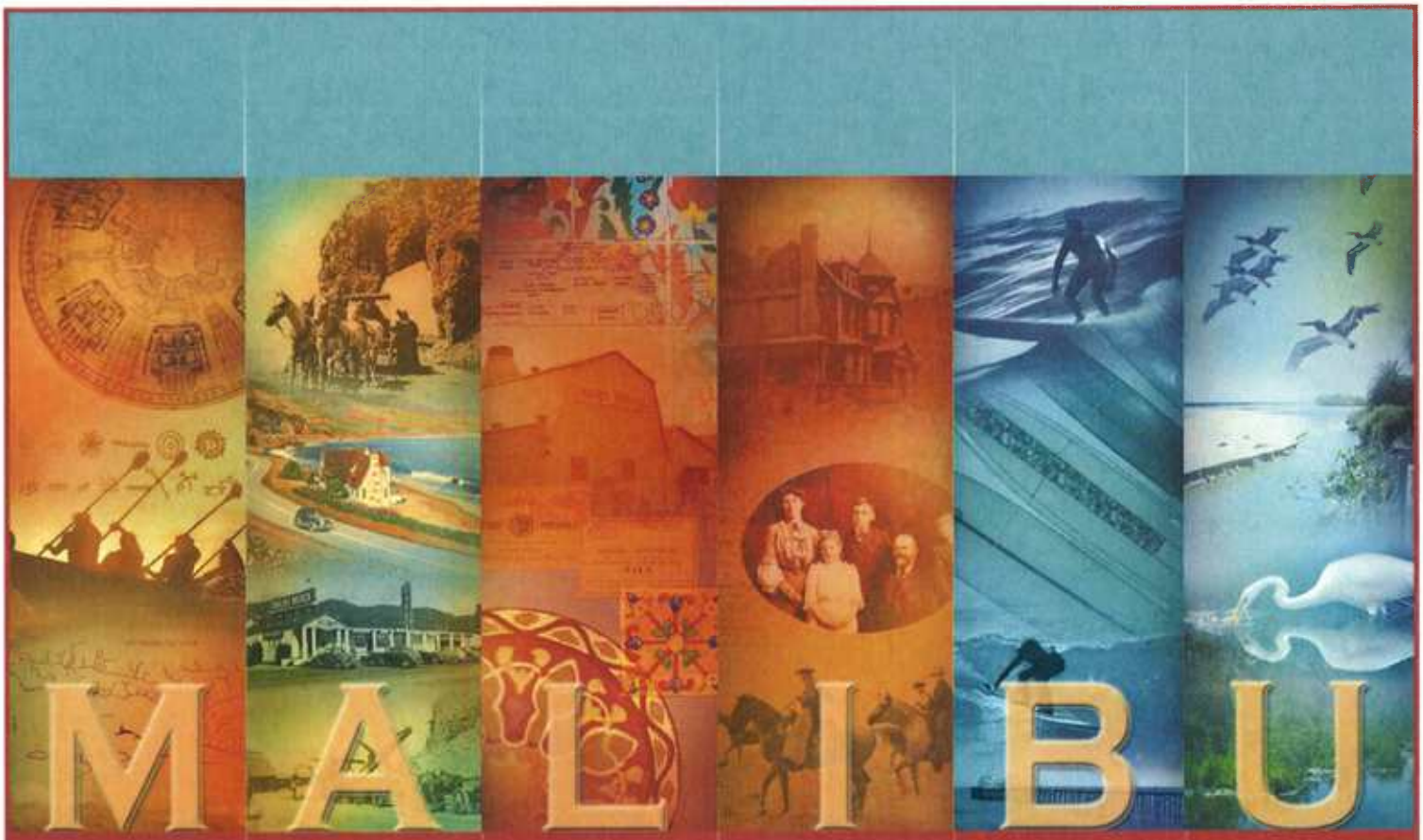
In addition to the stormwater treatment improvements provided by the SWTF and Legacy Park project, the City has also begun to incorporate stormwater treatment and runoff solutions into their other municipal projects. The recently completed Cross Creek Road Improvement Project provides an excellent example of street improvement projects that protect against water quality degradation from stormwater runoff and maximizes the potential for water reuse. This environmentally superior project provides several benefits, including:

- Minimizes stormwater runoff with:
  - Permeable pavers on street angled vehicle parking
  - Permeable pavement on sidewalk areas
- An enhanced landscaping plan that allows for increased stormwater infiltration
- Connections for an irrigation supply that uses treated stormwater or recycled wastewater that has been treated to Title 22 standards

While these efforts and others are continuing in the basin, the benefit of recharging stormwater (which is likely to be low in TDS) is not included in the groundwater quality analyses in this SNMP-GWMP due to uncertainties in the projected quantity and volumes of stormwater recharge at this time and limited storage volume in the groundwater basin. Not including stormwater in the future water quality analysis at this point is a conservative approach as stormwater would likely decrease TDS and nitrate concentrations in the groundwater basin. Future updates to the SNMP-GWMP may consider these efforts as they

continue to be developed and implemented. Future updates to the SNMP-GWMP could also include quantitative goals for stormwater recharge as they are established through these planned efforts. Stormwater recharge and/or reuse will, however, be addressed in the SNMP-GWMP in a qualitative manner.

ATTACHMENT NO. 2



City of Malibu Engineer's Report for the Production, Distribution and Use of Recycled Water – Phase 1

September 2014

CITY OF MALIBU
Incorporated March 28, 1991

RMC
water and environment

Water Boards -DDW

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List of Abbreviations

BOD	Biological Oxygen Demand
CCR	California Code of Regulations
CCWTF	Civic Center Wastewater Treatment Facility
CDPH	California Department of Public Health
GE	General Electric
gpd	Gallons per day
gpm	Gallons per minute
LARWQCB	Los Angeles Regional Water Quality Control Board
LBS	Pounds
MBR	Membrane Bioreactor
mg/L	Milligrams per liter
MGD	Million gallons per day
MOU	Memorandum of Understanding
MPN	Most probable number
NGO	Non-governmental Organization
NTU	Nephelometric Turbidity Units
O&M	Operations and Maintenance
OWDS	Onsite Wastewater Discharge Systems
TKN	Total Kjeldahl Nitrogen
TSS	Total Suspended Solids
USEPA	United States Environmental Protection Agency
UV	Ultraviolet

1 Introduction and Purpose of this Report

The City of Malibu (City) is located in northwestern Los Angeles County and is home to approximately 13,000 residents. The City's Civic Center Area currently uses on-site wastewater disposal systems (OWDS) to treat and dispose of municipal wastewater. These OWDS have allegedly contributed to the non-point source pollution of Malibu Creek and Lagoon, resulting in the Los Angeles Regional Water Quality Control Board (LARWQCB) adopting Resolution R4-2009-007 in November 2009. This resolution approved an amendment to Chapter IV of the *Water Quality Control Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (also known as the Basin Plan) prohibiting OWDS and OWDS discharges in the Malibu Civic Center Area. In 2010, the State Water Resources Control Board (SWRCB) adopted Resolution 2010-0045 approving the amendment and established a phased schedule for compliance.

The resolutions prohibit all new OWDS and discharges from existing systems based on a phased schedule to cease discharges from Phase 1 systems by November 5, 2015 and Phase 2 systems by November 5, 2019. A third phase may be implemented, if necessary, following operation of Phase 1 and 2, and upon completion of a water quality sampling program to determine if implementation of Phases 1 and 2 have resulted in a meaningful decrease in bacteria and nitrogen in Malibu Lagoon. If implemented, Phase 3 would be completed after 2019 and would result in the cessation of all OWDS use in the Civic Center Area.

The area in which OWDS use must cease was defined in the afore-mentioned resolutions and is referred to as the "Prohibition Zone." An August 2011 Memorandum of Understanding (MOU), signed by both the City and the LARWQCB, memorializes the requirements of the resolutions and defines the Prohibition Zone areas. Following execution of the MOU, the City embarked on a program to design and construct a centralized wastewater collection, treatment and disposal system for the Prohibition Zone. This program includes the construction of the Civic Center Wastewater Treatment Facility (CCWTF), where wastewater from the Prohibition Zone will be collected and treated to a standard set forth in Title 22 of the California Code of Regulations (CCR) for unrestricted reuse of disinfected tertiary recycled water.

The resultant recycled water will be used for landscape irrigation and other non-potable uses within the Civic Center and surrounding areas to the maximum extent possible; however, anticipated irrigation demands are not expected to utilize all recycled water generated by the CCWTF. Recycled water not used for landscape irrigation will be injected into the underlying Malibu Valley Groundwater Basin for dispersal or percolated into the separate Winter Canyon aquifer.

The intent of this report is to meet the requirements of the CCR Title 22, Division 4, Chapter 3, Article 7 (Title 22), also referred to as the "Engineer's Report". As defined herein, the City of Malibu will be responsible for the production of recycled water, distribution of recycled water to customers and recycled water use area oversight. This Engineer's Report covers the production, distribution and use of recycled water within the City for the Phase 1 system (Supplemental Engineer's Report(s) will be prepared when subsequent project phases are undertaken). The CCWTF will produce disinfected tertiary recycled water for unrestricted use, meeting the highest level of treatment under Title 22.

2 Project Description/Background

2.1.1 Overview of Malibu Civic Center Area

The Malibu Civic Center Area has been the subject of numerous recent analyses pertaining to water quality impairments. Permitting decisions and water quality studies done in the area have focused on nutrient loading to the Malibu Creek Watershed, and more specifically, Malibu Lagoon (Lagoon), which is located near the southeastern corner of the Malibu Valley Groundwater Basin (Basin). The U.S. Environmental Protection Agency (USEPA) and LARWQCB have made significant efforts to protect the basin from non-point source pollution; the previously-mentioned orders are intended to further that effort.

OWDSs represent a major category of non-point sources for nutrient and coliform pollution to Malibu Creek and Lagoon, and have received significant attention and criticism from permitting agencies, non-governmental organizations (NGOs), and the general public. OWDS exist as individual or collective septic systems that treat wastewater from residential and commercial buildings and discharge the resultant effluent to the groundwater basin through leachfields. Primary concerns regarding water quality impairments within the area of the Creek and Lagoon include coliform bacteria, nitrogen, and phosphorus. The CCWTF Project is comprised of a centralized wastewater collection and treatment system that will capture and treat wastewater flows in hopes of reversing the effects of OWDS use on Creek and Lagoon water quality over past years.

2.1.2 Need for Centralized WWTP

The August 2011 Memorandum of Understanding (MOU) between the City and LARWQCB formalizes the agreement for the phased cessation of use of OWDS in the Malibu Civic Center Area. The MOU memorializes the parties' agreement to coordinate and implement a centralized wastewater collection and treatment project in the Malibu Civic Center Area. It calls for every site that uses OWDSs to be eventually connected to the Civic Center Wastewater Treatment Facility and prohibits the use of OWDSs in the Prohibition Zone by 2025.

The proposed CCWTF will produce treated effluent that meets wastewater discharge quality standards as outlined in the CCR Title 22 for disinfected tertiary water. The phased approach to connecting every facility to the CCWTF will eliminate or greatly reduce the amount of non-point source pollution discharged from OWDSs and will result in disinfected recycled water suitable for unrestricted non-potable reuse beginning with Phase 1 of the project. The primary objective of the project is to reuse this recycled water for landscape irrigation and other non-potable uses in the Civic Center area; any unused recycled water will be injected or percolated into the underlying Malibu Valley Groundwater Basin.

2.1.3 Sanitary Sewer Collection System and Treatment

Figure 2-1 shows the proposed wastewater collection system for Phase 1 of the CCWTF Project. All pipelines will be underground, in public right-of-ways (streets) and in easements. All pump stations will be located below ground, on public right-of-ways and/or easements. Backup generators and electrical panels will be located partially below ground and will be fenced and screens for security and to minimize visual impacts.

The wastewater that is collected in the Civic Center area of the system will be centralized at a lift station located at the corner of Webb Way and Civic Center Way. The lift station will transfer the raw sewage through a force main to the treatment plant located at the Winter Canyon Site. A second lift station will transfer wastewater flows from Bluffs Park and from proposed nearby residential development to the treatment plant.

2.1.4 Recycled Water Distribution and Application

The recycled water distribution system is described in Chapter 4 Recycled Water Transmission and Distribution Systems. Recycled water will be used for landscape irrigation and other non-potable water uses such as toilet flushing and dust control. Any unused recycled water will be injected into the underlying Malibu Valley Groundwater Basin via one of three injection wells located along Malibu Road and/or percolated into the Winter Canyon alluvium via percolation ponds located on the plant site. A well construction and operation ordinance will be developed and enacted by the City of manage the installation and use of future wells in the groundwater basin, both to protect the operations of the injection wells and to protect against the inadvertent extraction and unprotected use of injected recycled water blended with groundwater.

Figure 2-1: CCTWF Phase 1 Project Facilities



3 Recycled Water Production Facilities

This section describes the recycled water production facilities, including source water quality, treatment processes, monitoring programs and contingency plans.

3.1 Source Water Quality

3.1.1 Source and Quality of Water for Tertiary Treatment

At present, all effluent wastes in the City of Malibu are disposed of either through septic systems (OWDS) or small, area-specific treatment systems. Because of the lack of a centralized sewer collection system or wastewater treatment facility in Malibu, there are limited data available regarding wastewater quality. Between February 23rd and March 26th of 2013, wastewater samples were collected every 15 minutes from the influent tee of a 48,000 gallon septic tank at the existing Winter Canyon wastewater treatment facility (the proposed location of the new CCWTF facility). Influent at this existing plant is from a shopping center located south of Malibu Road, a nearby gas station and a commercial building, and represents 'average' commercial wastewater influent. These data, along with standard values from academic research, are providing the basis for the design of the new CCWTF Project. Table 3-1 summarizes the median and 95Th percentile values for a variety of raw wastewater constituents.

3.1.2 Wastewater Sources and Pollution Prevention

The source of wastewater for the proposed CCWTF Project is municipal and commercial influent from the Civic Center Area within the city limits of Malibu. The City is comprised primarily of residential dwellings with some commercial and one industrial facility. The first two phases of implementation of the CCWTF consist only of residential and commercial flows. At present, the City does not implement any source control programs. As the City moves towards full Project implementation (through Phase 3), an industrial customer will be brought into the collection system and source control measures will be developed and implemented by the City.

Table 3-1: Expected Quality of Raw Wastewater at CCWTF

Constituent	Units	Median	95th Percentile
Total Alkalinity	mg/L	434	460
Carbonate Alkalinity	mg/L	Non Detect	---
Bicarbonate Alkalinity	mg/L	434	460
Hydroxide Alkalinity	mg/L	Non Detect	----
Ammonia as N	mg/L	45	50
Biochemical Oxygen Demand	mg/L	290	332
Chloride	mg/L	317	345
Chemical Oxygen Demand	mg/L	976	1153
Filtered Chemical Oxygen Demand	mg/L	624	708
Electrical Conductivity	mmhos/cm	2329	2601
Total Hardness	mg/L	359	387
Nitrite as N	mg/L	0	0
Nitrate as N	mg/L	18	22
Oil and Grease	mg/L	10	13
pH	pH units	7	7
Orthophosphate as P	mg/L	9	11
Phosphorus	mg/L	9	11
Soluble BOD	mg/L	173	205
Total Dissolved Solids	mg/L	1540	1712
Total Kjeldahl Nitrogen	mg/L	46	51
Total Suspended Solids	mg/L	156	187
Volatile Suspended Solids	mg/L	138	167
Adjusted Sodium Adsorption Ratio		6	7
Calcium	mg/L	71	77
Magnesium	mg/L	43	46
Sodium	mg/L	273	304

3.2 Proposed Recycled Water Treatment Processes

3.2.1 Treatment Process Description

The layout of the CCWTF is shown in Figure 3-1. The treatment process for Title 22 tertiary quality water will be as follows (and as shown in Figure 3-2):

- Headworks (mechanical screening and grit removal)
- Membrane Bioreactor (MBR)
  - Biological Reactor
  - Membrane
- UV Disinfection
- Residual Chlorine Dosing

- Recycled Water Distribution Pump Station
- Recycled Water Storage Tank

While UV disinfection will provide the primary disinfection necessary to meet Title 22 requirements, additional chlorine will be added to the recycled water stream at the treatment plant site, downstream of the UV disinfection system. A residual chlorine concentration of 2 mg/L will be maintained. Average flows and loading rates to the treatment facility will be as follows:

Table 3-2: CCWTF Loading Rates

Loads and Flows	Units	Value
Average Annual Flow	GPD	190,900
Max Day Flow	GPD	276,000
Peak Hour	GPD	644,000
Average BOD Loading	LBS/DAY	595
Max Day BOD Loading	LBS/DAY	668
Average TSS Loading	LBS/DAY	405
Max Day TSS Loading	LBS/DAY	523
Average TKN Loading	LBS/DAY	98
Max Day TKN Loading	LBS/DAY	111
Average Ammonia Loading	LBS/DAY	82
Max Day Ammonia Loading	LBS/DAY	93
Average Phosphorous Loading	LBS/DAY	20
Max Day Phosphorous Loading	LBS/DAY	23

Figure 3-1: CCWTF Site Plan

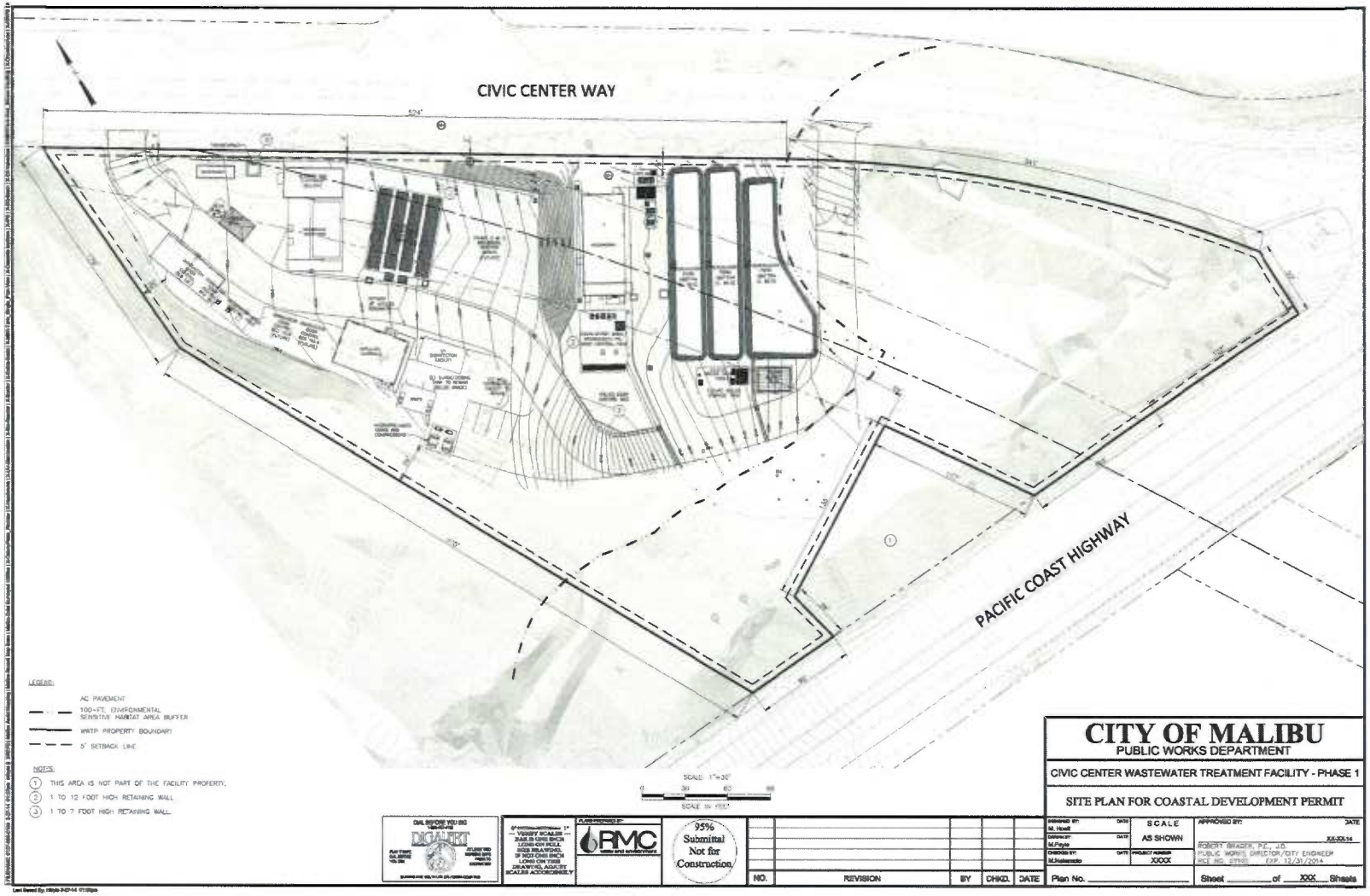
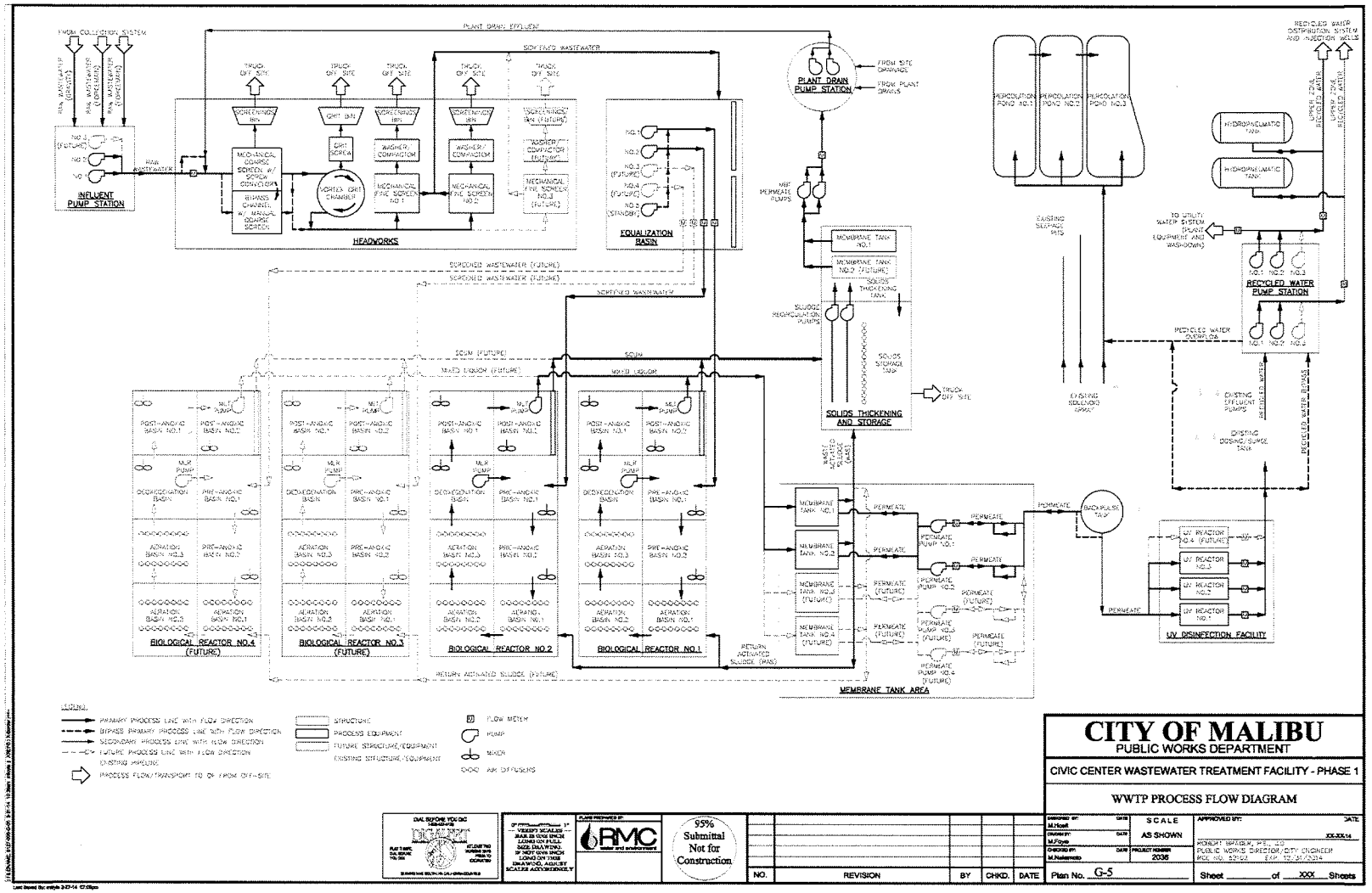


Figure 3-2: CCWTF Process Flow



3.2.2 Title 22 Design Criteria

Table 3-3 summarizes the requirements set forth in Title 22 for disinfected tertiary recycled water.

Table 3-3: Title 22 Facility Requirements

Parameter	Maximum Title 22 Requirements for Disinfected Tertiary RW (Not to Exceed)
Tertiary Treated Effluent Turbidity	0.2 NTU more than 5 percent of the time within a 24-hour period (not to exceed)
	0.5 NTU at any time (not to exceed)
Tertiary Treated Effluent Total Coliform Bacteria	2.2 MPN / 100 mL per 7 day period (not to exceed)
	23 MPN / 100 mL per 30 day period (not to exceed)
	240 MPN / 100 mL during all periods (not to exceed)

3.2.3 Treatment Process Components

Membrane Bioreactor

The membrane bioreactor receives treated primary effluent after the headworks (mechanical screening and grit screening) process area. The membranes will be a hollow fiber membrane manufactured by General Electric (GE) Model 500D or approved equal; these membranes have a height of approximately 72 to 85 inches. This type of membrane equates to an ultrafiltration membrane pore size. Table 3-4 and Table 3-5 summarize design criteria for the bioreactor and membrane reactor processes. Influent turbidity is anticipated to have a MLSS of 8,000 mg/L suspended solids; treated effluent is expected to have a turbidity level of less than 0.2 NTUs.

Table 3-4: Bioreactor Design Criteria

Description	Criteria
Bioreactor	
Mixed Liquor Suspended Solids	8000 mg/L
Mean Cell Residence Time at Average Flow	22.3 days
Hydraulic Retention Time at Average Flow	35.8 hrs
Aeration Type	Fine Bubble
Mixing Type	Submersible
Number of Trains	2
Number of Pre-Anoxic Basins Per Train	2
Volume, Total	24,500 gals
Number of Aeration Basins Per Train	3
Volume, Total	65,000 gals
Number of De-Oxygenation Basins Per Train	1
Volume, Total	11,000 gals
Number of Post-Anoxic Basins Per Train	2
Volume, Total	21,100 gals

Table 3-5: Membrane Design Criteria

Membrane Reactor	
Mixed Liquor Suspended Solids	8000 mg/L
Aeration Type	Coarse Bubble
Membrane Type	Hollow Fiber
Manufacturers	GE, Koch, or Approved Equal
Model	500 D
Modules Per Cassette	48
Cassettes Per Train	1
Numbers of Trains	2
Design Flux at Average Day Flow (Phase 1A)	7.2
Design Flux at Max Day Flow (Phase 1A)	14.1
Design Flux at Average Day Flow (Phase 1)	8.3
Design Flux at Max Day Flow (Phase 1)	9.7
Design Flux at Average Day Flow (Buildout)	9.4
Design Flux at Max Day Flow (Buildout)	11.7
Backpulse Rate (gpd/sf)	12

UV Disinfection

From the membrane bioreactors, filtered effluent flows to the ultraviolet (UV) system for disinfection. The UV disinfection system will be a closed conduit type consisting of two duty trains and one standby train. Lamps will be a low pressure high output type with a minimum of 8 lamps per reactor and one reactor per train. Each reactor will have a capacity of 0.1 MGD. Table 3-6 shows design criteria for the UV disinfection system; only CDPH-approved systems will be used.

Table 3-6: UV Disinfection System Design Criteria

Description	Criteria
UV Disinfection	
Type	Closed Conduit
Lamp Type	Low Pressure High Output
Number of Trains (Duty/Standby)	2/1
Number of Reactors Per Train	1
Lamps Per Reactor	8 min
Capacity (Each Reactor)	0.1 MGD

Cleaning of the UV disinfection system will be automatically controlled by the process control system to maintain the required minimum UV dose. The CCWTF SCADA system will vary the number of lamp banks that are operating, as well as the lamp intensity at which the banks are operating based on the influent flow and the UV transmittance in the UV influent chamber.

Following construction and prior to activation of the CCWTF for recycled water distribution, the UV system will be tested to ensure that pathogen inactivation is achieved to the levels required by Title 22. The testing will be performed in accordance with NWRI2003 UV Guidelines. Following completion of

the testing, a report summarizing the procedure and results from the testing will be submitted to the City and the California Department of Public Health (CDPH) for review and approval.

Chemical Feed Systems

All chemicals used at the CCWTF site are stored in the enclosed chemical storage area. Chemicals to be stored onsite include Micro C, sodium hydroxide, magnesium hydroxide, sodium hypochlorite, citric acid and polyaluminum chloride. The chemical feed system will consist of chemical storage containers (250 to 4,000 gallon storage tanks and totes), metering pumps, piping, and injection points. The primary chemicals that will be used in the treatment process are citric acid and polyaluminum chloride (coagulant). Dosing rates are show in Table 3-7; only CDPH-approved systems will be used.

Table 3-7: Dosing Rates and Use Location at CCWTF

Chemical	Use Location	Dose
MicroC	Post Anoxic Zone No. 1 (Bioreactors)	~10 gallons/day for 125,000 gpd flow rate
Citric Acid	Membrane Tanks	200 mg/L for 2 cleanings per year
Magnesium Hydroxide	Screened effluent pipe before Equalization Tank	~71 mg/L
Sodium Hypochlorite	Membrane Tanks	200 mg/L
	UV effluent pipe prior to Recycled Water Clearwell	5 mg/L
PolyAluminum Chloride	Membrane Influent Pipe from Bioreactor	28.7 mg/L Aluminum

A sodium hypochlorite storage and feed system will also be installed for periodic maintenance and cleaning use. The chemical systems will be designed to maximize flexibility to facilitate changes between multiple liquid chemical types to optimize treatment at the plant.

3.2.4 Recycled Water Storage and Pumping

From the UV disinfection system and under normal operations, the tertiary treated recycled water either flows to a 50,000 gallon fiber reinforced plastic storage tank or directly to the recycled water pump station for distribution. From the storage tank, recycled water is pumped for distribution to either the upper or lower zones. Table 3-8 shows design criteria for the recycled water storage and pump stations. Procedures for diverting water that does not meet Title 22 specifications are described in Section 3.6.

Table 3-8: Recycled Water Storage and Pump Station Design Criteria

Description	Criteria
Recycled Water Storage	
Type	Buried Fiber Reinforced Plastic Tank
Number	1
Volume	50,000 gallons
Recycled Water Distribution Pump Station – Upper Zone	
Type	Vertical Turbine Pump
Number (Duty/Standby)	1/1
Capacity (each)	120 gpm
Total Dynamic Head	325 ft
Motor Size	15 HP
Recycled Water Distribution Pump Station – Lower Zone	
Type	Vertical Turbine Pump
Number (Duty/Standby)	1/1
Capacity (each)	300 gpm
Total Dynamic Head	200 ft
Motor Size	25 HP

3.2.5 Operation and Maintenance Manuals

Operation and Maintenance (O&M) manuals for all treatment equipment are available in an electronic web-based format, accessible to all treatment plant staff via any on-site computer.

3.3 Plant Reliability Features

Reliability features at the CCWTF were selected to produce consistent recycled water effluent quality meeting the requirements of Title 22 and to provide the ability to shut down recycled water delivery if the water does not meet the Title 22 requirements. In general, reliability is established by redundancy in treatment equipment, providing necessary back-up systems if a critical process component fails. The recycled water customers will not be dependent on a continuous supply of recycled water and will be able to access potable water on site for backup should recycled water deliveries not be available. This supply redundancy will occur through the use of an air gap at the wet well of the recycled water distribution pump station and will be managed at the plant site. Allowing for potable water to be placed in the recycled water pump station wet well (and from there, into the recycled water distribution system) will provide the necessary supply redundancy.

Reliability features at the CCWTF will include:

- Redundant treatment equipment to allow maintenance and repairs to be made without taking the entire facility offline; and
- Alarms to indicate problems with the treatment facility process units.

3.3.1 Redundant Treatment Equipment

The CCWTF is designed with multiple treatment trains and redundant features to increase the reliability of the system. Table 3-9 summarizes the number of duty and standby units in treatment process. In addition to redundant equipment, the membranes are designed to typically operate at a lower flux rate

than the maximum design flux rate. This allows more flow to be pushed through one of the membrane trains if the second train needs to be taken offline.

Table 3-9: Treatment Process Train Reliability

Process	Number of Duty Units	Number of Standby Units
Bioreactor Train	1 complete train	1 complete train
UV Disinfection Train	2 complete trains	1 complete train
Recycled Water Distribution Pump Station – Upper Zone	1 pump	1 pump
Recycled Water Distribution Pump Station – Lower Zone	1 pump	1 pump

3.3.2 Alarms

Key process alarms are summarized below. Some alarms will indicate a problem condition only, while critical alarms are accompanied by automated system responses. All alarms will be integrated into the SCADA system at the on-site operations building and remote access portable computers. The CCWTF will be staffed on-site during business hours (eight hours per day, Monday through Friday); after hours, alarms will trigger a phone dial out system or other remote notification system that will notify the on-call operator or manager. The on-call operator will be notified of an alarm condition and will respond accordingly.

Alarms will be used to annunciate conditions such as:

- Loss of power;
- Failure of treatment processes/equipment (e.g. pump failure, mixer failure);
- Low and high water levels in the pump station wet wells;
- High pressure in pump discharges; and
- Turbidity and/or UV disinfection not meeting Title 22 requirements.

Critical alarms capabilities and the on-call operator notification system are tested on a weekly basis.

3.3.3 Power Supply

The backup power supply for the CCWTF is an on-site standby diesel generator.

3.4 Supplemental Water Supply

Supplemental water supplies will be the responsibility of the individual use sites. In the event of an outage at the CCWTF, recycled water use site supervisors will be notified by phone that recycled water deliveries will be on hold and that they should initiate use of their backup supplies. For information on cross-connection control prevention at use sites, see Section 5.3.4.

3.5 Monitoring and Reporting

Monitoring and reporting will be performed by City of Malibu staff in compliance with the requirements of the City's Master Reclamation Permit. Recycled water effluent quality monitoring will occur between UV disinfection and recycled water storage/distribution by a recycled water composite sampler. Turbidity will be sampled continuously while disinfected recycled water will be sampled at least once a day for total coliform bacteria. The composite sampler will be calibrated periodically when the recycled water distribution system demands are low. Water quality samples will be analyzed either onsite by the City of Malibu (provided the new analytical laboratory at the CCWTF site qualifies as a state-certified analytical laboratory) or by an off-site state-certified analytical laboratory.

3.6 Contingency Plan

Per Section 60323(c) of the Water Recycling Criteria, the following outlines contingency planning for the CCWTF for the management of inadequately treated wastewater, if it were produced, to prevent it from being delivered to recycled water users.

1. *List of conditions which would trigger an immediate diversion to take place:*
    - High Filter Effluent Turbidity, defined as any of the following conditions:
        i. 24-hour total above 0.2 NTU exceeds 5% of 24 hours (or 72 minutes);
        ii. Instantaneous turbidity exceeds 0.5 NTU for 10 seconds.
    - UV system failure, defined as any of the following conditions:
        i. Applied UV dose of less than 80 millijoules/cm^2;
        ii. Filtered effluent UV transmittance of less than 65%.
2. *Description of diversion procedures:*

    Any of the conditions listed above will trigger closing of two motorized butterfly valves located between the UV disinfection system and recycled water storage/distribution. With the butterfly valves closed, flow is diverted back to the headworks via a dedicated connection. The butterfly valves are locked closed until reset by an operator.
3. *Description of diversion area, including capacity, holding time and return capabilities:*

    The diversion area for recycled water that does not meet Title 22 specifications is the headworks. Flow that is diverted to the headworks is sent via a dedicated connection and does not have the possibility of being returned for retreatment to Title 22 specifications.
4. *Plan for disposal or treatment of any inadequately treated effluent*

    Effluent that meets the requirements of disposal but does not meet Title 22 specifications will be percolated into the groundwater basin for disposal.
5. *Description of plans for activation of supplemental supplies (if applicable)*

    See "Supplemental Water Supplies" section (Section 2.4).
6. *Description of failsafe features in the event of a power failure*

    In the event of a power failure, the standby diesel generator will initiate operation to maintain continuous production of tertiary effluent.
7. *Plan for notifying the recycled water users, regional board, state and local health departments, and other agencies of any treatment failures that could result in delivery of inadequately treated recycled water to the use area.*
    - Notification to Users: Malibu staff will contact the list of use site supervisors within 24 hours of a known treatment plant failure.
    - Notification of RWQCB and DPH Staff: Notification of a facility shutdown or treatment failure shall be done in accordance with the provisions of the CCWTF's Master Reclamation Permit.

4 Recycled Water Transmission and

4.1 Distribution System

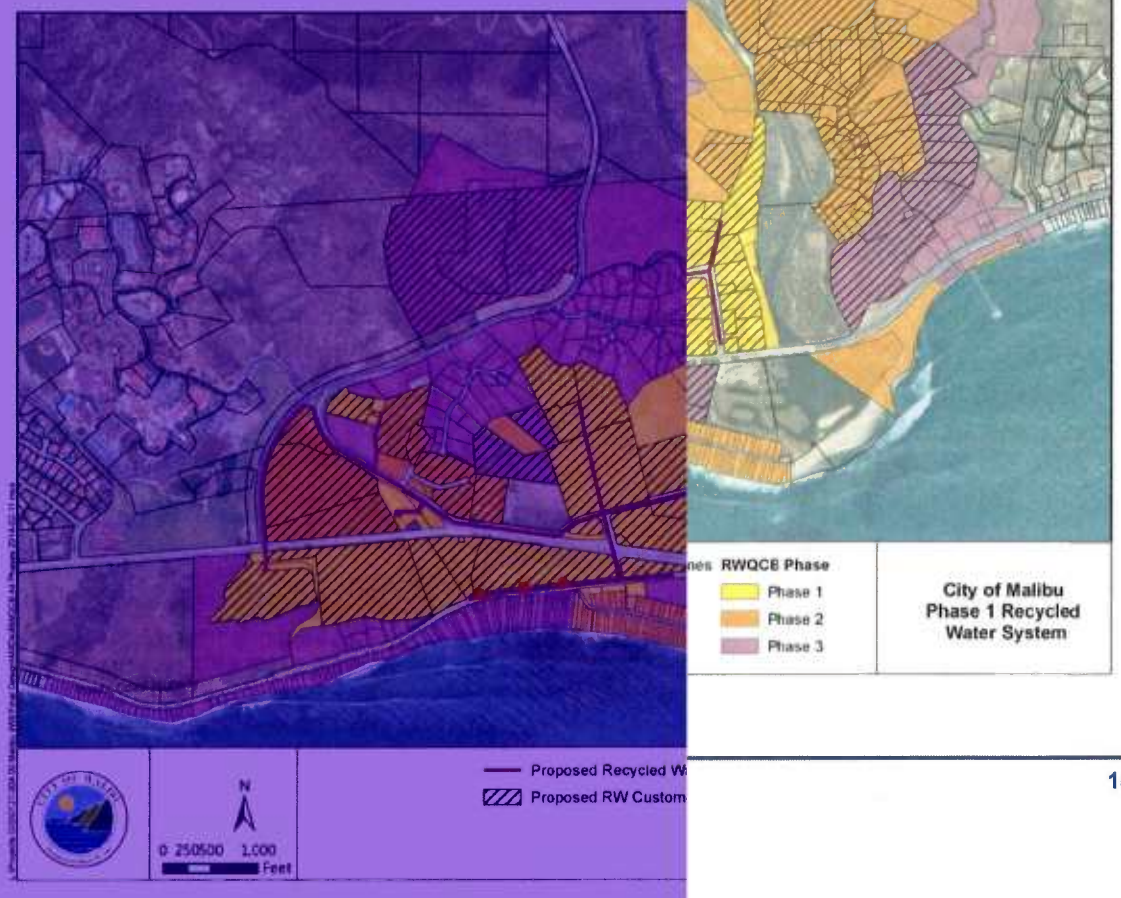
An overview of the recycled water pipelines are shown in
recycled water and sewer collection system pipelines are be
of the process of centralizing wastewater collection and trea

The initial phase of the CCWTF will serve the customers i
4-1. These are primarily commercial properties. As addition
Phase 2 and Phase 3 customers will be added to the distrib
4-1 will serve the Phase 1 customers. The distribution syst
currently developed and is not shown in the figure. As
Report(s) will be developed when these subsequent phases a

At the present, the anticipated phasing of the recycled water

- Phase 1 – 2015
- Phase 2 – 2019
- Phase 3 – 2025

Figure 4-1: Recycled Water Dis



tribution Systems

re 4-1. As discussed in Section 1, both
onstructed by the City of Malibu as part
in the City's Civic Center Area.

d in the Phase 1 areas shown in Figure
tment capacity is added to the CCWTF,
system. The pipelines shown in Figure
serve Phase 2 and 3 customers is not
d previously, supplemental Engineer's
ertaken.

ution system pipelines is as follows:

ion System

4.2 General Pipeline Design Criteria for Separation and Identification

The general recycled water pipeline design criteria are summarized in Table 4-1. Standard details for recycled water customer connections are included in the recycled water and sewer collection system design plans which are included in Appendix A. A memorandum documenting pipeline separation requirements in detail is included in Appendix B. This memorandum has already been submitted to CDPH for review and CDPH approval has been received by the City.

Table 4-1: Pipeline Design Criteria

Criteria	Requirement
Vertical (crossing) separation	• 12 inches below the bottom of potable water main • Crossings of potable and non-potable lines shall be perpendicular • RW lines shall be designed to cross under potable water mains and above sanitary sewers
Horizontal (parallel) separation	• 10 feet separation from, and 1 foot lower than, potable waterlines •
Field Identification	• Using purple-colored PVC C900 pipe (purple - Pantone 512) with wording: "RECYCLED WATER: DO NOT DRINK" printed on opposite sides of the pipe at 10-foot intervals; pipe shall be laid with the wording facing upwards. • Warning tape with a minimum width of 75 mm (3 inches) reading: "RECYCLED WATER: DO NOT DRINK" (in black lettering on purple background) shall be run continuously on top of all pipe and shall be attached to pipe with plastic tape banded around the warning tape and the pipe every 1.5 m (5 ft) on center.

4.3 Other Utilities in the Area – Potable Water Services

There are existing potable water lines in the vicinity of the recycled water distribution system. The water pipelines are owned and operated by Los Angeles County Waterworks District 29, a special district governed by the Los Angeles County Board of Supervisors. The water pipelines are shown on the recycled water and sewer collection system design plans, which are included in Appendix A. Separations from the potable water mains are per the design criteria presented in Table 4-1 and as summarized in the pipeline separation requirements included in Appendix B.

5 Use Areas

5.1 Use Types

Sections 60303 through 60307 of Title 22 outline the various allowable uses for recycled water. Of these allowable uses for recycled water, the types of uses proposed for the City of Malibu Phase 1 service area are:

- Irrigation (landscaping)
- Dual Plumbed Use Areas

5.2 Proposed Users

The proposed users, shown by implementation phase, are summarized in Table 5-1.

Table 5-1: Proposed Users

Phase	Development Name	Use Type
1	Malibu City Hall	Irrigation
1	LA County Offices	Irrigation
1	Malibu Country Mart	Irrigation
1	Malibu Country Mart	Irrigation
1	Professional Arts Building	Irrigation
1	J&P Limited	Irrigation
1	Drug Store	Irrigation
1	Malibu Legacy Park	Irrigation
1	Miramar Properties	Irrigation
1	GTE Bldg.	Irrigation
1	Stone/Masonry Yard	Irrigation
1	Masonry Yard	Irrigation
1	SoCal Edison	Irrigation
1	Malibu Creek Plaza	Irrigation
1	Shell Station	Irrigation
1	Malibu Lumber Yard	Irrigation & Dual Plumbed
1	Prudential Realty	Irrigation
1	Malibu Colony Plaza	Irrigation
1	Post Office	Irrigation
1	Former Gas Station	Irrigation
1	PCH Landscaping	Irrigation
1	Cross Creek Road Landscape	Irrigation
1	Malibu Bluffs Park	Irrigation
1	Our Lady of Malibu Church/ School	Irrigation
1	Proposed La Paz Ranch - Parcel A	Dual Plumbed
1	Proposed La Paz Ranch - Parcel B	Irrigation
1	Proposed Whole Foods	Irrigation & Dual Plumbed
1	Vacant - Upper Yamaguchi	Irrigation & Dual Plumbed
1	Vacant - Ioki	Irrigation & Dual Plumbed
1	Crummer Development	Irrigation
2	Webster Elementary School	Irrigation
2	Serra Retreat	Irrigation
2	Sycamore Farms Polo Fields	Irrigation
2	Serra Area Homes	Irrigation

Phase	Development Name	Use Type
2	Malibu Canyon Village HOA (23901 Civic Center Way)	Irrigation
2	Vista Pacifica HOA (3601 Vista Pacifica)	Irrigation
2	Maison DeVille HOA (23900 De Ville Way)	Irrigation
2	Toscana (DeVille Way)	Irrigation
2	Rancho Malibu Hotel Development	Irrigation
3	Perenchio Golf Course	Irrigation
3	Allied Nursery	Irrigation
3	Malibu Lagoon State Beach - Overlook	Irrigation
3	Hughes Research Lab	Irrigation & Dual Plumbed
3	Serra Area Homes	Irrigation
3	Vacant - Lower Yamaguchi	Irrigation & Dual Plumbed
3	Vacant - Island	Irrigation

5.3 Rules and Regulations

5.3.1 Recycled Water User Manual

The City of Malibu is using the *Recycled Water Urban Irrigation User Manual* (User Manual) developed by the Los Angeles County Recycled Water Advisory Committee, a local chapter of the California Section of the WateReuse Association, as the basis of their recycled water program manual. This manual covers urban irrigation uses of recycled water; a copy of this document is included as Appendix C.

For dual plumbed use sites, a separate Engineer's Report will need to be developed by each site. These individual Engineer's Reports serve as the onsite user's manual for each dual plumbed use site.

5.3.2 Recycled Water Use Permit

The City of Malibu will issue Recycled Water Use Permits to customers to ensure user compliance with recycled water regulations. The permit application requires the proposed user to provide a Use Site Supervisor. The Use Site Supervisor has the primary responsibility for ensuring the safe use of recycled water at a given site. The draft Recycled Water Use Permit is included in Appendix D.

5.3.3 Use Area Design

Section B "Design & Construction" and Section D "Marking & Equipment" of the User Manual (Appendix C) provide direction to use sites for the design of onsite facilities, including how to properly mark above- and below-grade piping, valves, and sprinkler heads, as well as how to place site signage.

5.3.4 Cross Connection Testing and Procedures

Section E "Cross-Connection Control" of the User Manual (Appendix C) provides procedures for the initial and final cross-connection tests for facility startup and the procedures for periodic cross-connection testing.

5.3.5 Use Area Inspections and Monitoring

Use Site Supervisors are responsible for regulating and monitoring the distribution and use of recycled water at their sites. The User Manual (Appendix C), and the subsequent permit issued to the user, defines the regulations and procedures for each user. The User Manual includes a Site Inspection Report form that allows for documentation of inspections and the conditions found onsite.

5.3.6 Employee Training

The City of Malibu will provide Use Site Supervisor training through a partnership with the Sanitation Districts of Los Angeles County. This training covers the User Manual content, which will be available to the Use Site Supervisors in an electronic format for printing and distribution. Use Site Supervisors are responsible for training personnel at their sites.

5.3.7 Emergency Procedures and Notifications

In the event of an emergency involving the recycled water system, users are instructed to contact the City via telephone immediately. Use Site Supervisors should also initiate the Emergency Cross-Connection Response Plan steps outlined in Section E "Cross-Connection Control" of the User Manual (Appendix C).

6 References

California Department of Health Services. 2001. *Guidelines for the Preparation of an Engineering Report for the Production, Distribution, and Use of Recycled Water*. Sacramento, CA. State of California.

Los Angeles WateReuse. 2014. *Recycled Water Urban Irrigation User Manual.*

ATTACHMENT NO. 3

Malibu Planning Commission
Regular Meeting Agenda

Monday, July 21, 2014
6:30 p.m.
City Hall – Council Chambers
23825 Stuart Ranch Road

Call to Order – Chair

Roll Call – Recording Secretary

Pledge of Allegiance

Approval of Agenda

Report on Posting of Agenda – July 11, 2014

1. Ceremonials / Presentations

A. None.

2. Written and Oral Communication from the Public

A. Communications from the Public concerning matters which are not on the agenda but for which the Planning Commission has subject jurisdiction. The Planning Commission may not act on these matters except to refer the matters to staff or schedule the matters for a future agenda.

B. Planning Commission and staff comments and inquiries

3. Consent Calendar

A. Previously Discussed Items

None.

B. New Items

None.

4. Planning Director Reports

A. Administrative Coastal Development Permit Amendment No. 14-003 and Site Plan Review No. 14-012 — An amendment to Administrative Coastal Development Permit No. 12-059 and Site Plan Review No. 12-051 to eliminate the 3,199 square foot accessory structure, increase the new single-family residence from 4,050 square feet to 5,314 square feet, reduce the 540 square foot 3-car garage to a 526 square foot two-car

garage, reduce the amount of non-exempt grading from 882 cubic yards to 410 cubic yards, and eliminate the sand volleyball court and swimming pool

Application Filing Date:	February 3, 2014
Applicant:	Nicolo Bini
Owner:	The Steven Levin Trust
Location:	30206 Morning View Drive, within the non-appealable coastal zone
APN:	4469-024-017
Zoning:	Rural Residential – 2 Acres (RR-2)
City Planner:	Associate Planner Harwell, 310-456-2489, ext. 250

Staff recommendation: Receive Planning Director's report on Administrative Coastal Development Permit Amendment No. 14-003 and Site Plan Review No. 14-012.

5. Continued Public Hearings

A. Extension of Amortization Schedule No. 14-001 - A request for an extension of the amortization schedule for a legal nonconforming use for a period consisting of the longer of five years or the period of time it takes to process a zone change and Local Coastal Program amendment to change the zoning designation of the Casa Malibu Inn property from Community Commercial (CC) to Commercial Visitor Serving-1 (CV-1) and to process an application for a conditional use permit for a motel use in the CV-1 zone (continued from July 7, 2014)

Application Filing Date:	March 31, 2014
Applicant:	Patrick Perry, Allen Matkins
Owner:	North Broadway Ventures, LLC
Location:	22752 Pacific Coast Highway
APN:	4452-004-035
Zoning:	Community Commercial (CC)
City Planner:	Senior Planner Blue, 310-456-2489, ext. 258

Staff recommendation: Adopt Planning Commission Resolution No. 14-65 approving Extension of Amortization Schedule No. 14-001 to extend the amortization schedule for the legal nonconforming motel use of the Casa Malibu Inn property to allow time to process a zone change and a Local Coastal Program amendment to change the zoning designation from Community Commercial to Commercial Visitor Serving-1 (CV-1) and process an application for a conditional use permit for a motel use in the CV-1 zone.

B. Coastal Development Permit No. 13-069, Site Plan Review No. 13-065, Minor Modification No. 13-023, and Demolition Permit No. 13-033 - An application for the demolition of all existing onsite development with the exception of the existing water tank and the construction of a new 8,992 square foot two-story, single-family residence with garage, pool, 575 square foot music studio, 135 square foot cabana, alternative onsite wastewater treatment system and associated development, including a minor modification request to reduce the required front yard setback, and a site plan review to allow for a 28-foot tall pitched-roof (Continued from July 7, 2014)

Application Filing Date:	December 23, 2013
Owner:	Alison and Alexander Hersel
Applicant:	Marny Randall
Location:	3314 Serra Road, within the non-appealable coastal zone
APN:	4456-026-012
Zoning:	Rural Residential – One Acre (RR-1)
City Planner:	Senior Planner Mollica, 310-456-2489, ext. 346

Staff recommendation: Adopt Planning Commission Resolution No. 14-64 approving Coastal Development Permit No. 13-069, Site Plan Review No. 13-065, Minor Modification No. 13-023, and Demolition Permit No. 13-033, an application for the demolition of all existing onsite development with the exception of the existing water tank and the construction of a new 8,992 square foot two-story, single-family residence with garage, pool, 575 square foot music studio, 135 square foot cabana, alternative onsite wastewater treatment system and associated development, including a minor modification request to reduce the required front yard setback, and a site plan review to allow for a 28-foot tall pitched-roof.

6. New Public Hearings

A. Extension of Coastal Development Permit No. 05-107 (.20 Floor Area Ratio Project), Lot Line Adjustment No. 05-004, and Conditional Use Permit No. 05-004 - A request to extend the Planning Commission's approval of an application for the construction of 112,058 square feet of commercial and retail use and a 20,000 square foot city hall complex

Extension Filing Date:	May 8, 2014
Applicant:	Chris Deleau, Schmitz and Associates, Inc.
Owner:	Malibu La Paz Ranch, LLC
Location:	23465 Civic Center Way (formerly addressed as 3700 La Paz Lane)
APNs:	4458-022-023 and 4458-022-024
Zoning:	Town Center Overlay
City Planner:	Senior Planner Blue, 310-456-2489, ext. 258

Staff recommendation: Adopt Planning Commission Resolution No. 14-71 granting a two-year extension of Coastal Development Permit No. 05-107 (.20 Floor Area Ratio Project), Lot Line Adjustment No. 05-004, and Conditional Use Permit No. 05-004.

B. Coastal Development Permit No. 11-048, Site Plan Review Nos. 11-028 and 12-066 and Minor Modification No. 12-003 – An application for a new two-story addition comprising of 3,803 square feet to the existing, one-story, single-family residence, an extension of the existing trellis off the master bedroom, removal of a vineyard, vine trellising, shed, and new portions of a retaining wall located on 4 to 1 slopes, and an after-the-fact approval of un-permitted work which includes a 265 square foot wine room, conversion of the existing garage into a media room and an outdoor fireplace and free-standing barbeque, a site plan review for structure height over 18 feet up to a maximum of 28 feet for a pitched roof (27 feet, 10 inches maximum proposed), and a

minor modification request to reduce the required front yard setback by 19.8 feet (44 percent reduction) to allow for the construction of the proposed detached garage

Application Filing Date:	October 5, 2011
Applicant:	Schumetta McLendon
Owner:	Brian Strange
Location:	28823 Cliffside Drive, within the appealable coastal zone
APN:	4466-010-012
Zoning:	Rural Residential - One Acre (RR-1)
City Planner:	Senior Planner Mollica, 310-456-2489, ext. 346

Staff recommendation: Adopt Planning Commission Resolution No. 14-75 approving Coastal Development Permit No. 11-048, Site Plan Review Nos. 11-028 and 12-066, and Minor Modification No. 12-003 to allow for a new two-story addition comprising 3,803 square feet to the existing, one-story, single-family residence, an extension of the existing trellis off the master bedroom, removal of a vineyard, vine trellising, shed, and new portions of a retaining wall located on 4 to 1 slopes located on 4 to 1 slopes, and an after-the-fact approval of un-permitted work which includes a 265 square foot wine room, conversion of the existing garage into a media room and an outdoor fireplace and free-standing barbeque, including a site plan review for structure height over 18 feet up to a maximum of 28 feet for a pitched roof (27 feet, 10 inches maximum proposed), and a minor modification request to reduce the required front yard setback by 19.8 feet (44 percent reduction) to allow for the construction of the proposed detached garage in the RR-1 zoning district located at 28823 Cliffside Drive.

C. Coastal Development Permit No. 13-045, Variance Nos. 13-039 and 13-040, Minor Modification No. 14-003, Site Plan Review No. 13-043, and Offer to Dedicate No. 14-001 – An application for the construction of a new two-story 4,184 square foot single-family residence with a 510 square foot detached guest house over a 765 square foot garage, swimming pool, spa, retaining walls and hardscape, and installation of a new alternative onsite wastewater treatment system and a new eight-inch waterline on Via Escondido from Pacific Coast Highway to the subject property; including variances for new development within the 100 foot buffer of an environmentally sensitive habitat area and for the fuel modification of the proposed residence to extend into an environmentally sensitive habitat area, and construction on slopes steeper than 2½ to 1, a minor modification for a 20 percent reduction of the required rear yard setback, a site plan review for construction in excess of 18 feet in height, and an offer to dedicate trail easements

Application Filing Date:	September 19, 2013
Applicant:	Vitus Matare
Owners:	Malibu Via Escondido, LLC; and Property Owners who have Underlying Ownership of Portions of the Via Escondido Private Right-of-Way
Location:	6118 Via Escondido and Properties which Contain Portions of the Via Escondido Private Right-of-Way, within the non-appealable coastal zone

APNs:	4460-014-008, -010 and -011, and Multiple Parcels which Contain Portions of the Via Escondido Private Right-of-Way
Zoning:	Rural Residential – Two Acres (RR-2), Rural Residential - Twenty Acres (RR-20) and Portions of the Via Escondido Private Right-of-Way are also Zoned Multi-Family Residential (MF) and Private Recreation Facilities (PRF)
City Planner:	Senior Planner Fernandez, 310-456-2489, ext. 482

Staff recommendation: Adopt Planning Commission Resolution No. 14-37, approving Coastal Development Permit No. 13-045, Variance Nos. 13-039 and 13-040, Minor Modification No. 14-003, Site Plan Review No. 13-043, and Offer to Dedicate No. 14-001 to allow the construction of a new two-story 4,184 square foot single-family residence with a 510 square foot detached guest house over a 765 square foot garage, swimming pool, spa, retaining walls and hardscape, and installation of a new alternative onsite wastewater treatment system and a new eight-inch waterline on Via Escondido from Pacific Coast Highway to the subject property; including variances for new development within the 100 foot buffer of an environmentally sensitive habitat area and for the fuel modification of the proposed residence to extend into an environmentally sensitive habitat area, and construction on slopes steeper than 2½ to 1, a minor modification for a 20 percent reduction of the required rear yard setback, a site plan review for construction in excess of 18 feet in height, and an offer to dedicate trail easements.

D. Zoning Text Amendment No. 13-009 - An amendment to Title 17 (Zoning) adding Chapter 17.59 (Art in Public Places) to the Malibu Municipal Code creating a public art requirement for certain capital improvement projects and commercial, institutional, and multi-family residential development projects

Applicant:	City of Malibu
Location:	Citywide
City Planner:	Associate Planner Hawner, 310-456-2489, ext. 276

Staff recommendation: Continue the item to the August 4, 2014 Regular Planning Commission meeting.

E. Civic Center Wastewater Treatment Facility Project – Environmental Impact Report No. 13-001 – Public Hearing for Comment on Draft Environmental Impact Report (State Clearinghouse No. 2013111075)

Application Date:	May 31, 2013
Applicant:	City of Malibu
Owner(s):	City of Malibu (Bluffs Park and Legacy Park); MBC Colony Plaza, LLC and Malibu Bay Company (treatment plant site); public and private rights of way (easements to be acquired as needed)
Location:	Project Area includes the service area of the wastewater treatment facility within the Prohibition Zone, as well as the treatment plant site: 24000 Civic Center Way (APNs

	4458-028-020 and -006), across the street from the intersection with Vista Pacific Street; Phase 1 pump stations: Legacy Park and Bluffs Park; injection wells: Malibu Road right-of-way behind Malibu Colony Shopping Center; pipelines: public and private streets/easements throughout the Civic Center Area, including a portion of unincorporated Los Angeles County just north of the Malibu City limits
APNs:	4458-028-006 and -020 (treatment plant site); 4458-020-902 (Legacy Park); 4458-018-902 and -904 (Bluffs Park)
Zoning:	Commercial Visitor-Serving 1 and 2 (CV-1 and CV-2), Public Open Space (POS), Rural Residential (RR), Single-family Medium (SFM), Planned Development (PD), Commercial General (CG), Institutional (I), Community Commercial (CC), and Research and Development (RD); and in the unincorporated areas of Los Angeles County, Residential Agriculture, Light Agriculture and Heavy Agriculture
City Planner:	Senior Planner Blue, 310-456-2489, ext. 258

Staff recommendation: Hold a public hearing and receive comments on the Draft Environmental Impact Report for the City of Malibu Civic Center Wastewater Treatment Facility Project.

7. Old Business

None.

8. New Business

None.

9. Planning Commission Items

None.

Adjournment

Future Planning Commission Meetings

Monday, August 4, 2014	6:30 p.m.	City Hall Council Chambers
Monday, August 18, 2014	CANCELLED	
Tuesday, September 2, 2014	6:30 p.m.	City Hall Council Chambers
Monday, September 15, 2014	6:30 p.m.	City Hall Council Chambers

Guide to Planning Commission Proceedings

The Oral Communication portion of the agenda is for members of the public to present items which are not listed on the agenda, but are under the subject matter jurisdiction of the Planning Commission. No action may be taken under, except to direct staff, unless the Commission, by a two-thirds vote, determines that there is a need to take immediate action and that need came to the attention of the City after the posting of the agenda. Although no action may be taken, the Commission and staff will follow up at an appropriate time on those items needing response. Each speaker is limited to three (3) minutes. Time may be surrendered by deferring one (1) minute to another speaker, not to exceed a total of eight (8) minutes. The speaker wishing to defer time must be present when the item is heard. In order to be recognized and present an item, each speaker must complete and submit to the Recording Secretary a Request to Speak form prior to the beginning of the item being announced by the Chair (forms are available outside the Council Chambers). Speakers are taken in the order slips are submitted.

Items in Consent Calendar Section A have already been considered by the Commission at a previous meeting where the public was invited to comment, after which a decision was made. These items are not subject to public discussion at this meeting because the vote taken at the previous meeting was final. Resolutions concerning decisions made at previous meetings are for the purpose of memorializing the decision to assure the accuracy of the findings, the prior vote, and any conditions imposed.
Items in Consent Calendar Section B have not been discussed previously by the Commission. If discussion is desired, an item may be removed from the Consent Calendar for individual consideration. Commissioners may indicate a negative or abstaining vote on any individual item by so declaring prior to the vote on the motion to adopt the entire Consent Calendar. Items excluded from the Consent Calendar will be taken up by the Commission following the action on the Consent Calendar. The Commission first will take up the items for which public speaker requests have been submitted. Public speakers shall follow the rules as set forth under Oral Communication.

For Public Hearings involving zoning matters, the appellant and applicant will be given 15 minutes each to present their position to the Planning Commission, including rebuttal time. All other testimony shall follow the rules as set forth under Oral Communication.

Old Business items have appeared on previous agendas but have either been continued or tabled to this meeting with no final action having been taken. Public comment shall follow the rules as set forth under Oral Communication.

Items in New Business are items which are appearing for the first time for formal action. Public comment shall follow the rules as set forth under Oral Communication.

Planning Commission Items are items which individual members of the Planning Commission may bring up for action, to propose future agenda items, or to suggest future staff assignments. No new items will be taken-up after 10:30 p.m. without a two-thirds vote of the Commission.

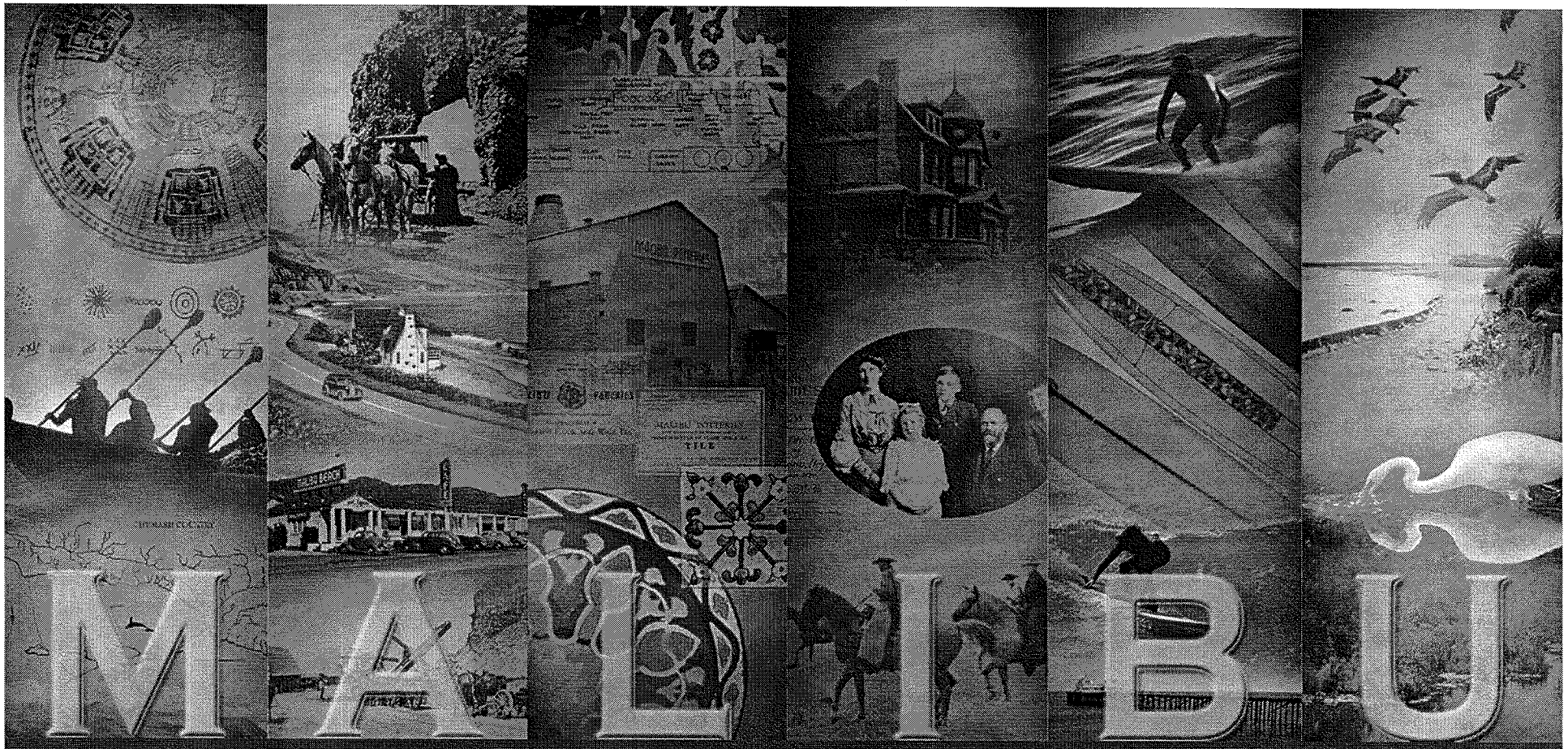
Planning Commission meetings are aired live and replayed on City of Malibu Government Access Channel 3 and on the City's website at www.malibucity.org.

Copies of the staff reports or other written documentation relating to each item of business described above are on file in the Planning Department, Malibu City Hall, 23825 Stuart Ranch Road, Malibu, California, and are available for public inspection during regular office hours which are 7:30 a.m. to 5:30 p.m., Monday through Thursday and 7:30 a.m. to 4:30 p.m., Friday. Written materials distributed to the Planning Commission within 72 hours of the Planning Commission meeting are available for public inspection immediately upon distribution in the Planning Department at 23825 Stuart Ranch Road, Malibu, California (Government Code Section 54957.5(b)(2). Copies of staff reports and written materials may be purchased for $0.25 per page. Pursuant to state law, this agenda was posted at least 72 hours prior to the meeting.

The City Hall telephone number is (310) 456-2489. To contact City Hall using a telecommunication device for the deaf (TDD), please call (800) 735-2929 and a California Relay Service operator will assist you. In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact Environmental Sustainability Director Victor Peterson at (310) 456-2489, ext. 251. Notification 48 hours prior to the meeting will enable the City to make reasonable arrangements to ensure accessibility to this meeting. [28 CFR 35.102-35.104 ADD Title II]. Requests for use of audio or video equipment during a Commission meeting should be directed to Alex Montano at (310) 456-2489 ext. 227 or amontano@malibucity.org at least 48 hours prior to the meeting.

I hereby certify under penalty of perjury, under the laws of the State of California that the foregoing agenda was posted in accordance with the applicable legal requirements; dated this 11th day of July, 2014.

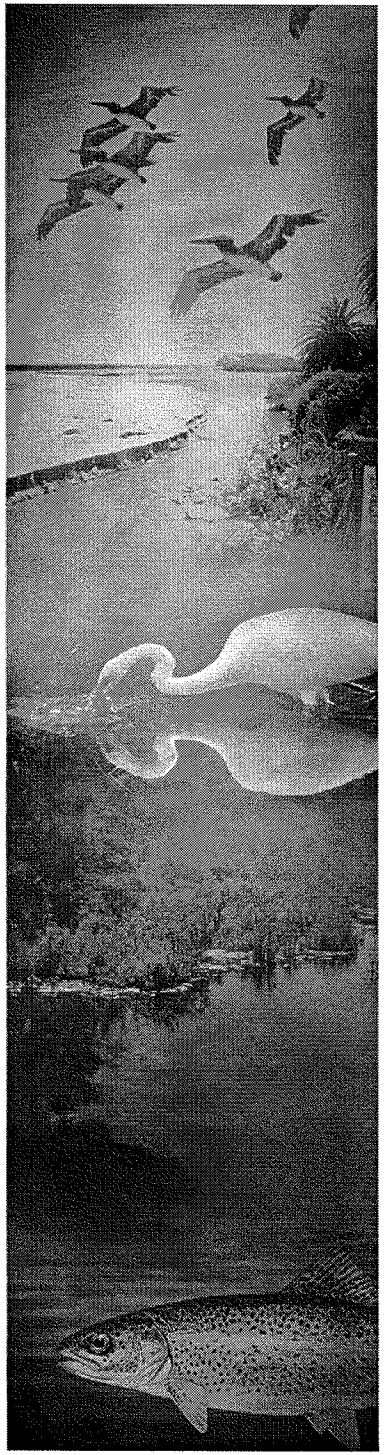
Patricia Salazar, Senior Administrative Analyst



City of Malibu Civic Center Wastewater Treatment Facility Project EIR Meeting

July 21, 2014

RMC



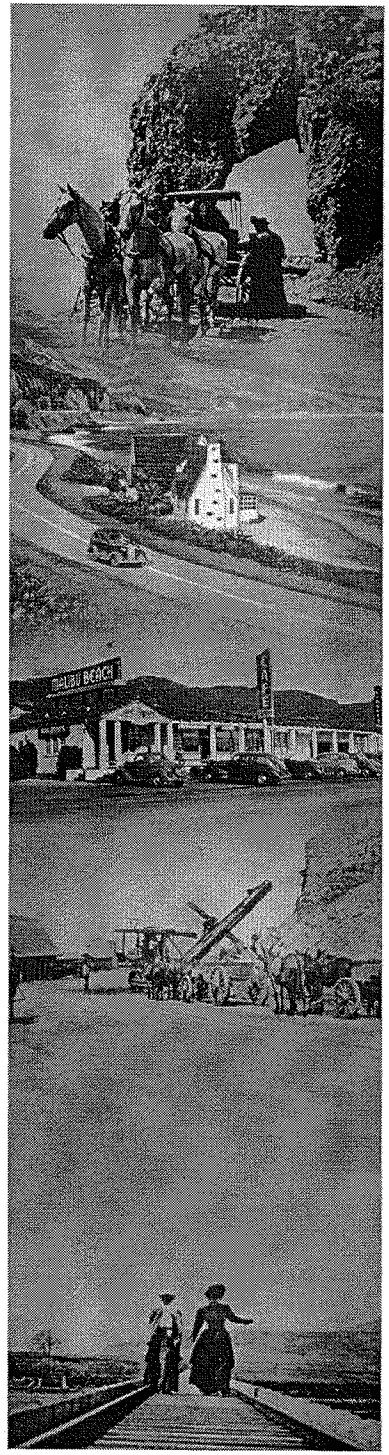
Introductions

- Jim Thorsen – City of Malibu, City Manager
- Bonnie Blue – City of Malibu, Planning Department
- Craig George – City of Malibu, Environmental Sustainability Department
- Bob Brager – City of Malibu, Public Works Department
- Steve Clary – RMC Water and Environment



Important EIR Dates

6/25/2014	Project Public Workshop
7/21/2014	DEIR Public Hearing
7/23/2014	ERB Meeting – DEIR and CDP Application
7/28/2014	DEIR Comment Period Closes
October 2014 (est.)	Final EIR Released

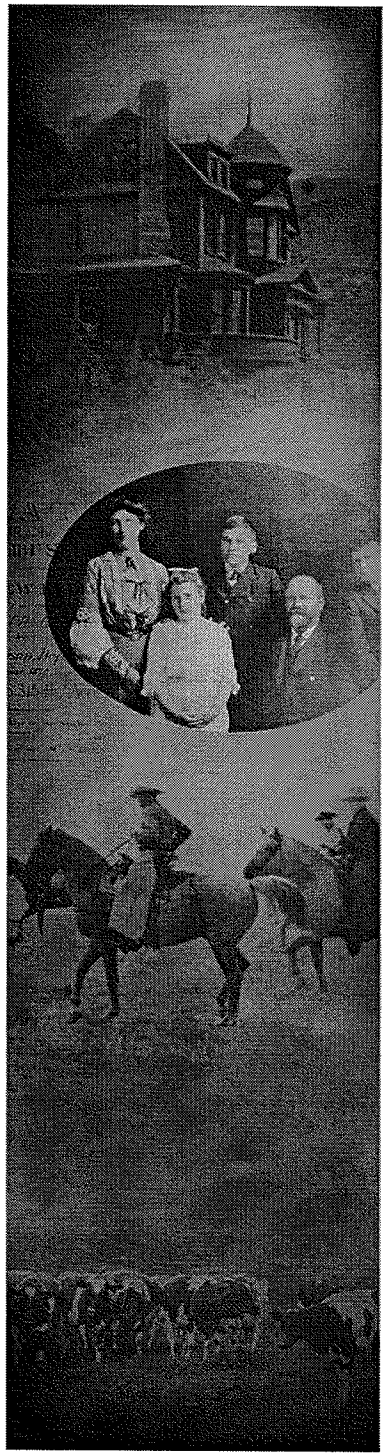


CCWTF Project Information

Online Information: Malibucity.org/ccwtf

Subscribe using E-mail Notifications button on website

Request to be an interested party and receive public hearing notices



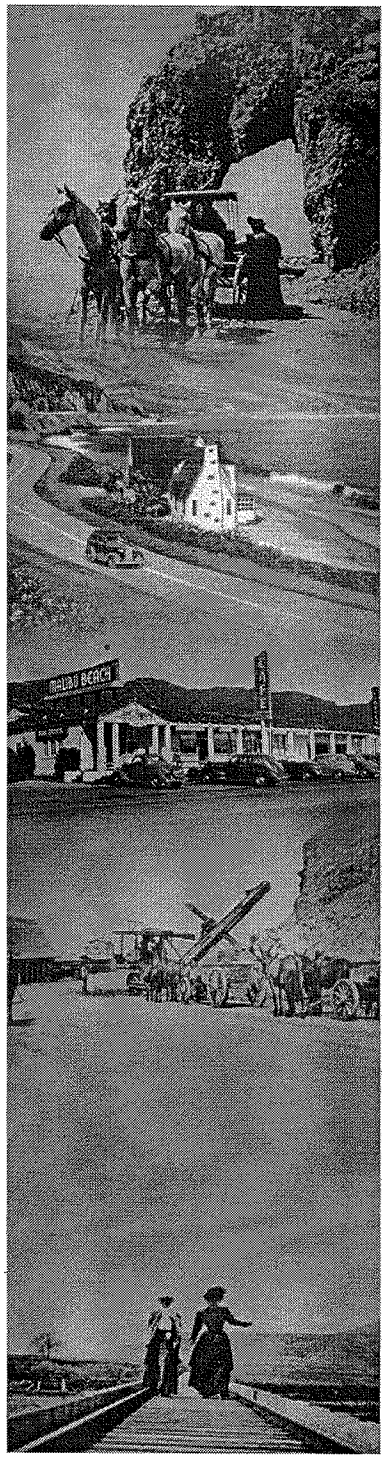
Meeting Agenda

I. Project Description

II. CEQA Process Review

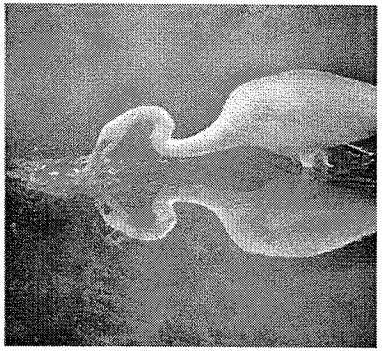
III. EIR Impact Analysis

IV. Next Steps



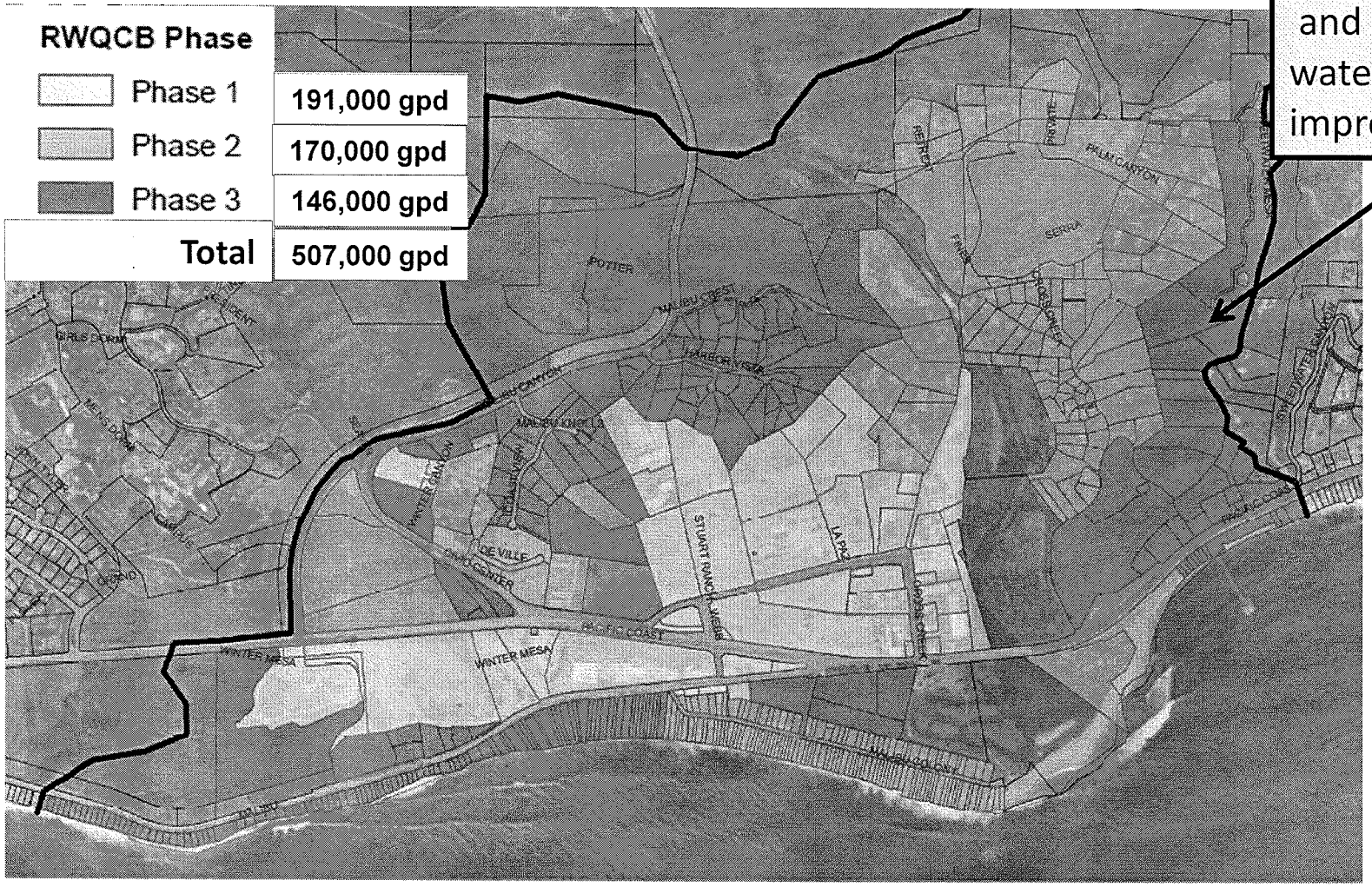
Prohibition Zone is RWQCB Mandate

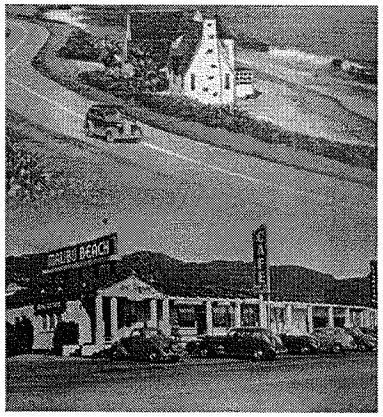
- 2009 RWQCB Prohibition regarding OWDS cites:
  - Poor record of performance
  - Bacteria impacts to recreational waters
  - Nutrient impacts to Creek and Lagoon
  - Wastewater flows are increasing
- Prohibition is an RWQCB mandate
  - Challenges should be taken to that forum
  - City has already challenged Prohibition, but lost
- Project failure could result in RWQCB action against individual property owners



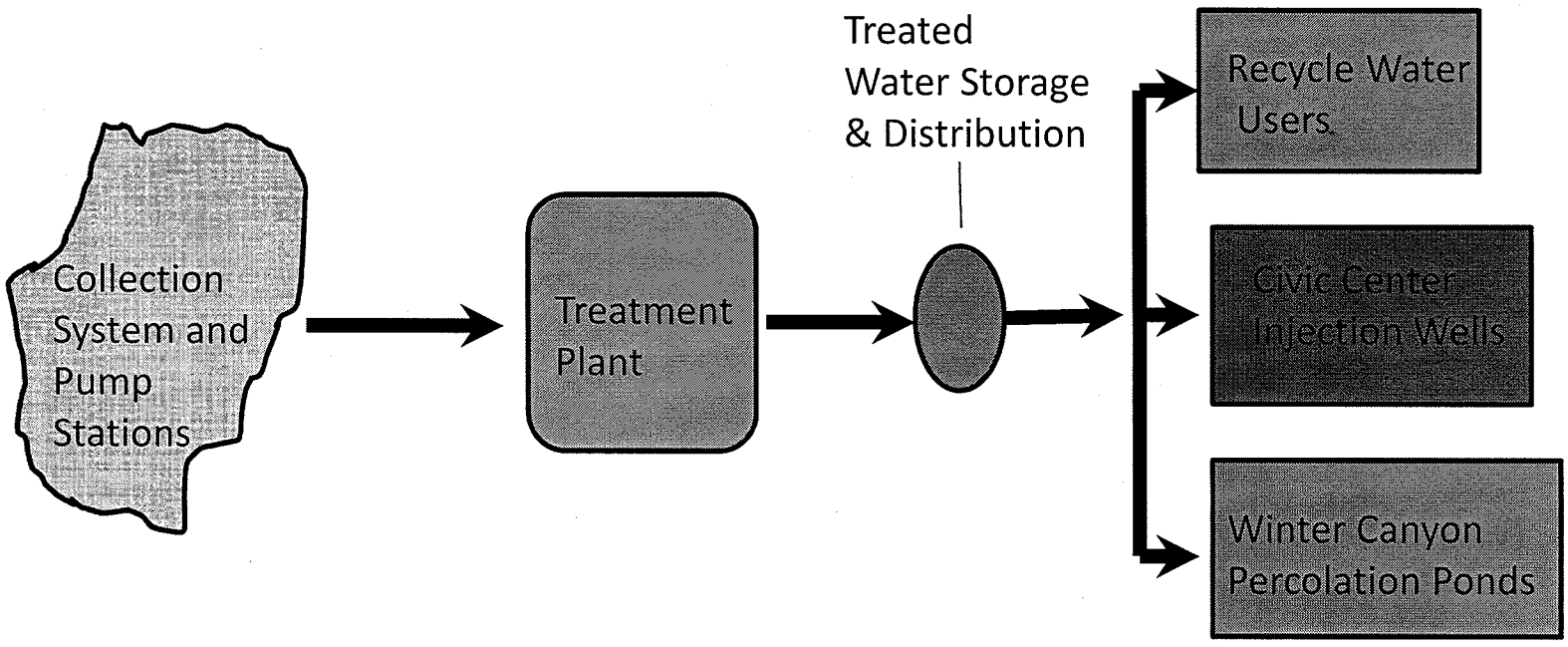
Project Location and Service Area

Phase 3 required only if Phase 1 and 2 show water quality improvements

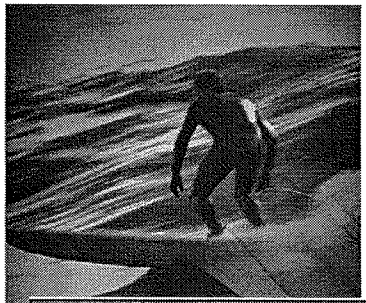




Project Components

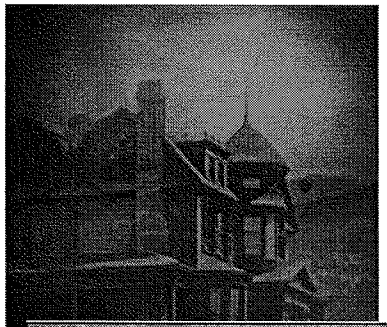


Note: Injection wells have capacity to handle <u>all</u> flows



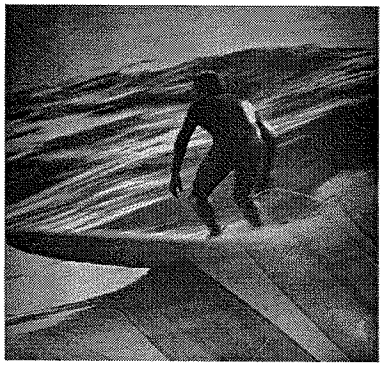
Collection, Distribution, Injection Systems – Phase 1



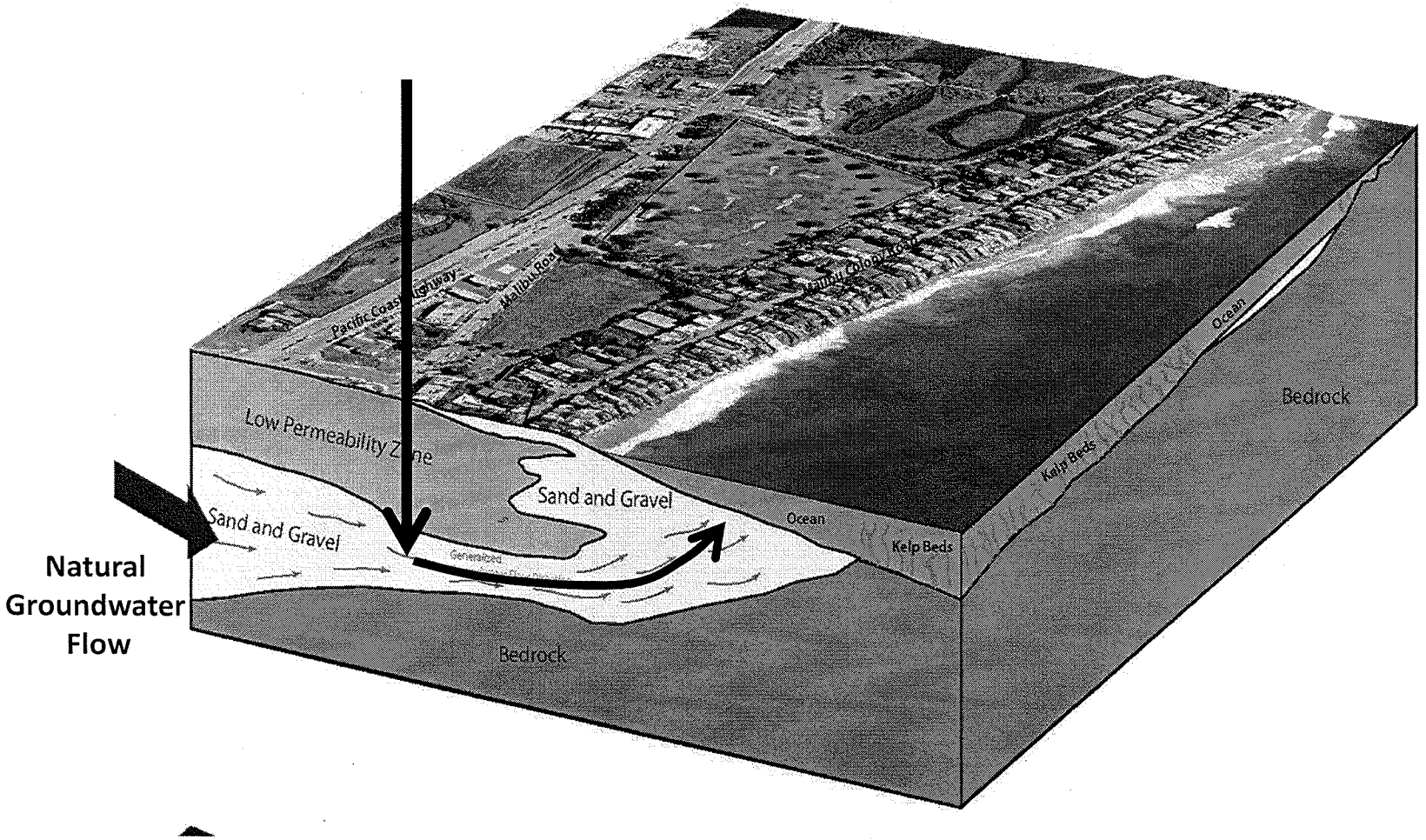


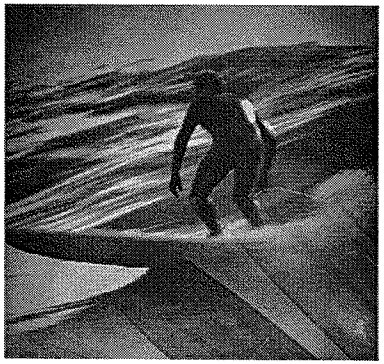
Facility Locations thru Build-Out





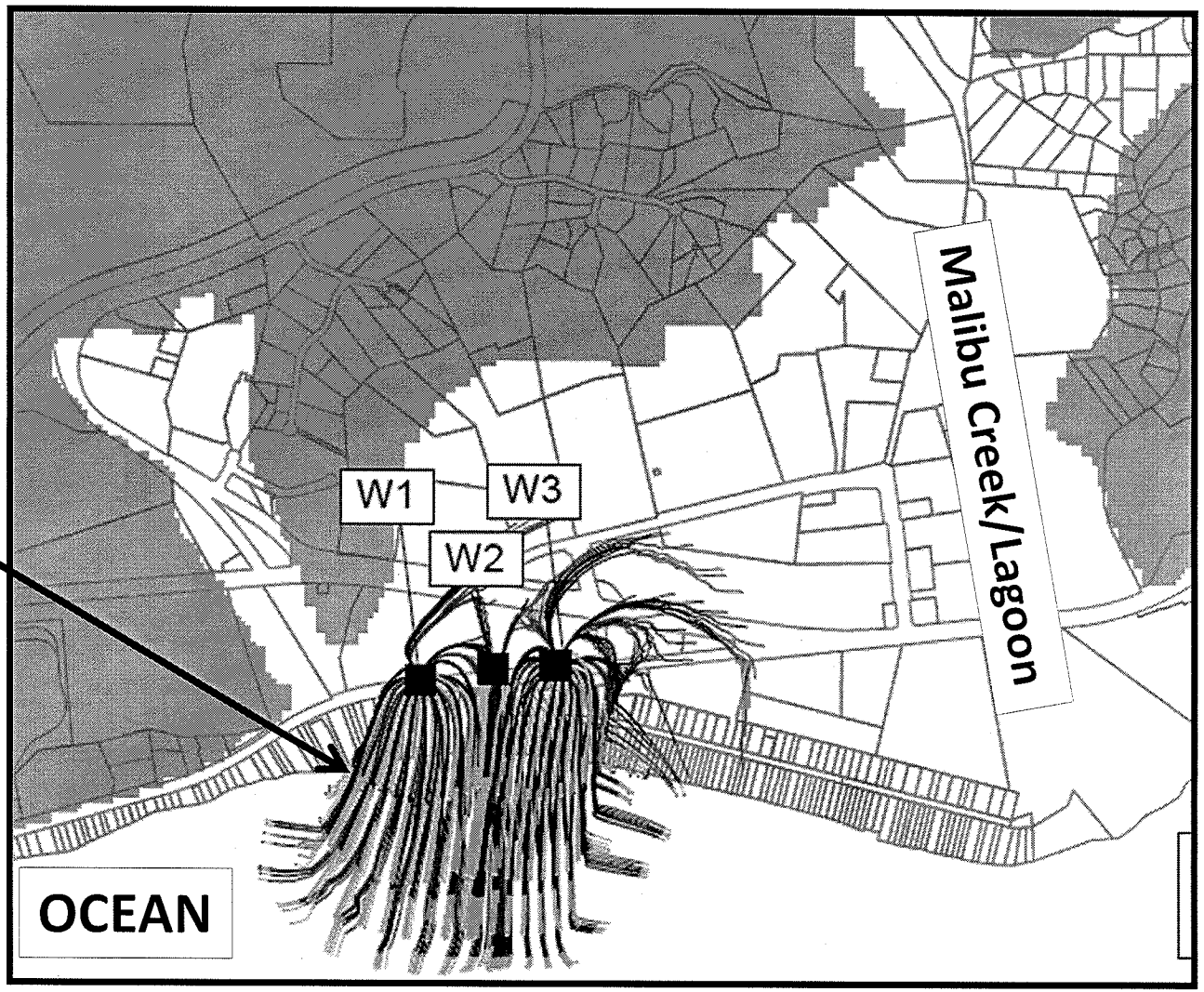
Shallow, Low Pressure Injection Flows to Ocean

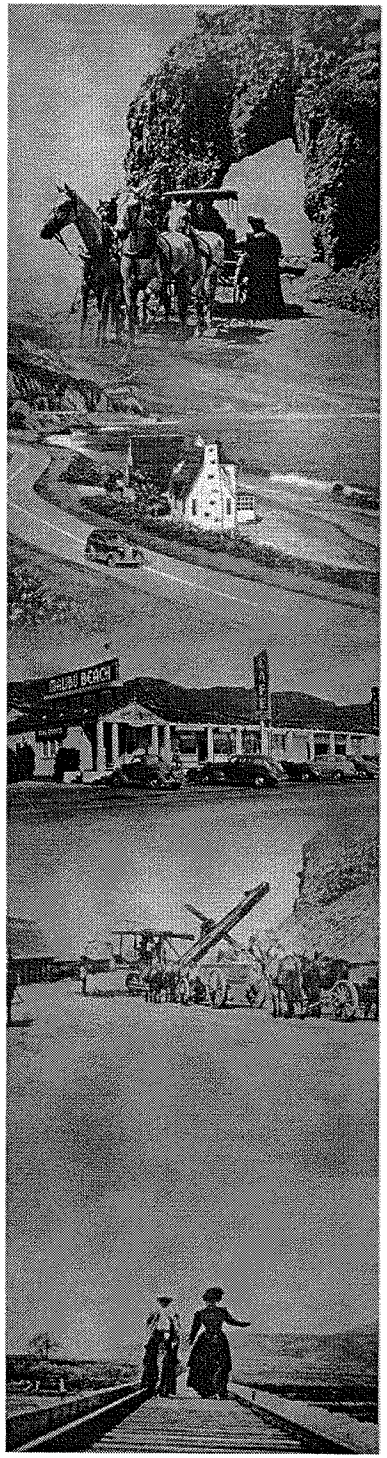




Injected Flow Moves Towards Ocean, Not Towards Lagoon

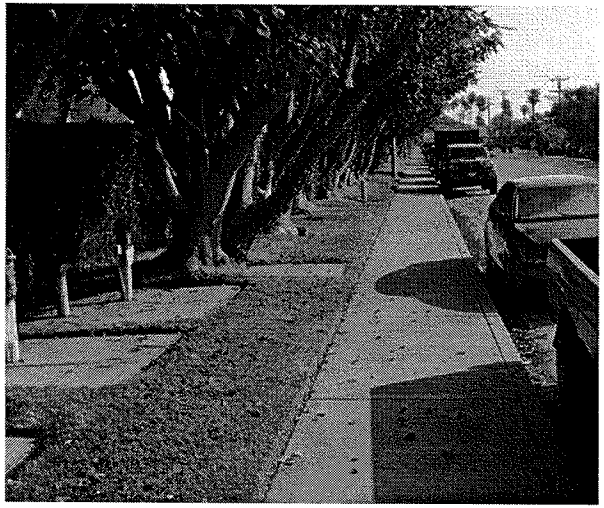
20 yr particle tracks



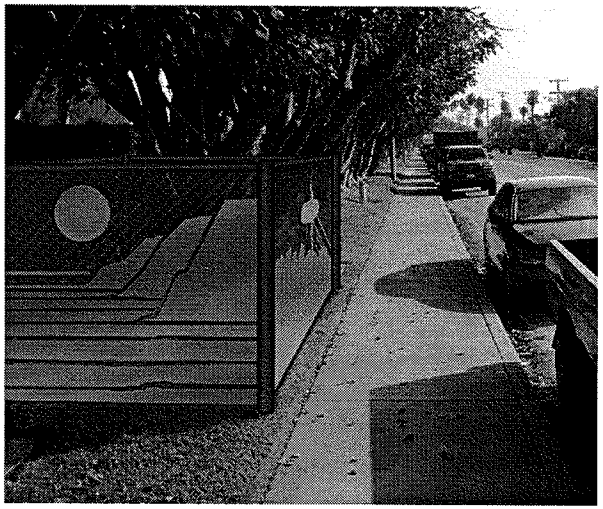


Preliminary Injection Well Design

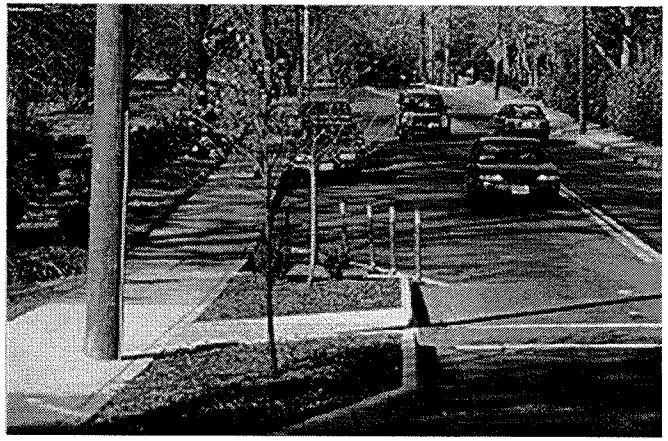
Existing Site Conditions



Example Well Enclosure

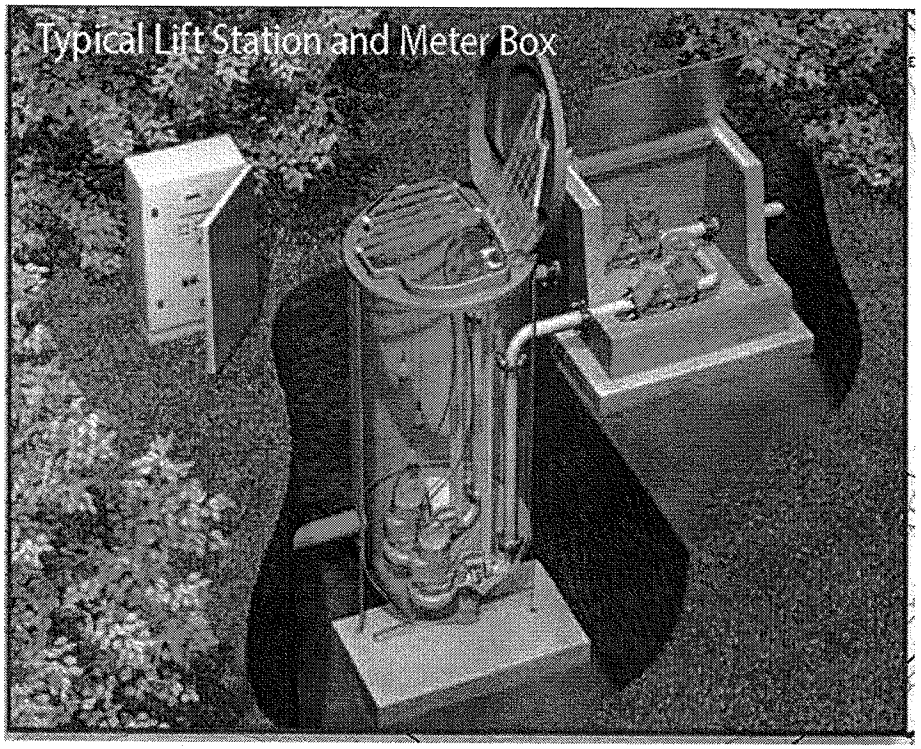


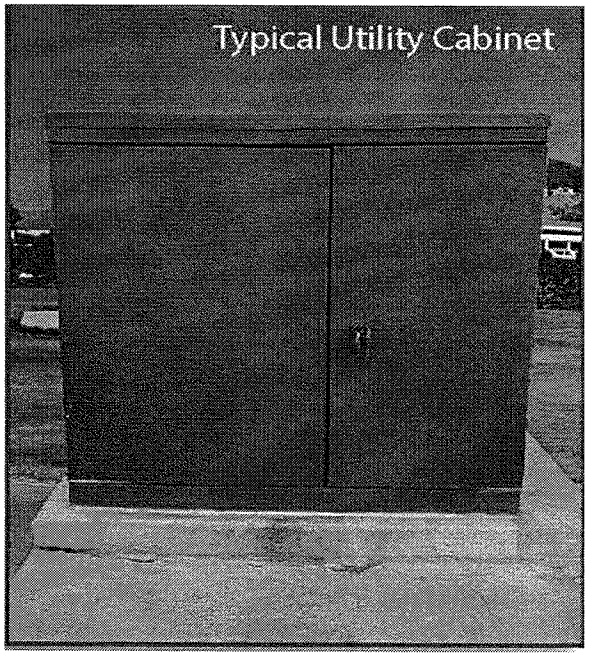
Typical Bump-Out

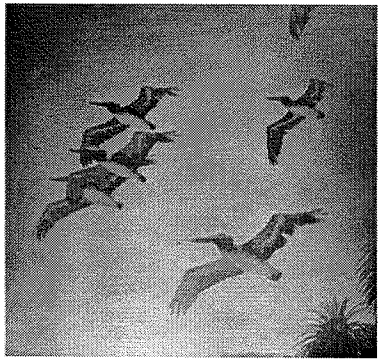




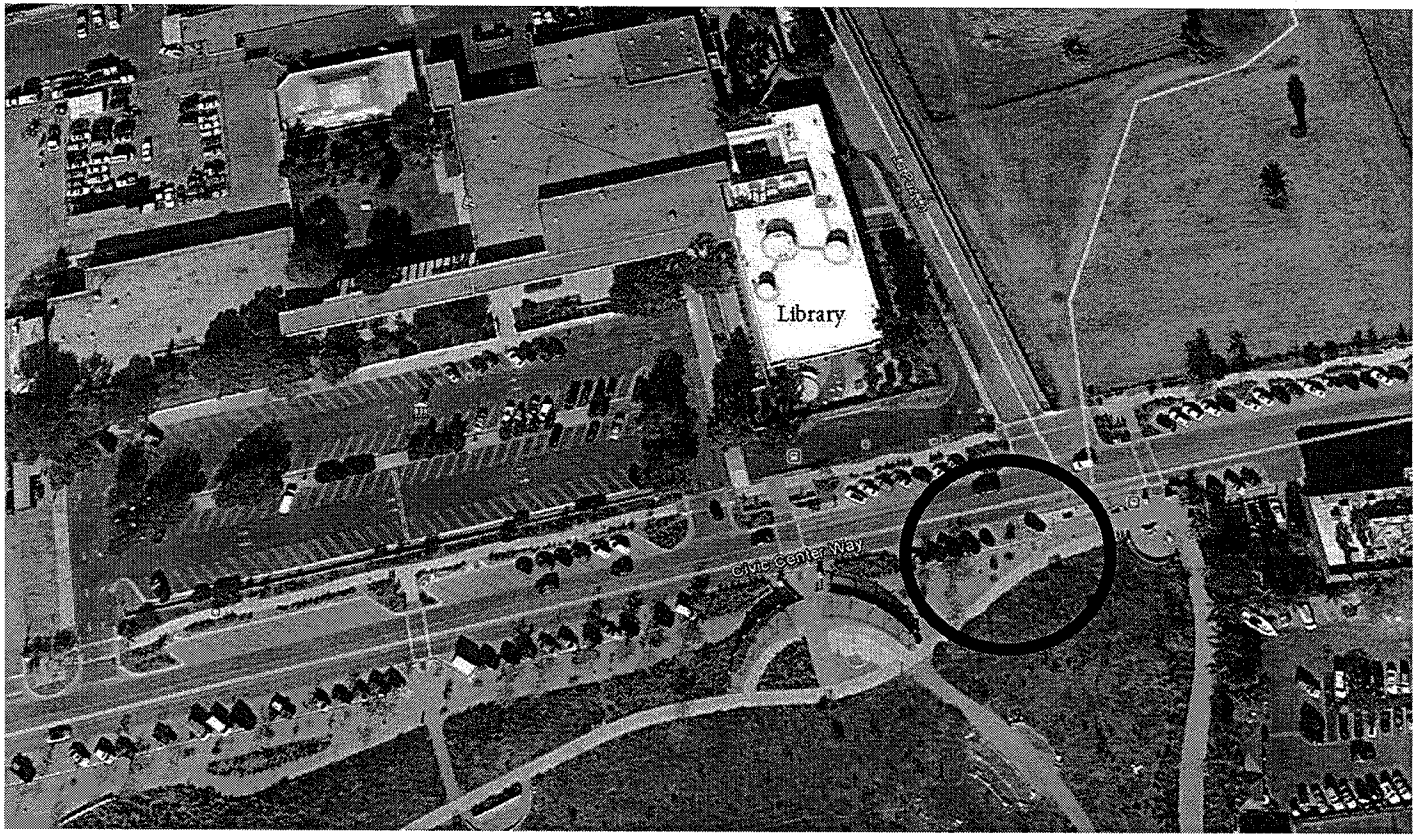
Collection System Pump Stations

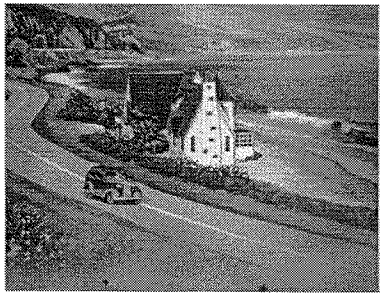






Legacy Park Pump Station



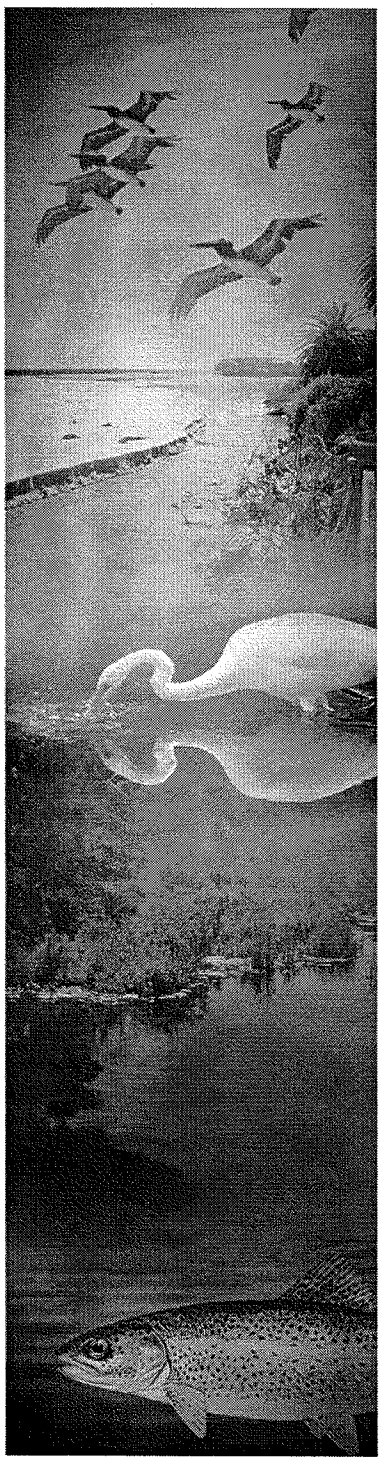


Bluffs Park Pump Station



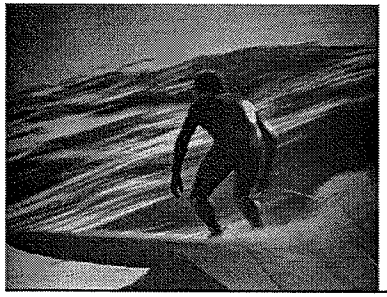
Treatment Site Layout at Build-Out



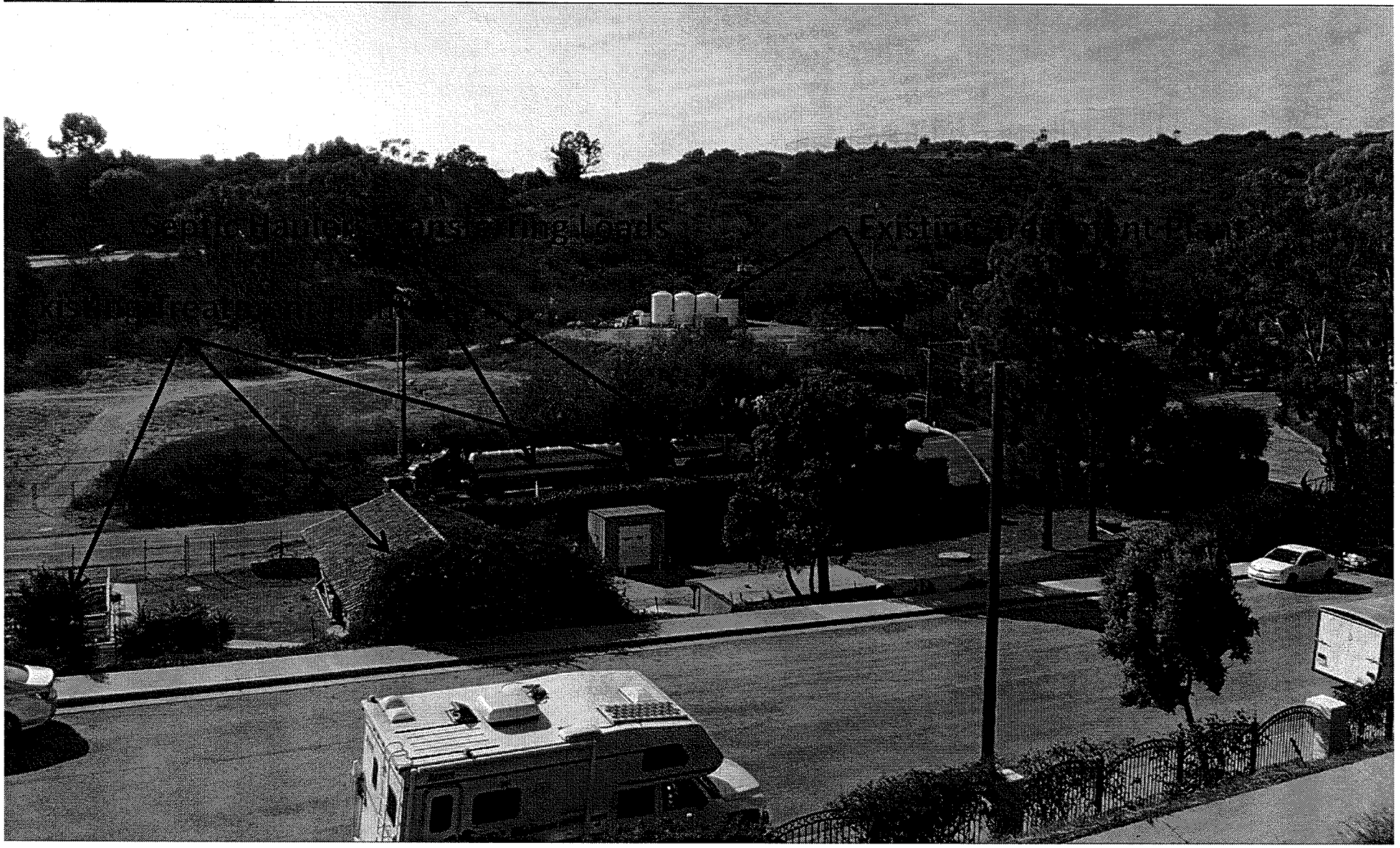


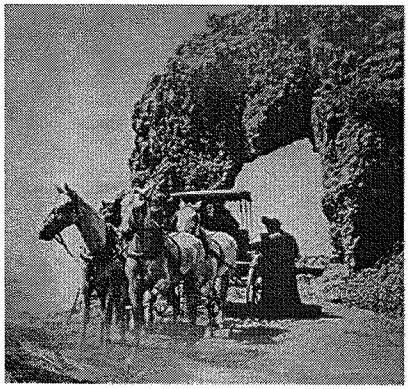
Why this Site for Treatment?

- Only site that offers all of the following:
  - Sufficient land area (more than 2.5 acres)
  - Allows onsite percolation in Winter Canyon
    - Separate from Civic Center basin
    - Provides 'backup' disposal capacity
  - Replaces existing treatment plants
  - Above 100 yr flood elevations
  - Has willing seller

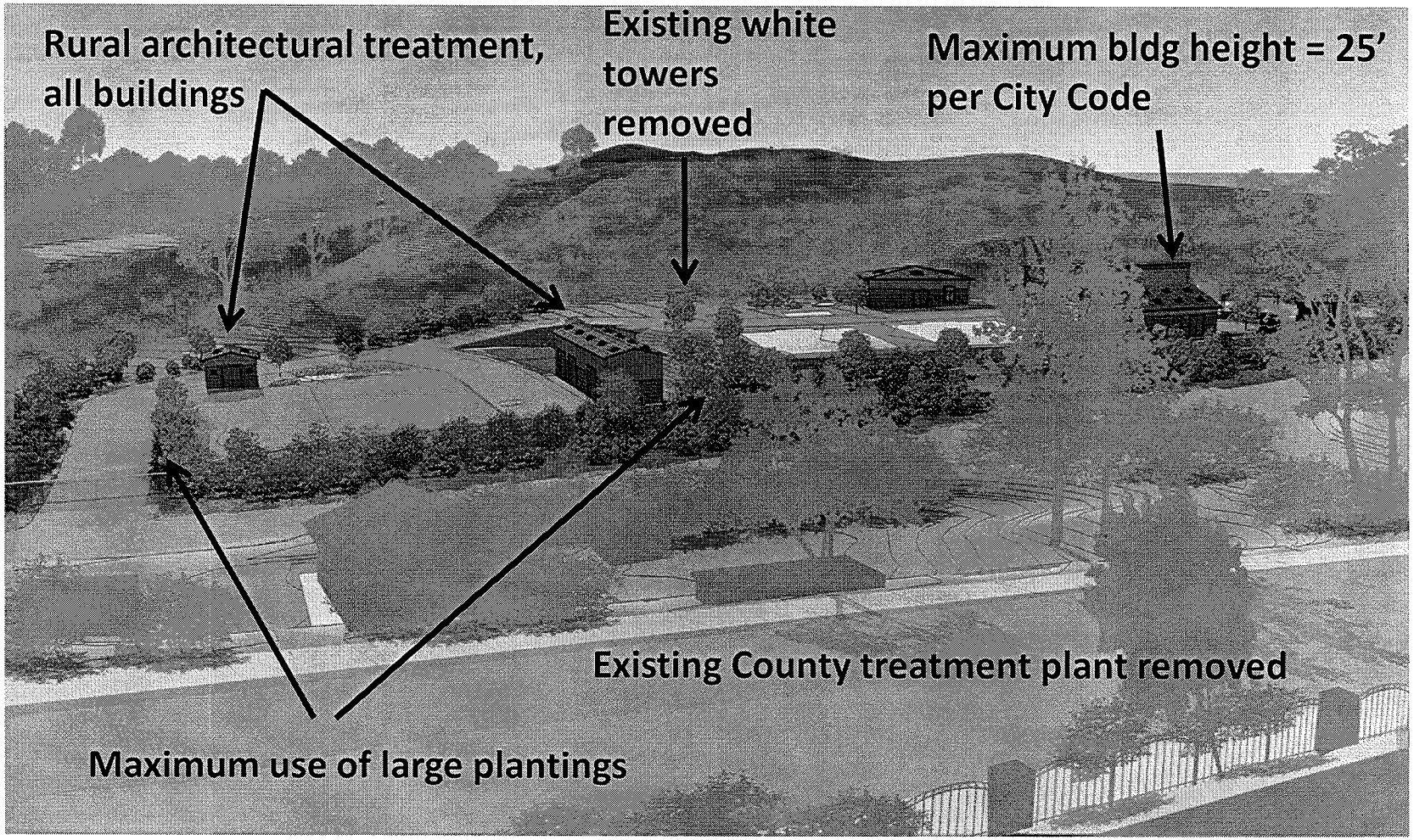


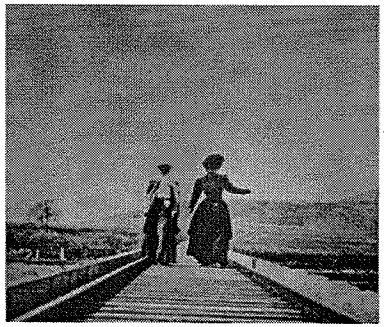
Existing Conditions – Treatment Plant Site



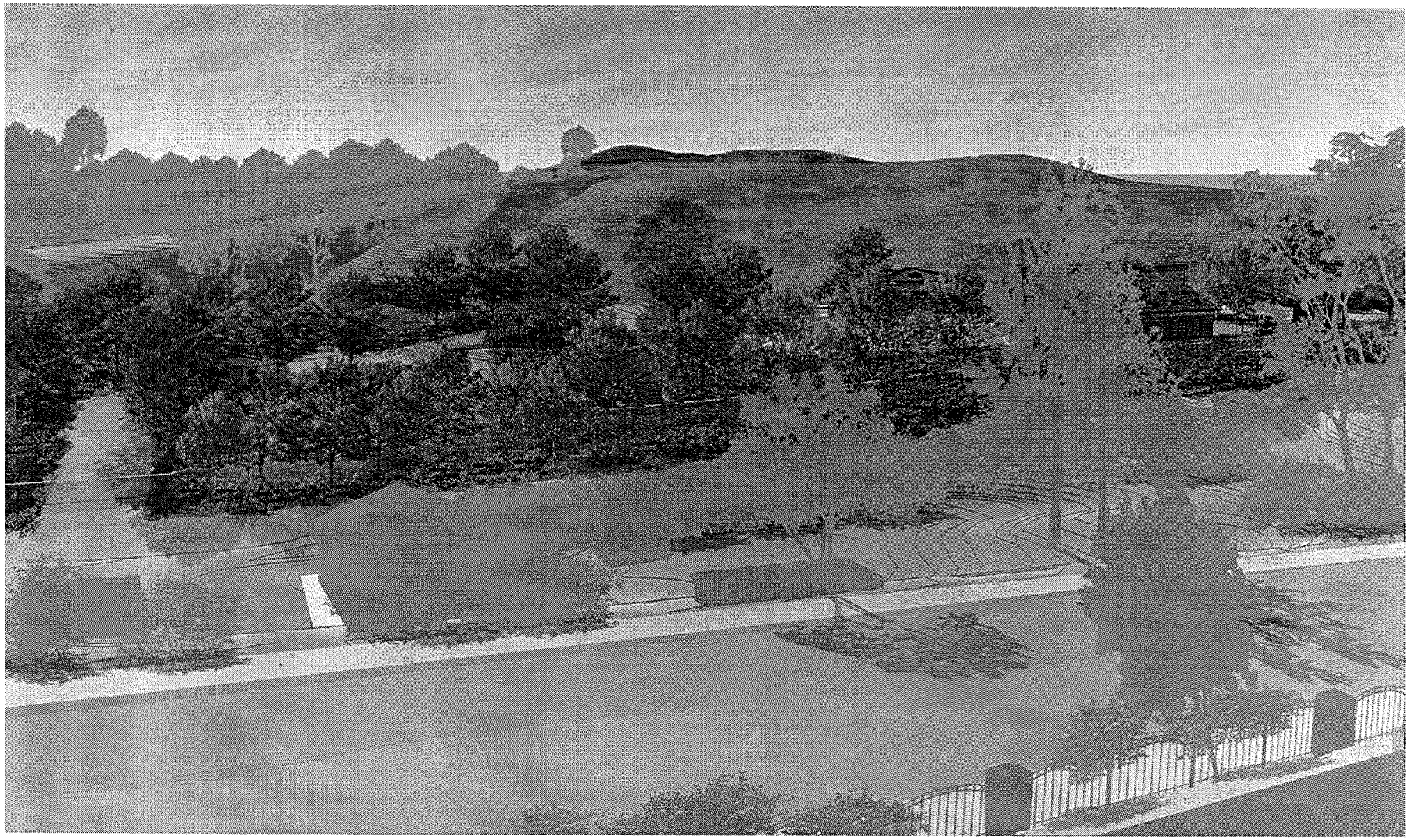


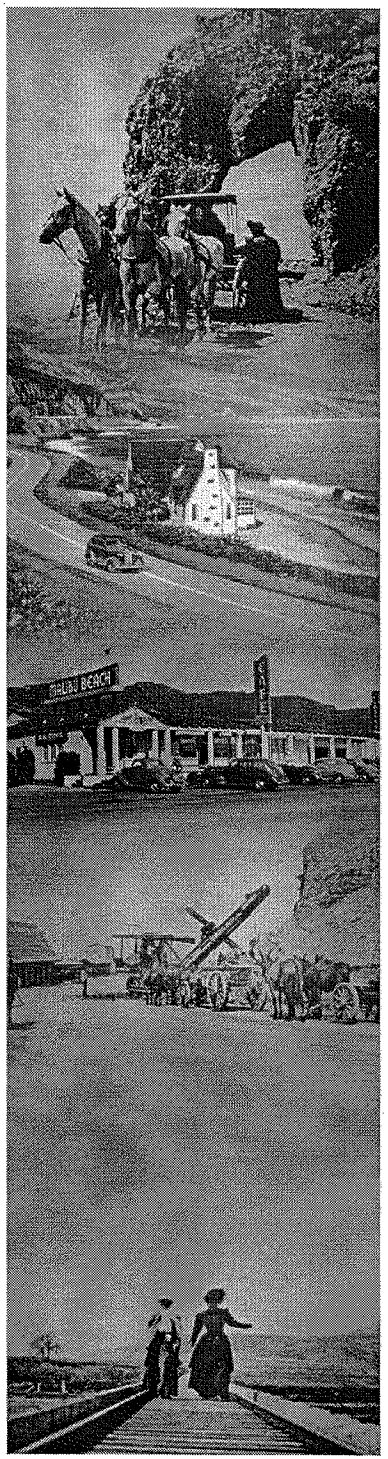
Anticipated Site Layout at Build-Out Flows, '5 yr view'



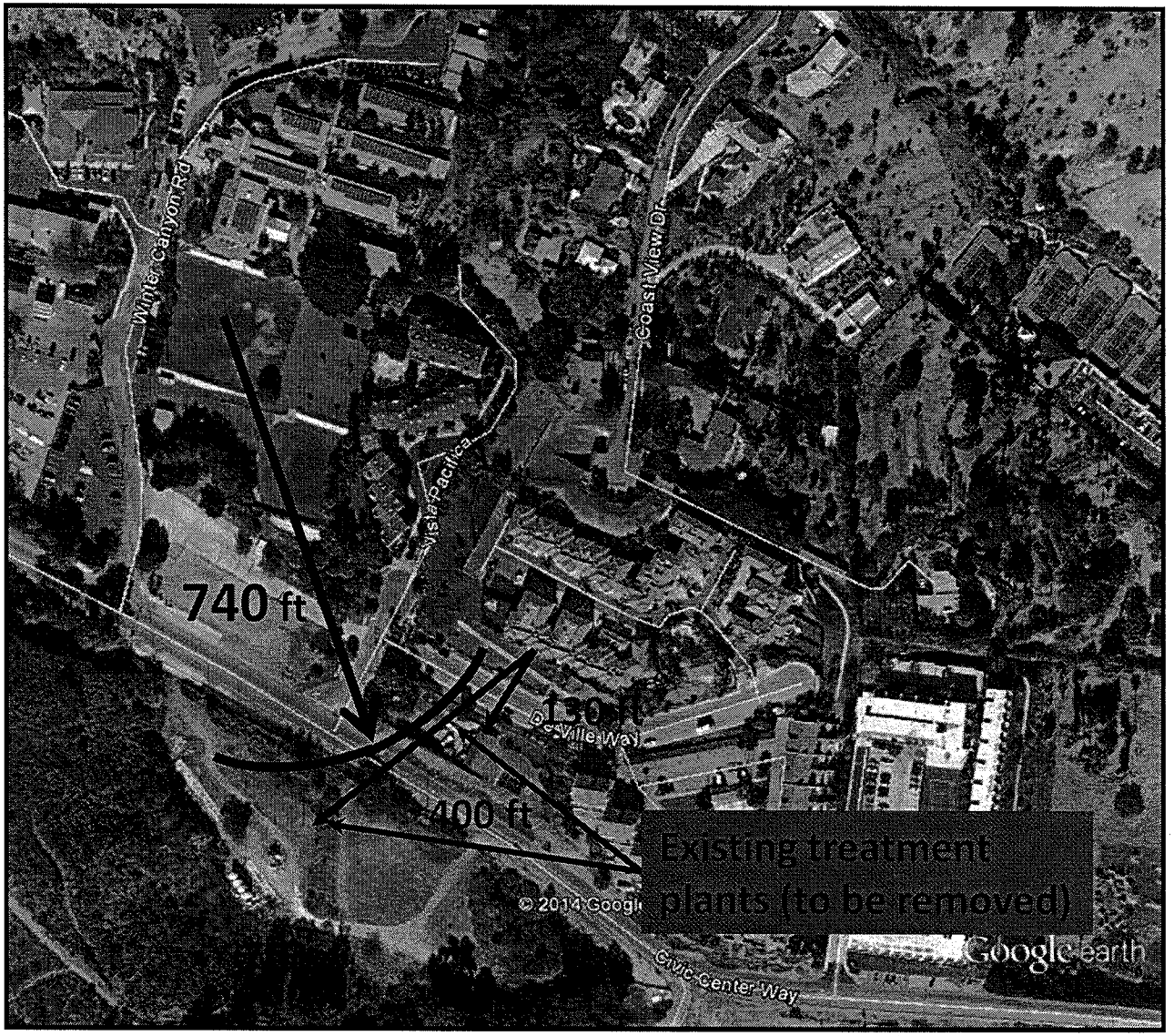


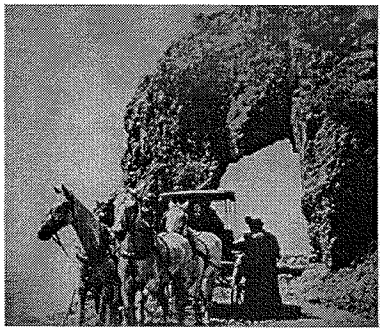
Site View at Build-Out Flows, '20 yr view'





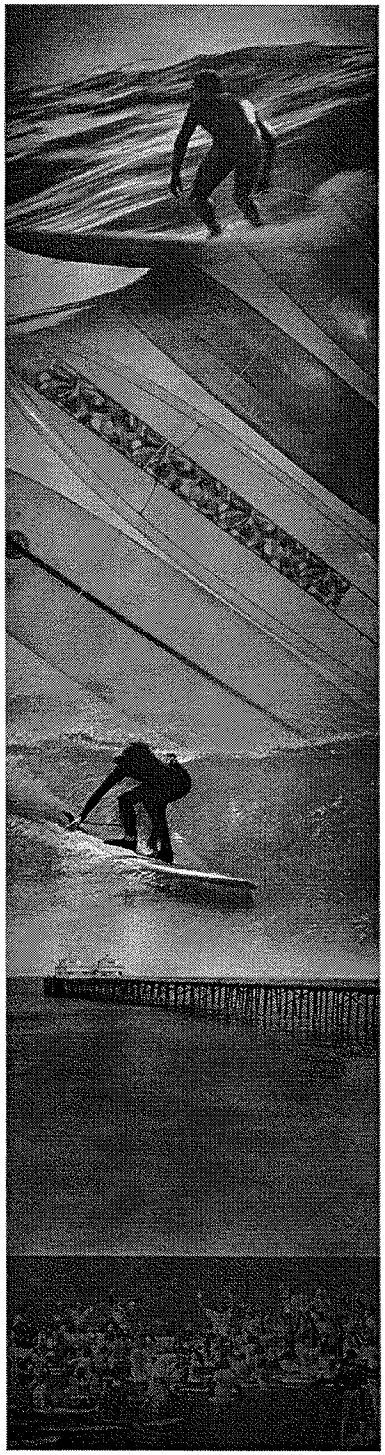
Plant Proximity to Neighbors





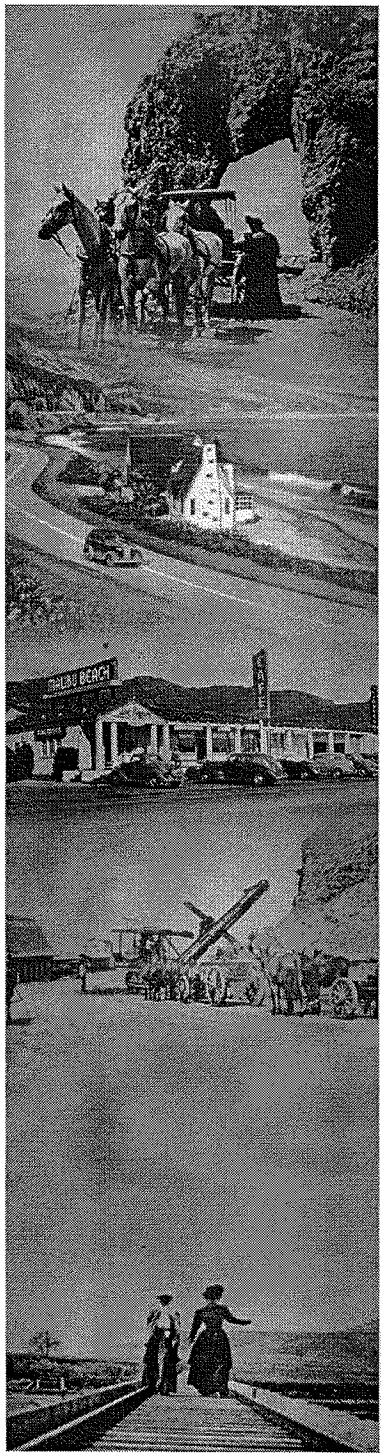
Plant Proximity to Neighbors
City of Los Angeles - Hyperion





Treatment Plant will have Complete Odor Control

- All treatment processes will be:
  - Covered
  - Enclosed within buildings
  - Odor 'scrubbed'
- Odor scrubbing uses 'green' approach
  - Naturally occurring sulfur consuming bacteria
  - Grown on wood chips
  - No chemicals – no chemical smell
  - Low tech, but state of the art



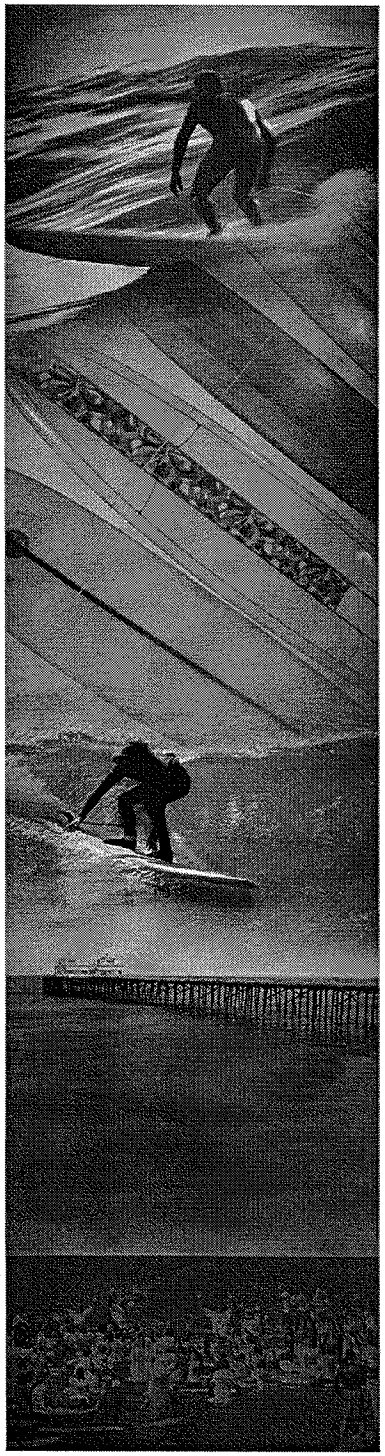
Plant Spills Contained On Site

- Paved and process areas drain to:
  - Plant influent for treatment
  - Bio-swale for treatment
- Undisturbed areas continue to drain to storm water feature on south end



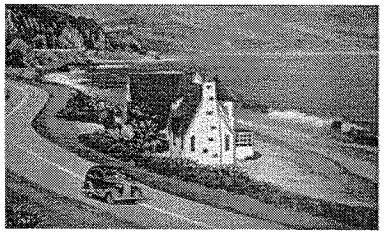
New Plant will Lessen Existing Impact to Property Values

Impact	Existing Condition	Improvement with New Plant
Number of treatment plants in vicinity	Two	One
Exposure of treatment processes	Uncovered	Covered or enclosed within buildings
Architectural treatment of bldgs	Minimal to none	Rural agricultural theme
Odor control	None	Full odor control
Landscape screening	Minimal to none	Complete screening
Distance to nearest residence	130 feet	400 feet

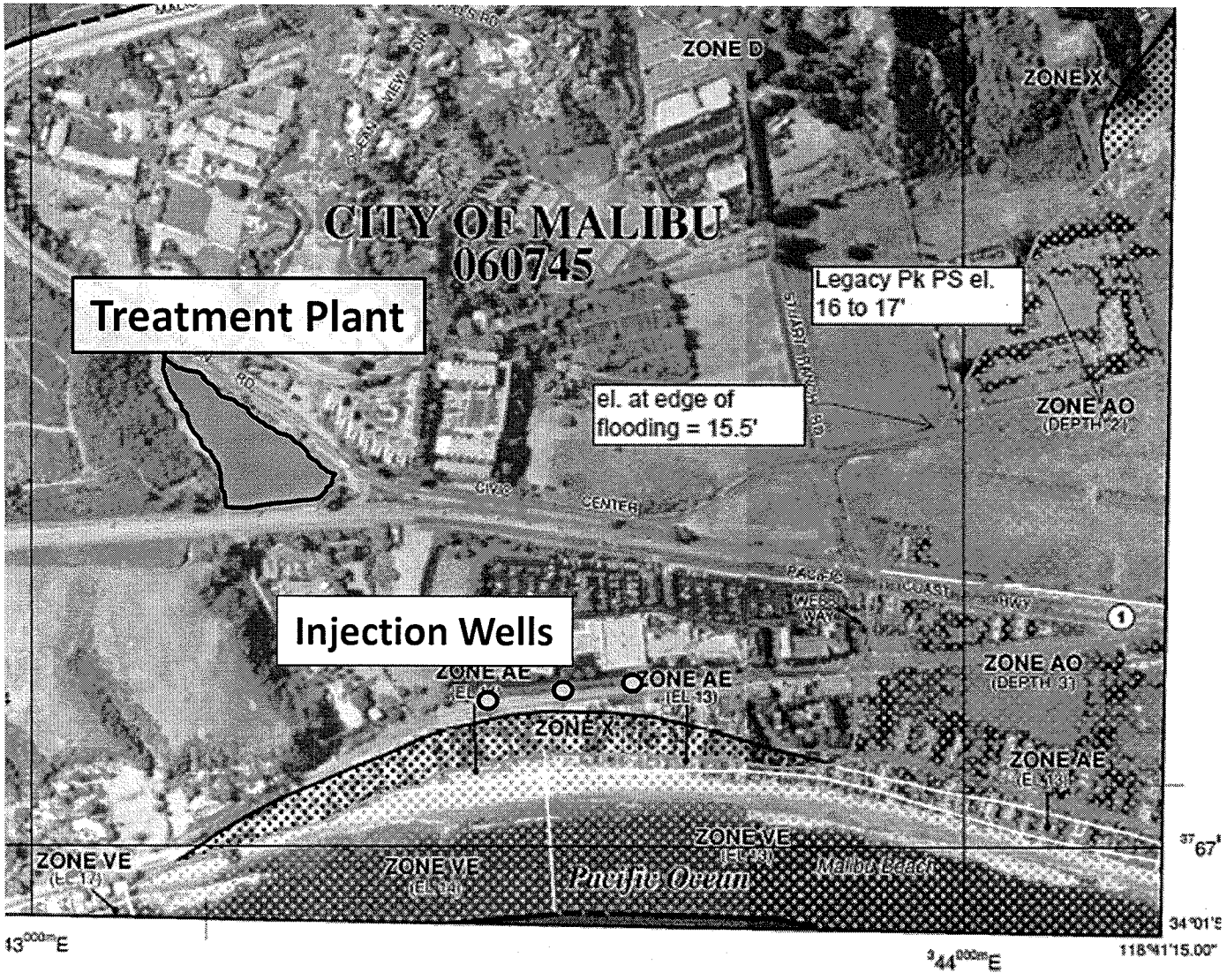


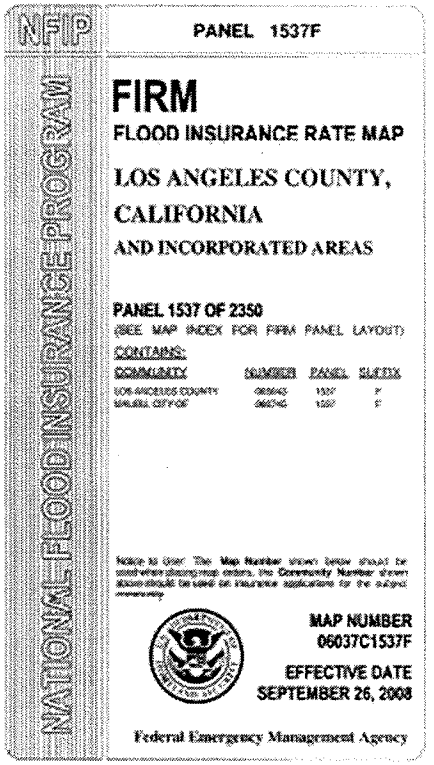
Storage for Water Recycling

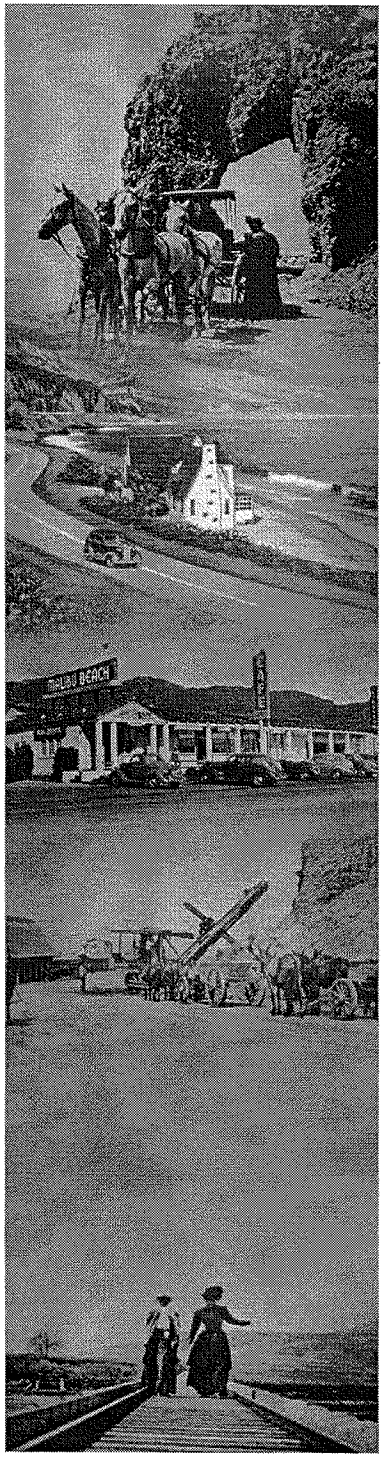
- Phase 1
  - 50,000 gallon existing underground tank
- Phases 2 and 3
  - Additional storage is optional
    - Not needed to make project 'work'
  - Several storage sites would be used
    - Would require additional environmental documentation
  - To be developed only with community support
    - Available sites
    - Use of recycled water



Phase 1 Facilities are Above/Out of Floodplain

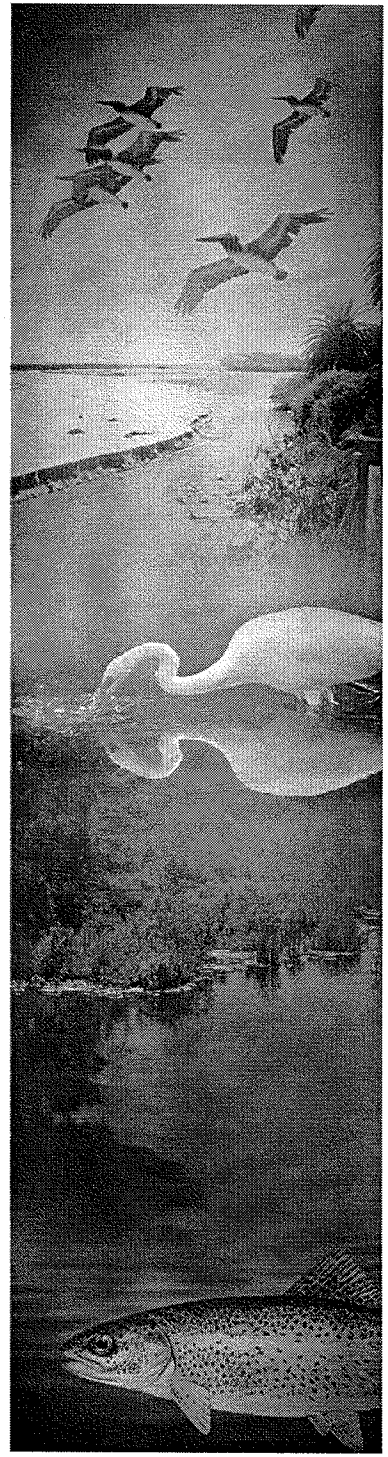






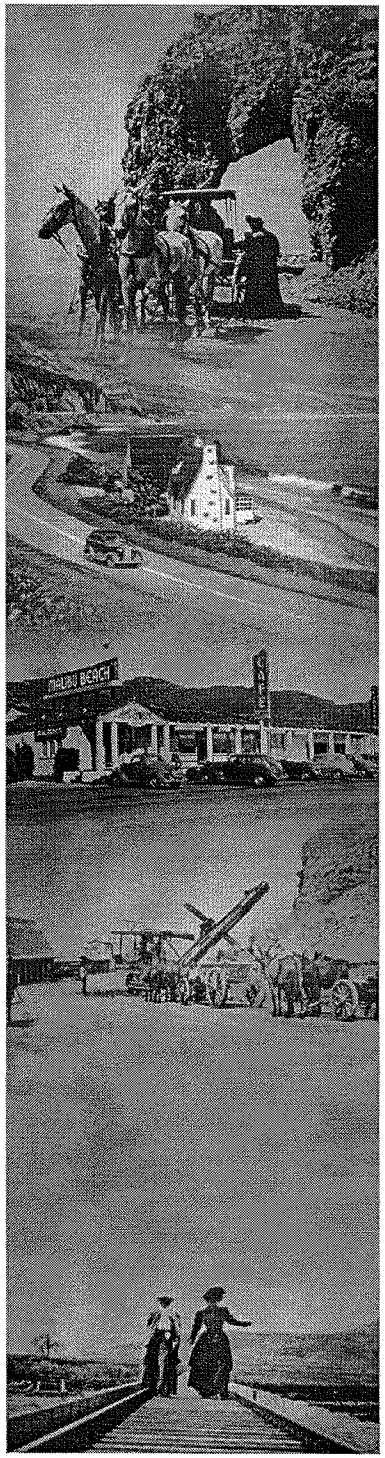
Facilities will be Earthquake Proofed

- Designed to withstand maximum probable earthquake
  - Designed to same standard as school facilities
- All pipelines are flexible plastic pipe
  - High degree of bending
  - Readily obtained pipe sizes and material
  - Dual force mains used for redundancy
- Standby power provided
  - All pump stations
  - All treatment processes



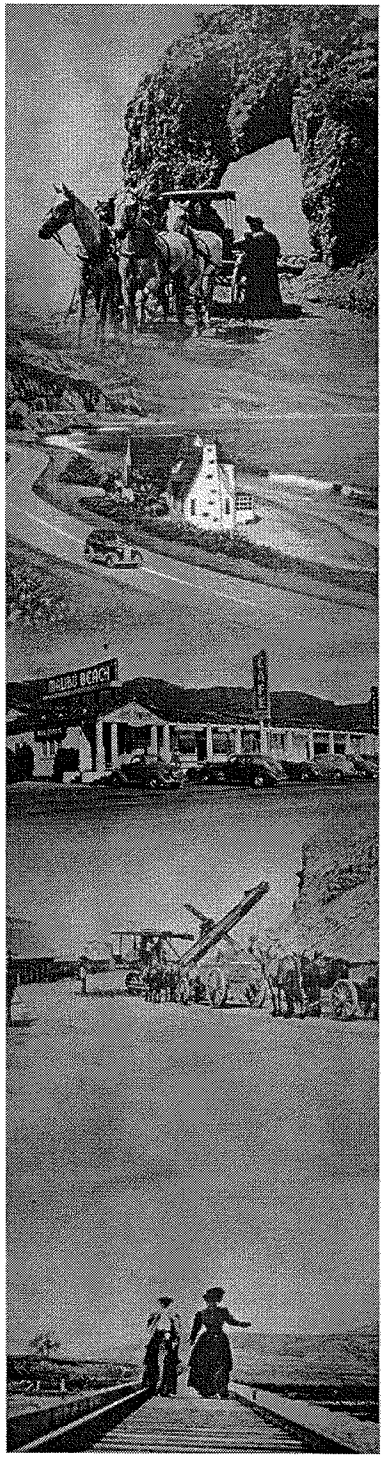
Project Will NOT Cause Earthquakes

- Very shallow injection zone
  - Less than 150 feet deep
  - Above bed rock layer
- Very low injection pressure
  - Less than 5 psi
- Injected water does not 'pile up'
  - Flows to ocean via ancient stream bed
- Does not cause faults to slip



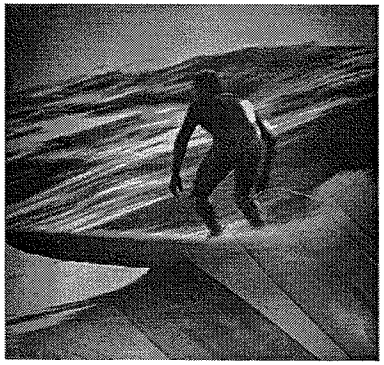
Phase 1 Capital Costs

Component	Total
Treatment Plant	$14,900,000
Collection/Distribution System	$7,400,000
Subtotal Construction	$22,300,000
Design/CM/Engineering Services	$11,876,551
Subtotal Construction + Design	$34,176,551
Reserve Fund	$3,347,540
Capitalized Interest	$2,877,000
Bond Issuance Costs	$634,919
Assessment District Formation	$63,990
Total	**$41,100,000**



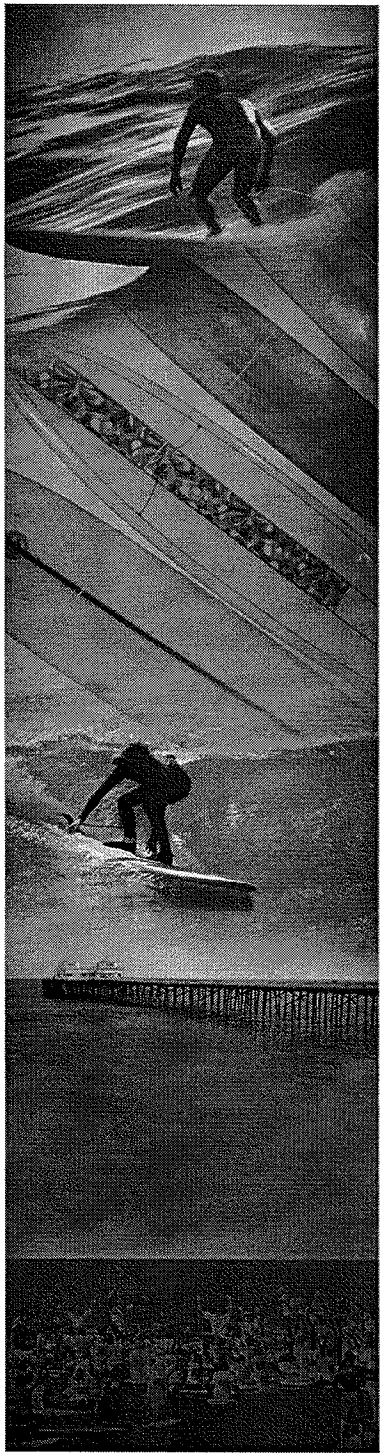
Per Law, Parcels Pay Prorated Share of Costs

- Prorated share of cost based on:
  - Volume of sewage
  - Organic load (sewage concentration)
- Phase 1 pays for all initial facility costs
  - Site development
  - Treatment and pumping capacity for Phase 1 flows
  - Standby treatment and pumping facilities
- Phase 2 and Phase 3 pay for:
  - Added capacity for Phase 2 and 3 flows
  - Prorated share of:
    - Site development
    - Standby treatment and pumping facilities
- Restaurants and commercial pay higher costs
  - Higher strength, higher flow



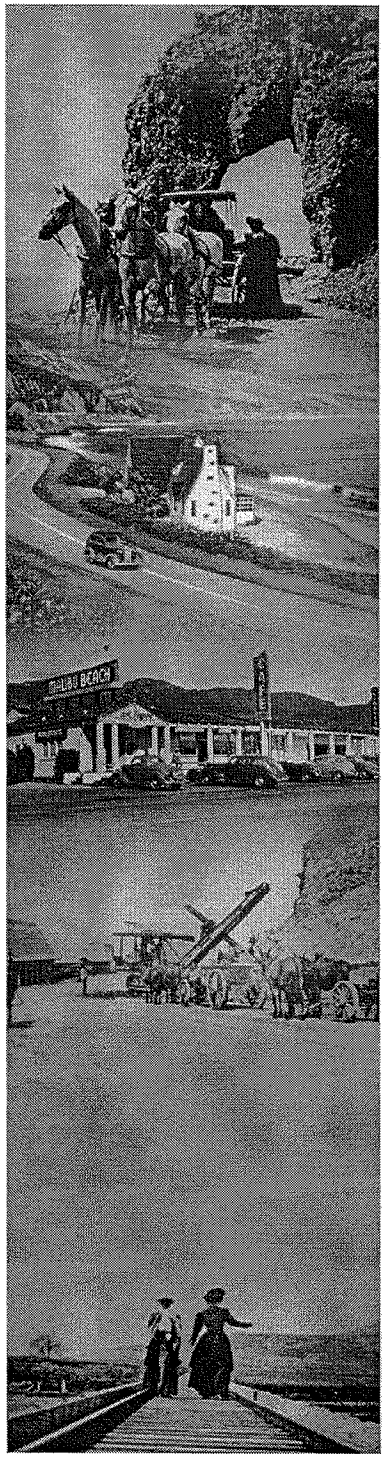
Treatment Level will Produce High Quality, Safe Water

- Will exceed California Title 22 requirements for unrestricted reuse
- Includes membrane filtration
  - Filtered to approx 0.4 microns
  - Very low turbidity
- Effluent nitrogen < 8 mg/l
- Effluent suspended solids < 5 mg/l
- Fully disinfected, with residual chlorine to prevent regrowth in distribution system



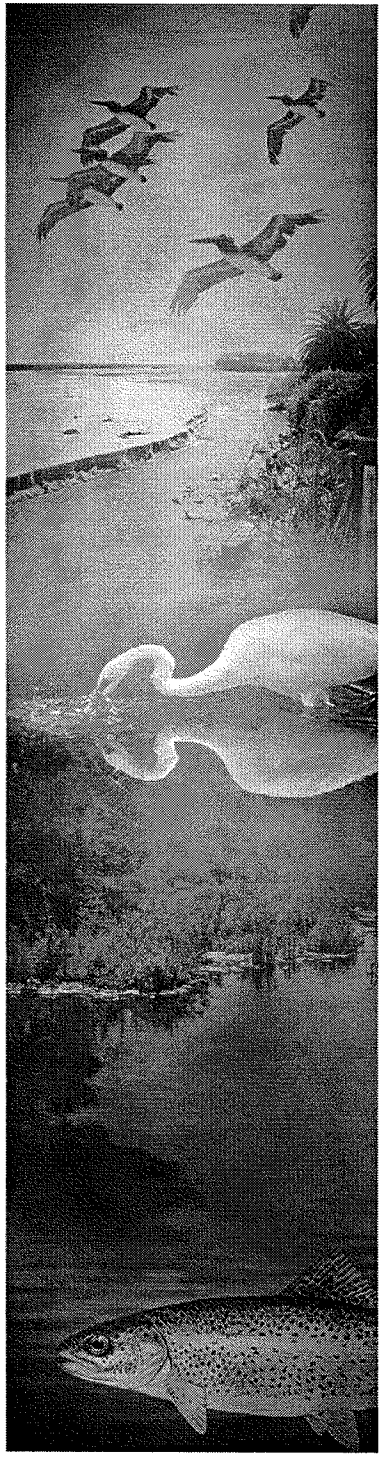
EIR Documentation – Background and Scope

- California Environmental Quality Act (CEQA)
  - Evaluate project's anticipated physical environmental effects
  - Provide public with opportunity to comment on environmental issues
  - Identify mitigation measures to avoid or reduce harm to the environment when feasible
- CEQA Plus required for SRF loans
  - Evaluation, to federal standards, of specific cultural, biological, and air impacts
- CEQA to cover all three phases of project



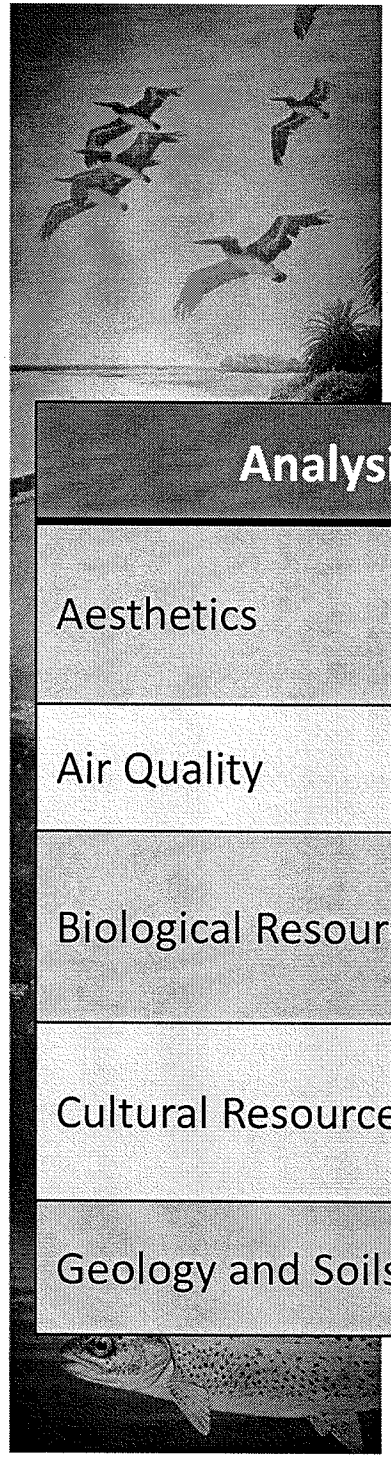
Analyses in Draft EIR

- Thresholds-based analysis
  - CEQA significance thresholds
- Short-term Impacts
  - Construction
- Long-term Impacts
  - Operational
- Cumulative Impacts
- Project Alternatives



Areas of Potential Environmental Impacts were Addressed

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Soils & Geologic Hazards
- Hazards & Hazardous Materials
- Hydrology & Water Quality
- Land Use & Planning
- Noise
- Air Quality
- Population & Housing
- Public Services & Fiscal Impact
- Transportation & Traffic
- Utilities & Service Systems



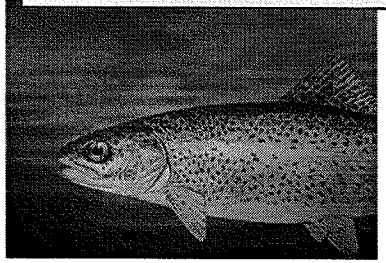
Summary of Impacts

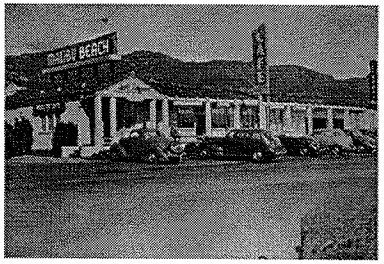
Analysis	Impacts
Aesthetics	No visual impacts due to design features, and replacement of two existing treatment plants
Air Quality	Odors will be less than significant levels
Biological Resources	Mitigation measures would minimize impact to biological resources
Cultural Resources	May encounter archeological artifacts during excavation and will be addressed on a case-by-case basis
Geology and Soils	Mitigation measures would minimize geological and soil risks during construction



Summary of Impacts

Analysis	Impacts
Hazards and Hazardous Materials	Hazardous materials will be handled during operation and will follow the precautions specified in mitigation measures
Hydrology and Water Quality	Project will provide benefits to Malibu Creek and Lagoon
Land Use and Planning	No significant impact
Noise and Vibration	Short periods of excessive noise will occur during construction and operation but impact reduced with mitigation measures





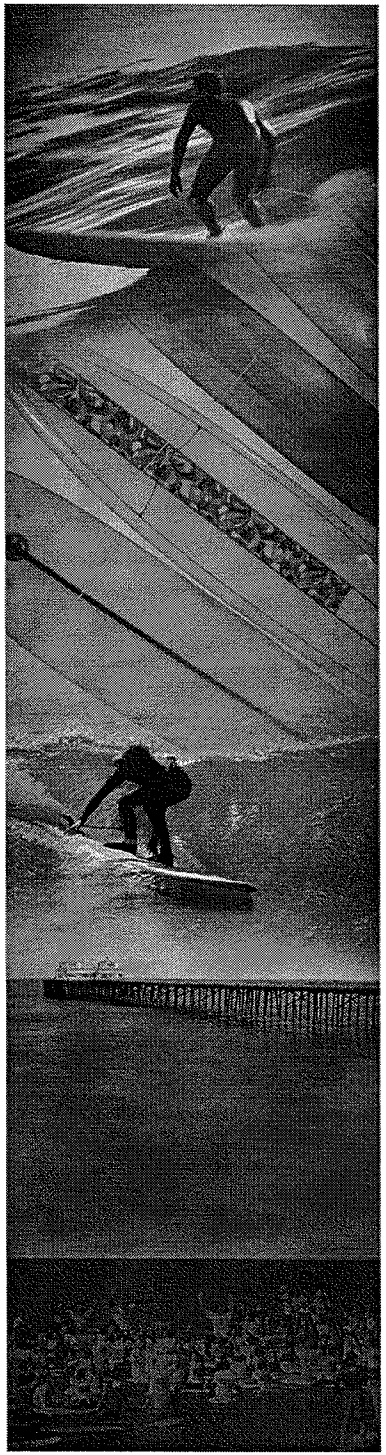
Summary of Impacts (cont'd)

Analysis	Impacts
Population and Housing	No significant impact
Public Services	No significant impact
Utilities, Service Systems and Energy	Increased demand, but within capacity of existing utilities, service system, and energy providers
Recreation	No significant impact; addresses RWQCB concerns regarding nutrient and bacterial impacts from septic tanks
GHG Emissions and Climate Change	Minute contribution to GHG emissions and climate change
Transportation and Traffic	Appropriate traffic control plans will be implemented during construction. Otherwise, no significant impact



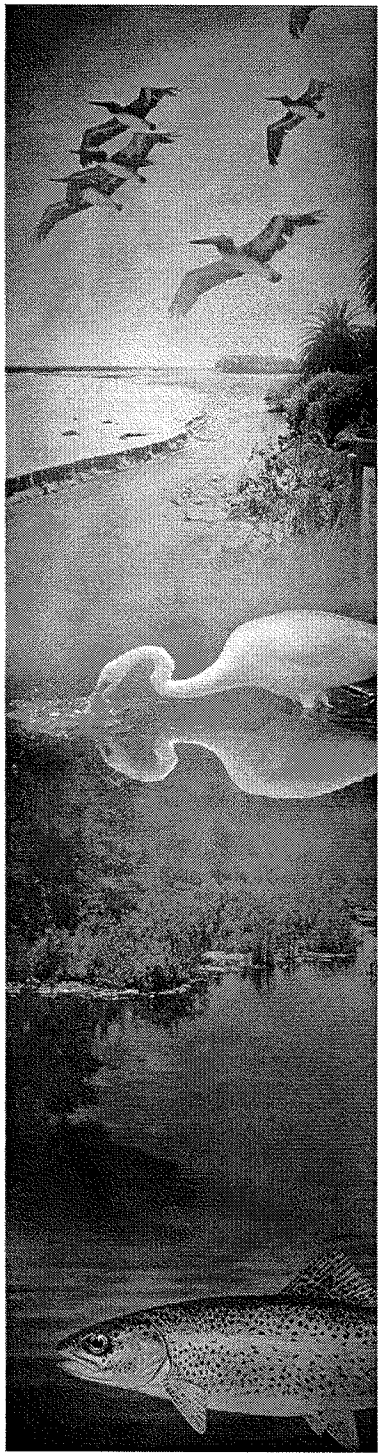
Comparison of Alternatives

- No Project
- Ocean Outfall
- Transport to Hyperion for Treatment
- Alternative Plant Site



Alternatives' Impacts Evaluation

Environmental Topic	No Project	Alternative B- Ocean Outfall	Alternative C – Alternative WWTF Site	Alternative D – Pipe Effluent to Hyperion WWTF
Aesthetics and Visual Resources	Less	Similar	Similar, but possibly greater	Less
Air Quality	Less	Similar, but possibly greater	Similar	**Greater**
Biological Resources	Less	Similar	Less	Less
Cultural Resources	Less	Similar	Similar	**Greater**
Geology	Less	Similar	**Greater**	**Greater**
Hazardous Materials	Less	Similar	Similar	**Greater**
Hydrology and Water Quality	**Greater**	**Greater**	Similar	**Greater**
Land Use	Less	Similar	Similar	**Greater**
Noise	Less	Similar	**Greater**	**Greater**
Population and Housing	Less	Similar	Similar	Similar
Public Services	Less	Similar	Similar	**Greater**
Utilities	Less	Similar	Similar	**Greater**
Recreation	**Greater**	Similar	Similar	**Greater**
Greenhouse Gas Emissions	Less	Similar	Similar	**Greater**
Project Objectives Met	**None**	Less	Similar	Similar



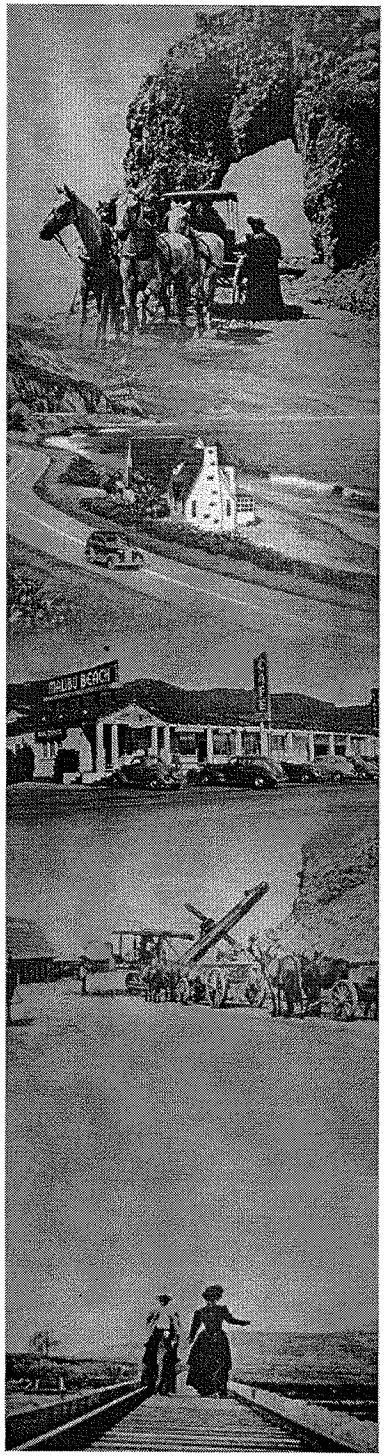
Project Applications

- Environmental Impact Report No. 13-001
- Coastal Development Permit No. 13-057
- Conditional Use Permit No. 13-005
- Local Coastal Program Amendment (LCPA) 13-002
- Zoning Text Amendment (ZTA) No. 13-008
- Zoning Map Amendment No. 13-001



Next Steps

6/25/2014	Project Public Workshop
7/21/2014	DEIR Public Hearing
7/23/2014	ERB Meeting – DEIR and CDP Application
7/28/2014	DEIR Comment Period Closes
October 2014 (est.)	Final EIR Released



Public Comment Period

- Public comment period ends **July 28, 2014**
- Copies of the EIR at Malibu City Hall, Malibu Library and at City's website www.malibucity.org
- Send comments to:

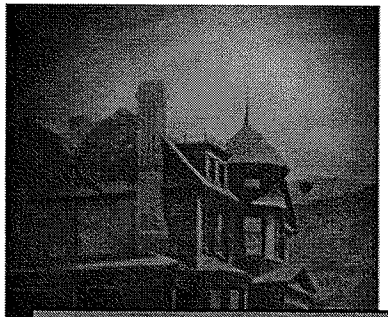
  Bonnie Blue
  Senior Planner
  City of Malibu
  23825 Stuart Ranch Road
  Malibu, CA 90265
  bblue@malibucity.org



Questions?

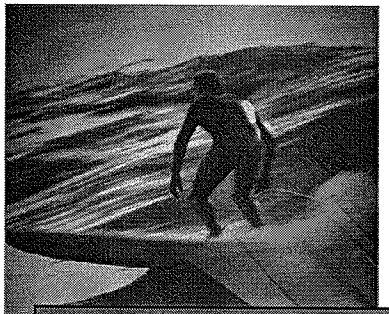


Detailed Impact Analysis Findings



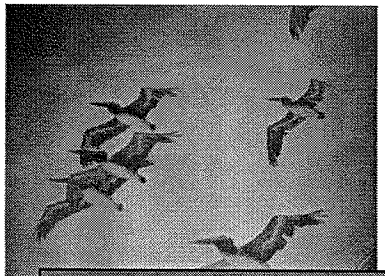
Aesthetics

Impact	Result
Effects on scenic vista	• Scenic vistas are located far enough (at least 1 mile) from WWTP site. • Pipeline construction would be temporarily visible from the Malibu Creek Trail.
Damage scenic resources	• No impact to less than significant effect on scenic resources. • Removal of 5 protected California walnut trees; mitigate per LCPA/ZTA standards.
Degrade visual character and quality of site and surrounding	• No significant visual impacts due to LIP conformance. • Visual simulation shows benefit from new landscape vegetation, buildings, and facilities
Create new source of light or glare affecting views	• New sources of light will be shielded and directed to avoid glare and spillover lighting. • Limited nighttime operational activities will result in very little visual impacts at night.



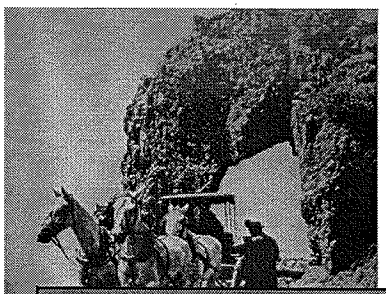
Air Quality

Impact	Result
Conflict or obstruct implementation of the applicable air quality plan	• Project is consistent with AQMP pollution control strategies. • Project operational emissions fall below SCAQMD thresholds of significance.
Violation of air quality standard(s)	• Construction-period and operation-period emissions would not exceed regional & local significance thresholds.
New increase in any criteria pollutant	• Project emissions would not exceed applicable daily significance thresholds. • Thresholds consider cumulative effects.
Exposure of sensitive receptors to substantial pollutant concentration	• Project emissions would not cause significant localized air quality impact.
Objectionable odors	• Odor-generating processes would be completely covered and connected to an biological odor control system. • Potential impacts of short-term construction would be less than significant.



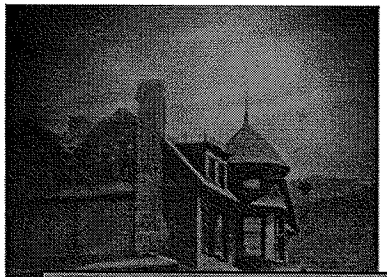
Biological Resources

Impact	Result
Effects on candidate, sensitive, or special-status species	• Potential to significantly impact (direct and indirectly) special-status species; mitigation measures would reduce impacts to below significance levels. • Mitigation BIO-5 ensures compliance with Migratory Bird Treaty Act and Fish and Game Code.
Riparian habitats or sensitive natural communities	• No impacts to riparian vegetation or sensitive natural communities; mitigation measures implemented to avoid impacts.
Federally protected wetlands (marches, vernal pools, etc.)	• Implementation of mitigation measures ensure that jurisdictional features are avoided during construction.
Interference with native fish, wildlife species, established native resident, migratory wildlife corridors, or nursery sites	• Implementation of mitigation measures ensure impacts to the function of Malibu Creek as a wildlife corridor and the species that use it are minimized during construction.
Local policies or ordinances protecting biological resources	• Temporary impacts to ESHAs would be reverted and permanent impacts will be offset through fees. Mitigation measures would reduce impact on trees.
Provisions of an adopted habitat conservation plan	• No impacts to or conflicts with any future habitat conservation plans.



Cultural Resources

Impact	Result
Historical Resources	• No historical resources would be demolished or materially altered.
Archaeological Resources	• High probability of encountering subsurface archaeological resources in area. • Project construction and excavation may inadvertently demolish or alter archaeological resources and would be a potential significant impact and adverse affect. • Potential impacts on undiscovered human remains would be addressed on a case-by-case basis as part of City's permitting process; certified archaeologist and a culturally affiliated Native American, with knowledge of cultural resources, monitoring all initial Project-related ground-disturbing activities mitigates potential impacts.
Paleontological Resources	• Excavation in Quaternary deposits may unveil significant vertebrate fossils. • Destruction of any unique fossil resource would be a significant impact under CEQA; qualified paleontologic monitoring excavations below a depth of 5 feet mitigates potential impacts.



Geology and Soils

Impact	Result
Rupture of earthquake fault	• Area does not cross active fault and is not within 200' of an active fault trace. • Surface fault rupture is not considered a significant hazards. • Facilities are not considered critical.
Ground shaking	• Area is located within seismically active area and are potentially significant; impacts are mitigated through design.
Liquefaction	• Several facilities are located within areas subject to liquefaction, but are designed to ensure seismic stability. • Increases in groundwater levels due to injection would have negligible effect on liquefaction potential.
Landslides or slope instability	• Hazards from unstable temporary slopes are mitigated during construction. • Potential damage to pipelines mitigated by geotechnical investigations.
Soil erosion or loss of topsoil	• Impacts from soil exposure due to construction earthwork will be mitigated through BMP implementation. • Project operations are not expected to increase erosion.
Expansive soils	• Pipelines would be constructed under roadways having only low to moderate potential to expansive soils. Design mitigates impacts
Septic systems	• Project would eliminate existing OWDSs.



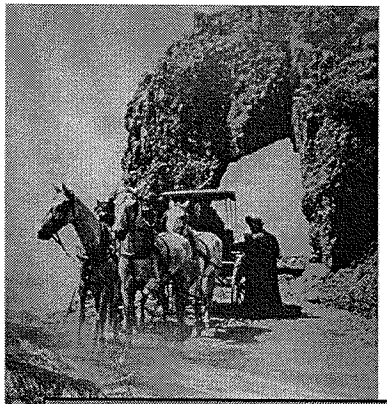
Hazards and Hazardous Materials

Impact	Result
Transport /Use or Accidental Release of Hazardous Materials	• Potential impacts during construction are mitigated through training and BMP implementation • Visual observations and testing, as required, will be implemented to ensure appropriate handling of any hazardous soils or groundwater related to construction. • Hazardous Materials Business Plan will be prepared for management of hazardous material during operations.
Wildland Fires	• Fire within the project site is not expected to cause any sewage spills.
Interference with Emergency Response Plan	• Operation of the project would not impair implementation of or physically interfere with adopted emergency response or evacuation plan.



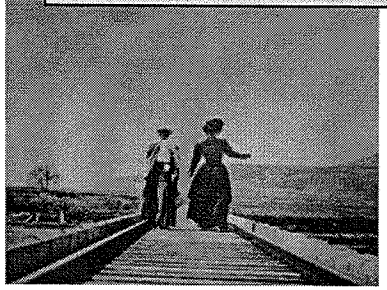
Hydrology and Water Quality

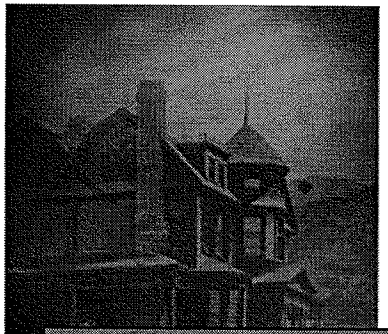
Impact	Result
Water quality	• Use of SWPPP during construction would reduce impacts to less than significant. • Ocean water quality impact are not anticipated to be significant. • Recycled water irrigation impacts to water quality managed through BMPs.
Groundwater supply and recharge	• Rising groundwater levels or groundwater depletion will have no significant impacts. • Future flows to Malibu Creek and Lagoon expected to increase under both Project and No Project alternatives. Increase in flows is les sunder Project alternative.
Drainage pattern and runoff water	• Most structure are below grade and there will be a small addition of impermeable surfaces resulting from construction. • Operation of facility would comply with SWMP requirements. • Impacts resulting in flooding or exceeding storm drain capacity would be less than significant.



Hydrology and Water Quality (cont'd)

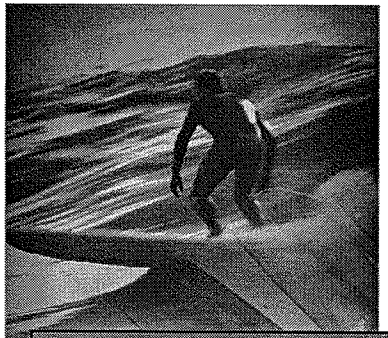
Impact	Result
Flood hazard area	• A majority of the project facilities will be outside of the 100-year floodplain. • Several pump stations would be within the 100-year floodplain, but on-site flooding is allowed to overflow to detention ponds at Legacy Park.
Levee or dam failure	• Project does not include and is not protected by any levees or dams.
Inundation from seiche, tsunami, or mudflow	• Above-grade structures are at potential risk of tsunami flows; preparation of a Tsunami Response mitigates impacts. • Impact of seiche considered to be less than significant. • Project design addresses any potential landslides or mudflows.





Land Use and Planning

Impact	Result
Physical division of establish community	• No residential uses would be converted or displaced. • Construction could result in temporary disruptions to access to surrounding uses. • Routine maintenance on facilities may temporarily divide communities.
Applicable land use plan, policy or regulation of an agency with jurisdiction over the project	• Project is consistent with LCP and the municipal codes.
Habitat conservation plan or natural community conservation plan	• Project will not have significant impact on existing natural habitat. • Reduced buffer area would be offset by newly constructed habitat and transitional habitat would not be disturbed.



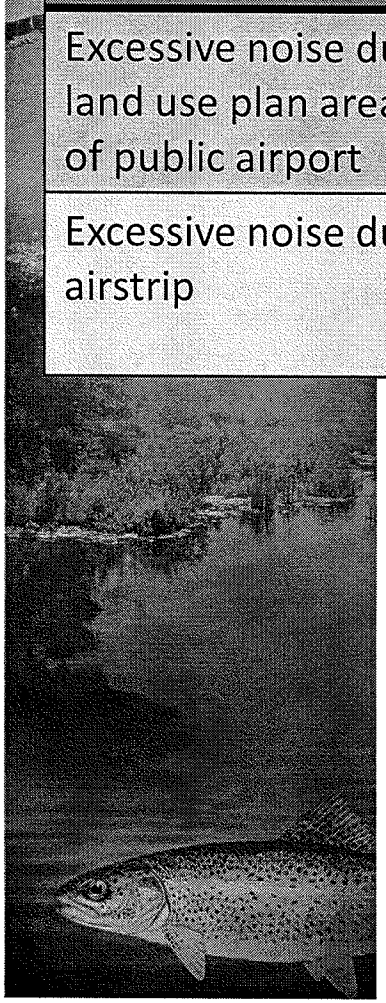
Noise and Vibration

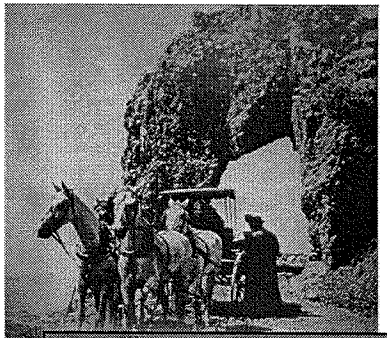
Impact	Result
Exceedance of standards in local general plan, noise ordinance, or other applicable standards	• Construction would temporarily increase noise levels; mitigation measures will reduce construction noise. • Emergency power generators will be housed and muffled with acoustically rated enclosures to reduce noise.
Ground vibration or groundborne noise levels	• Equipment used during construction would not be large enough to produce vibration levels that would exceed threshold levels. • Operation and maintenance would not produce noticeable vibration levels.
Permanent increase in existing ambient noise levels	• Noise-producing equipment will be installed underground. • Traffic is not expected to significantly increase.
Substantial temporary or periodic increase in existing ambient noise levels	• Temporary noise increase will occur during construction and facility maintenance will be mitigated with noise control measures and equipment.



Noise and Vibration (cont'd)

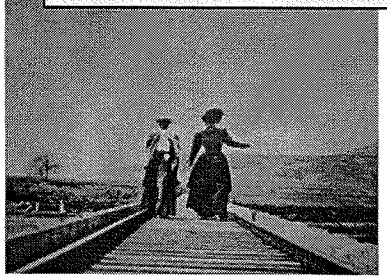
Impact	Result
Excessive noise due airport land use plan area or 2 miles of public airport	• The closest airport is located approximately 13 miles south east of the project site.
Excessive noise due to private airstrip	• Private airstrips are not located in proximity of the project. • Private helipads located close to the site will not expose employees at the WWTF to excessive noise.





Population and Housing

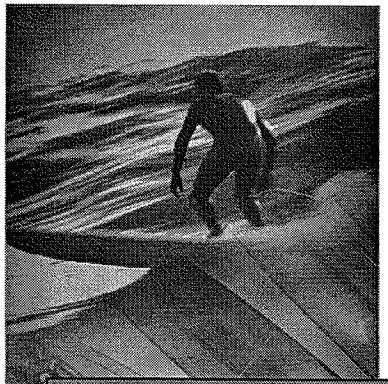
Impact	Result
Affect on population growth in an area, directly or indirectly	• Construction would not directly or indirectly induce development of new housing or businesses. • Operation of the facilities requires two full-time employees, which does not necessitate new housing. • Project allows for growth of the area but is not allowed to exceed LCP standards.
Displacement of existing housing/persons necessitating the relocation of houses or persons	• Construction of facilities would occur on existing WWTP and within street rights-of-way and would not require displace of housing or persons. • Operation of new facility will not require the displacement of housing or persons.





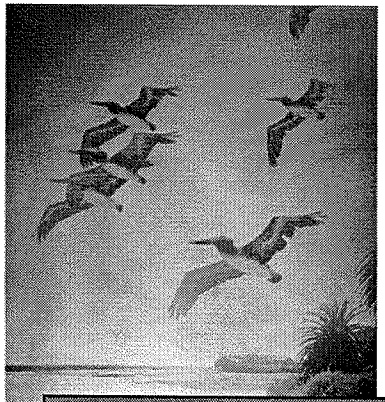
Public Services

Impact	Result
Requirement of new or physically alter government facilities causing environmental impact	• A majority of the construction workers will be within commuting distance of the project area, which will not increase demand for public services or utilities in the area. • Traffic control plan would be implemented to ensure that emergency access is maintained during construction. • Operation of project will not directly increase demand for public services due to increased residential or employee populations.



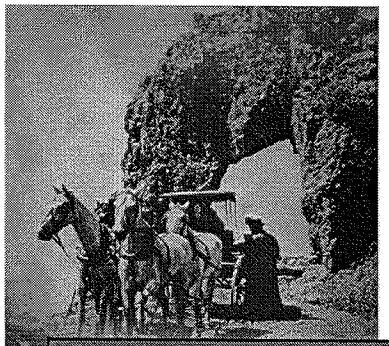
Utilities, Service Systems and Energy

Impact	Result
Wastewater treatment requirements of RWQCB	• Project is consistent with MOU and LARWQCB requirements. • Decommissioning of existing OWDSs would require RWQCB compliance.
New or expanded water or wastewater facilities	• Project includes new wastewater treatment plant; see other DEIR sections for impacts
Stormwater drainage facilities	• SWMP will be implemented to ensure that no significant impact would occur.
Water supply	• Construction would require a temporary increase in water supply demand. • Operation of WWTP would provide recycled water supply which can be potentially beneficial.



Utilities, Service Systems and Energy (cont'd)

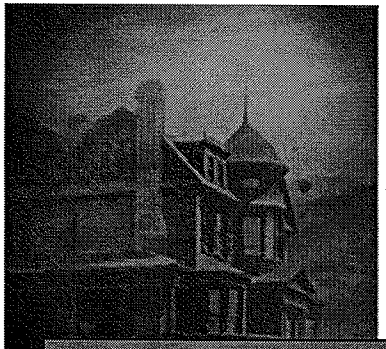
Impact	Result
Wastewater treatment	• Project would have beneficial rather than adverse effects on wastewater treatment capacity.
Solid waste disposal to landfill	• Landfill is currently in the processing of increasing its daily allowable solid waste intake. • Impacts on landfill capacity would be minor. • WWTP process sludge will be hauled to Hyperion Treatment Plant.
Compliance with regulations related to solid waste	• Project would comply with all federal, state, and local statues related to solid waste.
Energy demand that would affect energy supplies	• Existing energy supplies are adequate for construction period. • Increase in energy usage from operation is not expected to require additional off-site energy infrastructure or local/regional supplies.



Recreation

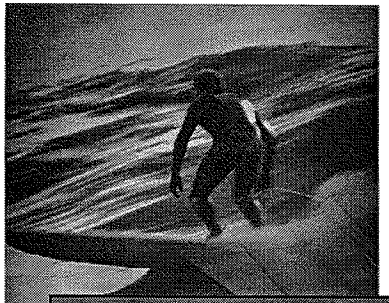
Impact	Result
Increase use of existing neighborhood and regional parks or other recreational facilities causing (accelerated) physical deterioration	• Construction would not draw substantial increase in park use from construction workers. • Operation of facilities will enhance water quality and quality of beaches, which improves recreational experience.
Required new/expanded recreational facilities causing adverse effects	• No significant park and recreational facilities are anticipated as a result of construction. • Operation of the facilities would not directly increase the demand of park and recreational facilities. • Any growth that would indirectly occur would be consistent with the General Plan.





Greenhouse Gas Emissions and Climate Change

Impact	Result
Direct or indirect generation of GHG emissions	• GHG emissions associated with direct and indirect effects of the project are 1,132 MT of CO_2e compared to 448 mill MT emitted statewide in 2011.
Conflict with plan, policy, or regulation adopted for purpose of reducing GHG emissions	• Project would further city's conservation policies, having the benefit of reducing GHG emissions. • Project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions.
Exposure to physical effects of climate change	• Impact of climate change from project is insignificant compared to existing GHG emissions. • City will continue to monitor sea level changes as part of existing programs.



Transportation and Traffic

Impact	Result
Applicable plan, ordinance or policy establishing measures of effectiveness for performance of circulation systems	• Designated routes for construction vehicles will be established to reduce congestion. • Operation of WWTF would have little impact on nearby traffic.
Congestion management plan	• Construction and operation of planned facilities do not conflict with congestion management plan.
Emergency access	• Traffic control plan would be implemented during construction with consideration of emergency access. • Access roads to facilities do not interfere with emergency access roads.
Adopted policies plans/programs regarding public transit, bicycle or pedestrian facilities	• Provisions for maintaining pedestrian and bicycle safety will be implemented. • City will coordinate with facility owners and administrators with regard to the timing, location, and duration of construction activities.

ATTACHMENT NO. 4

Environmental Review Board Meeting Agenda

Wednesday, July 23, 2014
9:00 a.m.
Malibu City Hall – Multi-Purpose Room
23825 Stuart Ranch Road

1. **Written and Oral Communications from Staff and the Board**

2. **Old Business**

None.

3. **New Business**

A. Civic Center Wastewater Treatment Facility Project (State Clearinghouse No. 2013111075)

Case Numbers:	Coastal Development Permit No. 13-057 Environmental Impact Report No. 13-001 Conditional Use Permit No. 13-005 Local Coastal Program Amendment No. 13-002 Zoning Text Amendment No. 13-008 Zoning Map Amendment No. 13-003
Applicant:	City of Malibu
Owner(s):	City of Malibu (Bluffs Park and Legacy Park); MBC Colony Plaza, LLC and Malibu Bay Company (treatment plant site); public and private rights of way (easements to be acquired as needed)
Location:	Project Area includes the service area of the wastewater treatment facility within the Prohibition Zone, as well as the treatment plant site: 24000 Civic Center Way (APNs 4458-028-020 and -006), across the street from the intersection with Vista Pacific Street; Phase 1 pump stations: Legacy Park and Bluffs Park; injection wells: Malibu Road right-of-way behind Malibu Colony Shopping Center; pipelines: public and private streets/easements throughout the Civic Center Area, including a portion of unincorporated Los Angeles County just north of the Malibu City limits
APNs:	4458-028-006 and -020 (treatment plant site); 4458-020-902 (Legacy Park); 4458-018-902 and -904 (Bluffs Park)
Zoning:	Commercial Visitor-Serving 1 and 2 (CV-1 and CV-2), Public Open Space (POS), Rural Residential (RR), Single-family Medium (SFM), Planned Development (PD), Commercial General (CG), Institutional (I), Community Commercial (CC), and Research and Development (RD); and in the unincorporated areas of Los Angeles County, Residential Agriculture, Light Agriculture and Heavy Agriculture

Staff recommendation: Review the proposed Project and Draft Environmental Impact Report and provide recommendations.

Adjournment

Copies of the staff reports or other written documentation relating to each item of business described above are on file in the office of the Planning Department, Malibu City Hall, 23825 Stuart Ranch Road, Malibu, California and are available for public inspection during regular office hours which are 7:30 a.m. to 5:30 p.m., Monday through Thursday and 7:30 a.m. to 4:30 p.m., Friday. Written materials distributed to the Board within 72 hours of the Board meeting are available for public inspection immediately upon distribution in the Planning Department at 23825 Stuart Ranch Road, Malibu, California (Government Code Section 54957.5(b)(2). Copies of staff reports and written materials may be purchased for $0.25 per page.

I hereby certify under penalty of perjury, under the laws of the State of California that the foregoing agenda was posted in accordance with the applicable legal requirements; dated this 17th day of July, 2014.

Patricia Salazar, Senior Administrative Analyst

Environmental Review Board Agenda Report

ERB Meeting
July 23, 2014
Item 3.A.

To: Environmental Review Board Members

Prepared by: Bonnie Blue, AICP, Senior Planner BB

Reviewed by: Dave Crawford, City Biologist

Approved by: Joyce Parker-Bozylinski, AICP, Planning Director

Date prepared: July 17, 2014 Meeting date: July 23, 2014

Subject: Civic Center Wastewater Treatment Facility Project (State Clearinghouse No. 2013111075)

Case Numbers:	Coastal Development Permit No. 13-057 Environmental Impact Report No. 13-001 Conditional Use Permit No. 13-005 Local Coastal Program Amendment No. 13-002 Zoning Text Amendment No. 13-008 Zoning Map Amendment No. 13-003
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APNs:	4458-028-006 and -020 (treatment plant site); 4458-020-902 (Legacy Park); 4458-018-902 and -904 (Bluffs Park)
Zoning:	Commercial Visitor-Serving 1 and 2 (CV-1 and CV-2), Public Open Space (POS), Rural Residential (RR), Single-family Medium (SFM), Planned Development (PD), Commercial General (CG), Institutional (I), Community Commercial (CC), and Research and Development (RD); and in the unincorporated areas of Los Angeles County, Residential Agriculture, Light Agriculture and Heavy Agriculture

RECOMMENDED ACTION: Review the proposed Project and Draft Environmental Impact Report (DEIR) and provide recommendations.

DISCUSSION: The City has proposed the Civic Center Wastewater Treatment Facility Project (Project) in response to the prohibition on onsite wastewater treatment systems (OWTSs) in the Civic Center area of the City of Malibu imposed by the State Water Resources Control Board and Los Angeles County Regional Water Quality Control Board in 2010.[1] The Project Area includes the entire area affected by the Prohibition, which consists of the Malibu Civic Center area, as well as a small portion of unincorporated Los Angeles County. The Project would construct a new wastewater collection system, a centralized wastewater treatment facility that would treat the wastewater flows from Prohibition Zone properties that will no longer be served by OWTSs, and a new recycled water pipeline system to provide nonpotable recycled water for reuse.[2]

The Project objectives are to:

1. Satisfy the City's obligations pursuant to the MOU;[3]
2. Improve water quality in areas adjacent to the commercial core area, including Malibu Creek and the Pacific Ocean;

[1] In state Prohibition documents, OWTSs are referred to as onsite wastewater disposal systems, or OWDSs.

[2] It should be noted that through this project, the City of Malibu is providing one state-approved option for property owners to comply with the prohibition orders imposed when the Regional Water Quality Control Board and State Water Resources Control recorded the Prohibition into state law with their adoption of the Basin Plan amendment in 2010. The City is currently following a 2011 Memorandum of Understanding with the Regional and State Boards that sets forth a compliance path via construction of a centralized wastewater treatment facility. The City is not forcing property owners to connect to the facility. Penalties for violating the prohibition order would be directed at individual property owners, not the City (except as a property owner), and would be directed by the Regional and State Water Boards, not the City.

[3] MOU refers to the Memorandum of Understanding signed in August 2011 by the State Water Resources Control Board, the Los Angeles Regional Water Quality Control Board and the City to develop a plan for wastewater treatment for the Civic Center area in response to the Prohibition. The MOU memorializes the requirements of the State and Regional Board prohibition resolutions and defines the Prohibition Zone areas with milestones and a phasing schedule.

3. Maximize reuse of recycled water;
4. Minimize saltwater intrusion into the groundwater basin with injection of highly treated effluent to support the Basin Plan designation;
5. Ensure sufficient injection and/or percolation capacity into the groundwater basin for any unused recycled water; and
6. Minimize cost to property owners.

The Project would be constructed in three phases and would consist of four main elements: 1) a wastewater treatment facility; 2) pump stations; 3) wastewater collection and recycled water distribution pipelines; and 4) percolation ponds and groundwater injection wells. The DEIR provides a project-level analysis of Phase 1, which would primarily affect the core commercial properties in the Civic Center area, and a programmatic-level analysis of the second and third phases, which affect primarily residential properties. Detailed project-level environmental analysis of Phases 2 and 3 would be completed prior to permitting of those phases as required by the California Environmental Quality Act (CEQA). For a phasing map of Project implementation, refer to Figure 3-10 of the DEIR. Figure 3-3 illustrates the Project facilities at build-out; however, it should be noted that upon detailed design of Phases 2 and 3, additional ancillary facilities may be needed. The provisions of CEQA and the details of these future phases, when designed, would determine what type of CEQA document would be prepared, i.e., whether an additional or supplemental EIR is required, a negative declaration, etc.

At this time, a coastal development permit (CDP) and conditional use permit are being processed for Phase 1 of the Project only. Separate CDPs and any other necessary entitlements would be processed as the future phases are designed. A complete list of Project entitlements is provided below.

The treatment plant property contains environmentally sensitive habitat area (ESHA), specifically, wetland ESHA, as well as protected native trees, some of which will have to be removed to accommodate the Project. Additional ESHA and sensitive resources are found in other areas of the Prohibition Zone that will be affected by the project, such as Malibu Creek. Therefore, the Project requires review by the Environmental Review Board (ERB).

The Planning Director requests the ERB, in its capacity as advisor to the Planning Commission, review the Phase 1 CDP Project, as well as the DEIR on the three phases of the Project at build-out, and make recommendations on the identified resource impacts and mitigation measures within the purview of the ERB, to ensure conformance with the LCP.

Environmental Review and Project Chronology

CEQA Section 15367 defines the lead agency as the public agency with the principal responsibility for carrying out or approving a project and conducting the environmental review. As such, the City is the Lead Agency for the proposed Project must approve the proposed Project, and certify the Final EIR.

Under CEQA a lead agency is charged with the duty to substantially lessen or avoid significant environmental effects where feasible for projects subject to CEQA (refer to PRC Section 21004, CEQA Guidelines Sections 15002(a)(3) and 15021(a)(2)). In discharging this duty, the lead agency has an obligation to balance a variety of public objectives, taking into account economic, environmental, and social issues.

On May 31, 2013, the City filed an application for a Local Coastal Program Amendment (LCPA) to create policies and standards for a Civic Center wastewater treatment facility, and to update the Land Use and Zoning Maps to change the designation of the proposed treatment plant site. On June 24, 2013, the City Council adopted Resolution No. 13-21, directing staff to initiate the LCPA.

Later, on November 21, 2013, the City filed a coastal development permit application for Phase 1 of the proposed Civic Center Wastewater Treatment Facility Project.

On November 21, 2013, a Notice of Preparation of and Scoping Meeting for a DEIR was published by the City and mailed to all property owners and occupants within a 1,000 foot radius of the Prohibition Zone boundaries (i.e., the Project Area). The 30-day public review period began on November 25, 2013 and was set to end on December 24, 2013.

On December 11, 2013, the City held a public scoping meeting regarding the preparation of the DEIR.

Due to the holidays, the City extended the public review period to January 7, 2014.

At the close of the public comment period, the City had received 24 comment letters. Verbal comments provided during the scoping meeting were also noted. Written and noted verbal comments, along with responses, are included as Appendix A of the DEIR.

On January 28, 2014, the Zoning Ordinance Revisions and Code Enforcement Subcommittee considered the proposed LCPA and corollary amendments and provided comments to staff. One comment letter was received in support of the LCPA.

On January 23, 2014, a Notice of Planning Commission Public Hearing and Availability of LCPA Materials was published by the City and mailed to all property owners and occupants within a 1,000 foot radius of the Prohibition Zone boundaries. The public hearing was scheduled for the February 18, 2014, Regular Planning Commission meeting.

On February 7, 2014, the February 18, 2014, Regular Planning Commission meeting was cancelled. All items scheduled for that meeting, including the LCPA, were continued to the March 3, 2014, Regular Planning Commission meeting.

On March 3, 2014, the Planning Commission continued the LCPA to a date uncertain at staff's recommendation. Staff recommended that the LCPA and corollary amendments be processed concurrently with the Phase 1 Project CDP/entitlements and Project EIR.

In May 2014, story poles were placed on the treatment plant site to demonstrate the location, height, mass and bulk of the proposed above-ground structures. The placement of the story poles were certified by a professional land surveyor.

On May 30, 2014, the DEIR was published and the 60-day public review period began. The 60-day review period will end July 28, 2014.

On June 12, 2014, the City recirculated portions of the DEIR for a 47-day public review period. The 47-day review period will also end on July 28, 2014. The recirculated portions correct errors and omissions in certain chapters of the DEIR pertaining to number and location of pump stations, corrections to the treatment plant renderings and additional geotechnical information and reference.

Required City Project Entitlements

Phase 1 of the Project requires the following City entitlements:

1. CDP No. 13-057: In accordance with LIP Section 13.3, the Project will require a CDP for construction of the Phase 1 Project, including the treatment plant, pipelines, pump stations, injection wells and other ancillary facilities.
2. Conditional Use Permit No. 13-005 to allow a public utility facility use in the CV-1 zone in the proposed Civic Center Wastewater Treatment Facility Institutional Overlay District.
3. LCPA No. 13-002 and corollary M.M.C. Zoning Text Amendment No. 13-008 and Zoning Map Amendment No. 13-003 to create the Civic Center Wastewater Treatment Facility Institutional Overlay District.

Other Required Permits and Approvals

A public agency, other than the lead agency, that has discretionary approval power over a part of the project is known as a "Responsible Agency," as defined by CEQA Guidelines Section 15381. Table 1 below identifies the responsible agencies and the approvals that may be required for the Project.

Table 1 – Responsible Agencies and Permits/Approvals	
Agency	**Permit/Approval**
California Coastal Commission	Local Coastal Program Amendment Certification Coastal Development Permit Approval (if appealed)
Los Angeles Regional Water Quality Control Board	National Pollutant Discharge Elimination System, Construction General Permit (Order Nos. 2009-0009-DWQ and 2010-0014-DWQ) Discharges of Groundwater from Construction Dewatering to Surface Waters (Order No. R4-2008-0032 (CAG994004)) Discharges of Low Threat Hydrostatic Test Water to Surface Waters (Order No. R4-2009-0068 (CAG674001)) (Potential)
State Water Resources Control Board	General Waste Discharge Requirements (WDRs) for Sanitary Sewer Systems (Order No. 2006-0003)
California Department of Transportation	Encroachment permit
State Historic Preservation Officer	Concurrence letter
Los Angeles County Waterworks District No. 29	Duplication of Service Agreement Letter confirming water service
Los Angeles County Fire Department	Approval of Fuel Modification Plans Approval of Plans for meeting Fire Code
Los Angeles County Department of Public Works	Roadway Encroachment Permit
California Department of Public Health	Letter of Approval of Title 22 Engineers Report
U. S. Environmental Protection Agency	Underground injection permit
U.S. Fish and Wildlife Service	Federal Endangered Species Act Compliance (Section 7 Consultation) (Potential)
California Department of Fish and Wildlife	State Endangered Species Act Compliance (Potential)
South Coast Air Quality Management District	Authority to Operate Rule 403 Fugitive Dust

Site Description and Project Setting

The Project is located within the lower Malibu Creek watershed area and includes the Civic Center area of the City of Malibu and portions of unincorporated Los Angeles County (Refer to Figure 3-2 of the DEIR). The Project Area overlies the Malibu Valley Groundwater Basin, which includes a shallow alluvial layer and a lower aquifer called the Civic Center Gravels. A hydraulically-separate alluvial zone contained within Winter Canyon, to the west of and adjacent to the Malibu Valley Groundwater Basin, is also part of the Project Area. Groundwater is not used as a municipal drinking water supply in either the groundwater basin or Winter Canyon.

The entire City is located within the Coastal Zone, as defined by the California Coastal Act. The LCP consists of a Land Use Plan and a Local Implementation Plan (LIP). The LCP is intended to protect, maintain, and where feasible, enhance and restore the overall quality of the Coastal Zone environment.

Land uses in the Civic Center area generally consist of a mix of commercial, residential, research and development, and institutional uses along with open space/undeveloped public lands. Low-density commercial shopping centers, City and county government buildings, four multi-family condominium developments and schools comprise the central portion of the area. Areas along the coast consist of higher density single-family residential developments, such as the Malibu Colony, and open space/undeveloped land uses such as the Malibu Lagoon State Park, while lower density residential neighborhoods, such as the Malibu Knolls and Serra Retreat communities, are located in the northern and eastern portions of the Area. As shown in Figure 3-2 of the DEIR, Malibu Creek and Malibu Lagoon are located in the central portion of the Prohibition Area. The area north and west of the Prohibition Area is predominantly occupied by open space/undeveloped and public land uses. Pepperdine University, located immediately west of and outside the Prohibition Area, is the largest single development in the vicinity.

The service area for the proposed Civic Center wastewater treatment system would match the boundaries of the Prohibition Area (Figure 3-3 of the DEIR), which is generally bounded by Malibu Canyon Road to the west, Malibu Creek and Lagoon to the east, the Pacific Ocean to the south, and the southerly portion of the Santa Monica Mountains to the north. The Prohibition Area also includes a portion of unincorporated Los Angeles County. The Project Area could extend beyond the Prohibition Area if properties outside the area become users of recycled water in the future.

As previously mentioned, the proposed wastewater treatment facility site is located within the Prohibition Area on an approximately 4.8-acre site at 24000 Civic Center Way, between Civic Center Way on the north, Pacific Coast Highway on the south, and vacant land on the west. The site is described in more detail later in Section 4.3, and is currently developed, in part, with the existing Winter Canyon Wastewater Treatment Facility, a small scale, privately owned and operated wastewater treatment facility serving the Malibu Colony Plaza shopping center, located on the south side of Pacific Coast Highway. The site also contains a small wetland area and several protected native Black Walnut trees. Notable land uses in the vicinity of the proposed wastewater treatment facility site include Malibu City Hall, located approximately 0.3 mile to the northeast; Webster Elementary School, located just north of the site, across Civic Center Way; Pepperdine University's Alumni Park (a privately-owned recreation area) and Malibu Bluffs Park, located approximately 0.25 mile to the west and southwest of the site, respectively.

Project Facilities

The Project would provide disinfected tertiary treated wastewater that meets the requirements of Title 22 of the California Code of Regulations. The treatment method would utilize a membrane bioreactor system and ultraviolet disinfection. This level of treatment would allow for the unrestricted reuse of the recycled water, and the Project would maximize recycled water reuse for landscape irrigation and other nonpotable uses (such as, but not limited to, toilet flushing and dust control) within the Project Area.

The treatment facility is designed to utilize modular components to allow phasing of installation. The Project capacity has been designed according to conservative estimates of wastewater flows estimated based on current land use and zoning designations, development standards and Project information on file with City. According to the LCP, the capacity of the Project is not allowed to exceed the levels of development allowed in the LCP. At Project build-out, the facility would be a 507,000-gallon per day (gpd) capacity facility. This build-out capacity would not exceed the development levels allowed by the LCP, the General Plan or the M.M.C.

The proposed treatment facility would be sited on a 4.8 acre parcel at 24000 Civic Center Way, located on the south side of Civic Center Way, across from the intersection with Vista Pacifica Street. The property is currently developed with a wastewater treatment plant that serves the Malibu Colony Shopping Center.[4] An underground treatment tank and seepage pits would be reused in the Project, while all other existing development would be removed or properly abandoned. The primary above-ground facilities to be constructed would include:

- a headworks facility building (2,000 square feet, 18-21 feet high);
- operations/lab controls building (1,600 square feet, 15-16 feet high);
- membrane bioreactor blower and electrical building (900 square feet, 15-16 feet high);
- solids blower building (250 square feet, 15-16 feet high); and
- a covered enclosed canopy for the membrane bioreactors and filtration equipment (2,000 square feet, 23-25 feet high).

At and below-ground facilities would include a new 26-foot wide driveway as required by the fire department, various treatment and storage tanks, piping, odor control beds, electrical, pumping and other ancillary equipment.

All treatment facilities would be residentially scaled, enclosed and odor-scrubbed. Native landscaping would screen the facilities, and the site would be fenced and have minimal security lighting.

[4] The site plan for the wastewater treatment facility has been designed so that the existing onsite facility can continue to operate during construction. Once construction is complete, the wastewater flows treated by the old system would be connected to the Project.

A wastewater collection system would be constructed to convey wastewater flows from properties in the Project Area to the proposed treatment facility, and a recycled water distribution system would be constructed to distribute treated effluent (recycled water) from the treatment facility to various properties for reuse purposes, as well as to groundwater injection wells. These pipelines (approximately 13.7 miles at Project build-out) would be underground, typically in the same trench, and would generally run beneath public rights-of-way or within easements.

Pump stations would be located along the alignments to move wastewater to areas of higher elevation. For Phase 1, pump stations would be sited in Bluffs Park and Legacy Park. The pump stations themselves would be located underground, and ancillary equipment, such as backup generators and transformers, would be above-ground in storage cabinets. In addition to wastewater pump stations, Phases 2 and 3 would require recycled water storage tanks and booster pump stations. Precise locations for these facilities have not yet been determined.

Three injection wells would be constructed along the north side of Malibu Road to serve Phase 1 of the Project. Each well would be approximately 150 feet deep and would inject treated recycled water into the lower aquifer of the Malibu Valley Groundwater Basin. The wells and associated piping are currently planned to be in above-grade bump-outs along Malibu Road, with well head facilities placed in screened cages with landscaping.[5] The need for additional wells to accommodate later phases would be determined based on operation and monitoring results of Phase 1. Recycled water would also be disposed in the separate groundwater system in Winter Canyon utilizing existing seepage pits on the treatment plant site and three new percolation ponds that would be constructed onsite during Phase 1.

A detailed Project Description, including the construction process, is provided in Chapter 3 of the DEIR.

Cultural Resources

The DEIR includes a Historical and Archaeological Resources Technical Report as Appendix F, while Section 4.4 of the DEIR evaluates potential impacts to cultural and paleontological resources. The technical report includes a Phase 1 archaeological resources study prepared by Michelle Long, a qualified archaeologist. The report analyzes the potential for impacts to cultural and archaeological resources on the treatment plant site, as well as along the pipeline alignments for the project at build-out of all three phases. The study is based on a records search, field surveys, public outreach to interested parties, a sacred lands files search and Native American contact to tribal governments and individuals.

[5] The design team is trying to avoid the use of "bump outs" into the parking lane on Malibu Road. However, if the injection wells cannot be sited between the existing underground utilities, approximately two onstreet parking spaces would be lost.

The report states that three recorded archaeological resource sites are located adjacent to the Project area. Two are located west of the proposed treatment plant site (on the proposed Rancho Malibu Hotel project site) and one is located at Malibu Beach State Park in the area of the Adamson House. The report states that this site, the Chumash village of Humaliwo, is listed on the National Register of Historic Places, and that the site may extend across Pacific Coast Highway and into the project area that would be affected by pipeline extensions, although the bulk of the site is south of the proposed pipeline routes in Pacific Coast Highway. While it is expected that any resources in the pipeline route have already disturbed due to previous highway and bridge construction, it is possible that some prehistoric deposits remain intact. No evidence of archaeological resources was found during the field survey of the treatment plant site. The proposed pipeline routes were not surveyed because these elements would be built in existing streets, easements or rights-of-way where the ground surface cannot be observed. Two responses to the public and Native American outreach were received which recommended monitoring during Project construction.

The impacts analysis of the DEIR notes that although the ground surface in the treatment plant area is highly disturbed, the proximity to previously recorded sites and the location in the Malibu coastal area suggest a high probability of encountering subsurface archaeological resources in this area. This analysis also notes the sensitivity of the Humaliwo site adjacent to a portion of the proposed pipeline route along Pacific Coast Highway because of the known presence of human remains in the past, although these remains may have been removed. The analysis concludes that Project construction in areas near known sites would have a moderate to high level of potential for encountering and inadvertently demolishing or materially altering archaeological resources, or disturbing human remains, and calls for mitigation to ensure this potential impact would be less than significant.

Mitigation Measure MM AR-1 calls for archaeological resources monitoring for all ground-disturbing activity at the treatment plant site, and for pipeline excavations that take place adjacent to the Humaliwo site. Monitoring would not be required for installation of underground pipelines installed elsewhere in previously disturbed soils in or adjacent to adjacent existing roads.

MM AR-1 states:

> A certified archaeologist and a culturally affiliated Native American, with knowledge of cultural resources, shall monitor all initial Project-related ground-disturbing activities in the area of the proposed wastewater treatment facility as well as excavations or other impacts, should they take place, from pipeline construction adjacent to CA-LAN-266, CA-LAN-12715, or the Humaliwo site, CA-LAN-264. Monitoring should take place on both sides of Malibu Lagoon, specifically from Cross Creek Road east to a point on the other side of the Lagoon opposite the western end of the parking lot at Malibu State Beach, west beyond

the Adamson House. This area may need to be extended, if significant materials are discovered during monitoring. In those areas that are not monitored by a certified archaeologist and a culturally-affiliated Native American, if buried cultural resources are uncovered during construction, all work shall be halted in the vicinity of the archaeological discovery until a qualified archaeologist can visit the site of discovery and assess the significance of the archaeological resource. Provisions for the disposition of recovered prehistoric artifacts shall be made in consultation with culturally affiliated Native Americans. The Native American Heritage Commission shall be the final arbiter should disagreement arise over the disposition of the recovered artifacts.

In the event of an accidental discovery of human remains in a location other than a dedicated cemetery, the steps and procedures specified in Health and Safety Code Section 7050.5, State CEQA Guidelines Section 15064.5(e), and PRC Section 5097.98 shall be implemented.

Standard cultural resource conditions would apply to other aspects of Project construction, and to ground-disturbing activities conducted by individual property owners on their parcels to make connections to the pipelines.

Paleontological resources are also evaluated in Section 4.4 of the DEIR. Paleontology is the study of life in past geologic time as evidenced by fossil plants and animals. The majority of the Project area is situated on surficial deposits of Quaternary alluvium and marine deposits which are known to encompass paleontological resources, so the paleontological sensitivity of the Project area is considered high. Due to the moderate to high level of potential for encountering and inadvertently damaging or destroying paleontological resources, Mitigation Measure MM PR-1 is included to require a qualified paleontological monitor for excavations that will occur below five feet. The monitor shall have the discretion to reduce monitoring in areas where sediments have been previously disturbed.

DEPARTMENT REFERRALS: The following is a discussion of the environmental issues pertaining to the Phase 1 CDP as reviewed by City Departments and their corresponding approval. Review of the will serve letter from Los Angeles County Waterworks District No. 29 is still pending.[6] Department review sheets are included as Attachment 7.

Biology

The DEIR includes three reports that document the biological resource impacts associated with all three phases the Project: Appendix C (Habitat Assessment); Appendix D (Native Tree Protection Plan); and Appendix E (Jurisdictional Delineation Report). As discussed previously in this report, the treatment plant site supports wetland

[6] The City has made an application with Los Angeles County Waterworks District No. 29 for a will-serve letter. District 29 has indicated that the application will be processed once the City acquires title of the treatment plant site property but that adequate water service will be available.

ESHA and protected native black walnut trees. Five trees are expected to be removed and three will be affected by protected zone encroachment by site development. The treatment plant construction is expected to avoid all wetland ESHA and the required 100 foot wetlands ESHA buffer. Furthermore, no impacts to ESHA or native trees are expected to occur as a result of Phase 1 pipeline or pump station construction.

The City Biologist has reviewed the Project and associated biological resource reports and has provided the comments below.

1. To ensure all elements of the required treatment facility and its infrastructure can be accommodated by regulation, the City is proposing a Local Coastal Program Amendment (LCPA) that will address these and other issues. The project as designed and conditioned below will comply with the standards and policies of the LCP, including the proposed LCPA.

2. The Local Coastal Program (LCP) Local Implementation Plan (LIP) Section 4.6.1 prohibits development within 100 feet of a wetland or a stream. The property on which the wastewater treatment facility is proposed supports both wetland and streams. LIP Chapter 5 regulates impacts to native trees. Several California black walnut trees meeting the protection criteria are on the Project site. The Project has been designed to avoid any impacts to these resources to the greatest extent feasible. Notwithstanding, five California black walnut trees will require removal and encroachments would occur within the protection zone of three more. These impacts will be mitigated consistent with the LCP Amendment associated with this permit.

3. The treatment plant has been designed to avoid the wetlands and streams on site. However, a drainage/infiltration zone is included within the 100-foot buffer as will the access road required for the plant. An area of restoration equivalent to the area of disturbance within the buffer shall be incorporated into the landscaping plan for the site.

4. Pursuant to LIP Section 4.7.1, development that cannot feasibly be placed where all ESHA (e.g. wetlands) can be avoided, the development area would be limited to 10,000 square feet. The proposed wastewater treatment facility would exceed this limitation. However, pursuant to LIP Section 4.5.1.B and 4.5.2.A, this Project would be considered a permitted use within ESHA.

5. The Project also includes infrastructure that would occur off site. These elements have been designed to avoid impacts to ESHA, including off-site drainages.

The City Biologist has determined that the Phase 1 Project is consistent with City goals and policies and can proceed through the planning process, subject to the following conditions of approval:

a. The City shall obtain any and all state and federal regulatory agency permits/agreements for any portion of the project (including infrastructure) that may encroach into any of those agency's jurisdiction.

b. All landscape plantings shall be limited to species native to the Santa Monica Mountains.

c. Prior to final plan check approval, the applicant shall provide an area calculation of the impacted area occurring within the 100-foot wetland buffer. The landscape plans shall then be amended to incorporate an equivalent area of native planting on the site that is currently disturbed or non-native vegetation.

d. Grading, excavation, or other site preparation activities associated with both the treatment plant and infrastructure should be scheduled only during the dry season from April 1-October 31st. If it becomes necessary to conduct these activities from November 1–March 31, a comprehensive erosion control plan shall be submitted for approval prior to issuance of a grading permit and implemented prior to initiation of vegetation removal and/or grading activities.

e. Grading, excavation, or other site preparation activities associated with both the treatment plant and infrastructure scheduled between February 1 and August 30 will require nesting bird surveys by a qualified biologist prior to initiation of those activities. Surveys shall be completed no more than 5 days from proposed initiation of site preparation activities. Should active nests be identified, a buffer area no less than 150 feet (300 feet for raptors) shall be fenced off until it is determined by a qualified biologist that the nest is no longer active.

f. Construction fencing shall be placed outside of required ESHA limits and native tree protection zones and indicated on the site plans approved for grading permit issuance. Construction fencing shall be installed prior to the beginning of any construction and shall be maintained throughout the construction period to protect the site's sensitive habitat areas. The City Biologist shall inspect the installation of construction fencing prior to initiation of work.

g. The wastewater treatment facility will require the removal of five and encroachments on three California black walnut trees. Pursuant to Chapter 5 of the LIP, projects that support one or more California walnut (Juglans californica) must include a native tree protection plan. A native tree protection plan was prepared and submitted for this Project and the LCPA addresses impacts to walnut trees. Required mitigation shall include implementation of the native tree protection plan for trees that will have encroachments, but that will not be removed. The City shall pay the in lieu fee required by LIP Section 5.5.2(b) for trees that are removed, prior to the issuance of grading permits for development that affects the protected trees.

Fuel Modification

Review of the proposed fuel modification plan for the CDP by the Los Angeles County Fire Department (LACFD) is still pending. Preliminary approval will be required prior to the Phase 1 CDP consideration by the Planning Commission.

Geology

A geotechnical and soils report has been prepared for the Project, specifically, a Geotechnical Investigation Report prepared by Geosyntec Consultants, Inc. dated November 7, 2013. The City Geologist has reviewed the DEIR, Project plans and associated technical submittals. At this time, City geotechnical staff has issued a geotechnical review letter (included with the department review sheets in Attachment 7) with additional comments for the Project Geotechnical Consultant to address. The CDP approval is pending additional subsurface exploration and analyses, which are ongoing. Formal submittal of the responses to City geotechnical staff's review comments has not been made as of this date. Standard conditions of approval will be included to require that all recommendations of the consulting Certified Engineering Geologist, Geotechnical Engineer and/or the City Geologist shall be incorporated into all final design and construction plans including foundations, grading, sewage disposal, and drainage. Final plans shall be reviewed and approved by the City Geologist prior to the issuance of a grading permit.

Grading quantities associated with the Phase 1 development of the treatment plant site are summarized in Table 2. Additional offsite Phase 1 earthwork will be associated with excavation of the pipelines (approximately 10,200 cubic yards, of which 5,000 cubic yards would be exported) and construction of the pump stations (56 cubic yards of cut each at Legacy Park and Bluffs Park, for a total of 112 cubic yards of export).

Table 2 – LCP Grading Conformance – Phase 1 Treatment Plant Site

	Exempt**			Non-Exempt	Remedial	Total
	*R&R**	*Understructure*	*Safety****			
Cut	1,366	5,378	0	0	1,012	7,756
Fill	1,366	0	0	0	1,012	2,378
Total	**2,732**	**5,378**	**0**	**0**	**2,024**	**10,134**
Import	0	0	0	0	0	0
Export	0	5,378	0	0	0	5,378

All quantities listed in cubic yards.
*R&R= Removal and Recompaction
**Exempt grading includes all R&R, understructure and safety grading.
***Safety grading is the incremental grading required for Fire Department access (such as turnouts, hammerheads, and turnarounds and any other increases in driveway width above 15 feet required by the LACFD).

Build out of the treatment plant site to accommodate all three phases is estimated to require a total of 7,771 cubic yards of excavation and approximately 3,000 cubic yards of imported material (aggregate base material). Much of the cut material is associated with

the extensive siting of tanks and equipment below grade and with construction of the percolation ponds, which would be three to five feet deep. The contractor would balance cut and fill quantities onsite to the extent feasible; however, total yardage exported from the treatment plant site by build out of Phase 3 is estimated to total 7,771 cubic yards.

LIP Section 8.3(B) allows for 1,000 cubic yards per acre of institutional development, which for the 4.8 acre treatment plant site, would equal 4,800 cubic yards. Under the Overlay District proposed in the LCPA, the Phase 1 CDP would comply with this maximum.

Public Works

The City Public Works Department has reviewed the DEIR and Phase 1 Project plans, and on July 16, 2014, determined that the CDP is in conformance with the LCP and the M.M.C. and can proceed through the planning process. Standard conditions of approval are identified to be implemented during construction and operation, including requiring that a final grading and drainage plan be approved prior to issuance of grading permits. The plan must include storm water management to mitigate increased runoff associated with site development, a storm water pollution prevention plan and a wet weather erosion and sediment control plan. A water quality mitigation plan is required that will include installation and maintenance of permanent site design and source control storm water management best management practices (BMPs) to meet the City's requirements of the City's current Municipal Separate Storm Sewer System (MS4) permit. Phase 1 of the Project is also conditioned to include a four foot wide sidewalk, curb ramps, and curb and gutter along the south side of Civic Center Way.

Environmental Health

The City Environmental Health Administrator has reviewed the design concept report prepared by RMC for the Phase 1 Project CDP and all supporting materials for design of all phases of the Project through build-out. The Project proposes a membrane bioreactor system to treat wastewater for reuse as recycled water, or disposal by deep well injection into the lower aquifer of the Malibu Valley Groundwater Basin or percolation into the upper aquifer of Winter Canyon. On July 9, 2014, the City Environmental Health Administrator determined the Project will meet the minimum requirements of the Malibu Plumbing Code, the M.M.C. and the LCP. The subject facility will meet all applicable requirements. As mentioned previously, the City will be required to obtain a general waste discharge requirements/wastewater recycling requirements (WDR/WRR) permit from the Regional Water Quality Control Board for operation of the facility.

Wastewater collection and recycled water distribution pipelines will be brought to the property line of individual parcels. Individual property owners will be responsible for the improvements needed on their particular parcel to connect to the system. The City Environmental Health Administrator and Building Safety Division will design a septic

decommissioning program that specifies the requirements for connections from management of individual properties. These requirements will follow the standards of the Malibu Plumbing Code and the Project designers' specifications to ensure property system connections and property maintenance so that the system will operate as designed. Examples of requirements include, but are not limited to:

- Making a water-tight connection so that water from surrounding soils is not able to infiltrate pipes and artificially increase inflows to the treatment facility; and
- Not using water softeners, which contain excess salts that would undermine the treatment capabilities of the system to meet permitting requirements.

DEIR IMPACT ANALYSIS SUMMARY: The DEIR identifies 64 potential environmental impact areas in 15 different categories for analysis, based on the CEQA Guidelines. Detailed environmental impact analysis can be found in Chapter 4 (Sections 4.1 through 4.15) of the DEIR. A summary of the results of the analysis can be found in Chapter 1 of the DEIR (Executive Summary). Specifically, Table 1-1 of Chapter 1 lists all the identified Project impacts, characterizes the significance of each impact, and specifies any proposed mitigation measures.

The labeling used in the summary below follows the labeling used for the impacts in Table 1-1 and Chapter 4.

No Impact or Less Than Significant Impact, Without Mitigation Measures

Of the 64 environmental impact areas analyzed, 47 impact areas were found to have No Impact or Less than Significant Impact, without the need for mitigation measures. These impact areas include:

- Aesthetics Impacts A-1, 3 and 4
- Air Quality Impacts AQ-1 through 5 (all)
- Biological Resources Impact BIO-6
- Historical Resources Impacts HR-1 through 3 (Part of Cultural and Paleontological Category)
- Geology and Soils Impacts GEO-1, 3, 5, 6 and 7
- Hazards and Hazardous Materials Impacts HM- 2 and 3
- Hydrology and Water Quality Impacts HWQ-1 through 5
- Land Use Impacts LU-1 through 3 (all)
- Noise and Vibration Impacts NV-2, 5 and 6
- Population and Housing Impacts POP-1 and 2 (all)
- Public Services Impact PS-1 (all)
- Utilities, Services and Energy Impacts U-1 through 8 (all)
- Recreation Impacts REC-1 and 2 (all)
- Greenhouse Gas Emissions and Climate Change Impacts GHG-1 through 3 (all)
- Transportation and Traffic - Operations

Less than Significant Impact, With Mitigation Measures

Of the remaining 17 potentially significant impact areas, impacts in 15 of these areas were found to be less than significant after incorporation of mitigation measures. These impact areas include:

- Aesthetics Impact A-2
- Biological Resources Impacts BIO-1 through 5
- Archaeological Resources Impacts AR-1 and 2 (Part of Cultural and Paleontological Category)
- Paleontological Resources Impact PR-1 (Part of Cultural and Paleontological Category)
- Geology and Soils Impacts GEO-2 and 4
- Hazards and Hazardous Materials Impact HM-1
- Hydrology and Water Quality Impact HWQ-6
- Noise and Vibration Impact NV-3
- Transportation and Traffic Impact - Construction

Significant and Unavoidable Impact, With Mitigation

The only environmental impact areas found to have significant and unavoidable impacts were in the Noise and Vibration category.

- *Impact NV-1: Would the Project expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?*

Unincorporated Los Angeles County sets a maximum noise threshold for mobile equipment at single-family residential land uses of 75 dBA Leq[7]. Noise levels could be as loud as 89 dBA Leq for short periods of time during construction of the pipeline network due to use of heavy construction equipment, such as excavators and jack and bore auger drills. Mitigation Measure NV-1 would be implemented to reduce noise from construction to the greatest extent practicable; however, it is not expected that the reduction would be sufficient to comply with the County's threshold. The City does not have a similar threshold. Therefore, this construction impact would be considered significant and with respect to the County's standard.

MM NV-1 calls for the construction contractor to use appropriate noise-control measures, such as:

[7] dB refers to decibel, a unit of measurement that indicates the relative amplitude of a sound. dbA refers to a weighted scale that gives greater weight to the frequencies of sound to which the human ear is most sensitive. dbA Leq refers to the average A-weighted noise level during a measurement period. A detailed discussion of acoustical terms and the Noise and Vibration Analysis may be found in Chapter 4.9 of the DEIR. Table 4.9-1 of that chapter provides a summary of acoustical terms.

- Complying with construction hours;
- Using best available noise control techniques for all equipment and trucks (e.g., mufflers, intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds);
- Using hydraulically or electrically powered equipment (e.g., jackhammers and pavement breakers) rather than pneumatically powered tools which have noise associated with compressed-air exhaust when necessary, and using quieter procedures such as drilling rather than impact equipment when feasible;
- Pre-drilling pile holes;
- Locating stationary noise sources as far as possible from sensitive receptors;
- Locating material stockpiles and maintenance/equipment staging as far as possible from residential and school receptors;
- Siting proposed jack and bore pits as far as possible from sensitive receptors; and
- Designating a Project liaison to monitor and respond to noise complaints.

MM NV-1 would be implemented for all aspects of the Project construction, within both the City and County jurisdictions. Since no further feasible mitigation measures are identified which would reduce this impact to less than significant, it is considered significant and unavoidable.

- *Impact NV-4: Would the Project result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity, above levels existing without the Project?*

Construction of the Project would result in temporary increases in noise levels near single-family residential land uses. The increase in noise levels during construction would range from 21 to 36 dB over existing ambient noise levels, without the Project. As discussed in Impact NV-4, increases in noise levels, while temporary, would be considered significant and unavoidable, even with the incorporation of MM NV-1.

Impact NV-4 also addresses periodic testing of the emergency power generators associated with pump stations, which would cause temporary increases in noise levels at receivers located within the City. However, MM NV-2, requiring that all emergency generators be housed and muffled with acoustically rated enclosures, would ensure noise from emergency generators does not result in a temporary substantial noise increase, and this temporary, periodic activity would not be a significant impact.

Areas of No Impact

Following preliminary review of the Project and the subsequent scoping meeting, two environmental impact categories were identified as not being significantly impacted by the Project – Agriculture and Forestry Resources and Mineral Resources. For the reasons described below, these topics are not discussed in detail in the DEIR, and are

not included in Table 1-1. Additional information on the No Impact determination can be found in Chapter 6 (Other Environmental Considerations) of the DEIR.

- Agriculture and Forestry Resources - According to the General Plan Land Use Element, one existing horticultural land use exists within the Prohibition Zone which is also designated Unique Farmland pursuant to the Farmland Mapping and Monitoring Program. The Project would accommodate this nursery site's wastewater flows and would not result in conversion of this land to a non-agricultural use. Therefore no impact would occur to Prime, Unique, or Important Farmland pursuant to the Farmland Mapping and Monitoring Program. No conflicts with existing agricultural zoning or properties under Williams Act contract would occur. There are no existing forestland, timberland, or timberland zoned areas within the Prohibition Zone. Accordingly, no impacts to agricultural or forestry resources would occur.

- Mineral Resources - No known mineral resources of value locally, or to the region or state, have been identified on the Project site or in the Project Area. The Project does not include facilities or activities that would result in the loss or availability of any known mineral resources within the Prohibition Zone or its surroundings. No significant impacts to mineral resources would occur.

ALTERNATIVES: CEQA Guidelines (Section 15126(a)) states that an EIR must address "a range of reasonable alternatives to the project, or to the location of the project, which could feasibly attain the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives."

Alternatives Considered But Rejected

CEQA Guidelines Section 15126.6(c) requires an EIR to identify any alternatives that were considered but were rejected as infeasible during the scoping process. The list below includes alternatives to the Project that were developed early in the planning phases or that were suggested during the scoping process. Refer to Chapter 5 of the DEIR for a complete discussion of why the alternatives were rejected as infeasible.

- Convey effluent to Tapia Water Reclamation Facility
- Convey recycled water to Pepperdine University
- Non-Injection / Complete Reuse Alternative (suggested during scoping)
- Fisheries Habitat Alternative (suggested during scoping)
- Recycled Water to Tapia Alternative (suggested during scoping)

Alternatives to the Proposed Project

As described in the DEIR, three alternatives identified as feasible, plus a No Project Alternative, were evaluated for relative impacts as compared to the proposed Project:

- Alternative A – No Project
- Alternative B – Wastewater Treatment Facility with Ocean Outfall
- Alternative C – Alternative Wastewater Treatment Facility Site (Wave Property[8])
- Alternative D – Pipe Effluent to Hyperion Wastewater Treatment Plant

Chapter 5 of the DEIR provides a complete discussion of how the alternatives were selected and the relative impacts associated with each.

SUMMARY: The Project has been reviewed and conditionally approved for conformance with the LCP by staff, appropriate City departments, with conditional approvals pending from the City Geologist and the LACFD. Upon completion of conformance reviews, the required findings can be made that the Project complies with the LCP.

STAFF FOLLOW-UP: Following review by the ERB, staff will prepare a summary of ERB recommendations. Once all pending conformance reviews have been completed, a staff report will be prepared that includes all required Project findings and analysis, and the Phase 1 Project CDP and Final EIR will be scheduled for a public hearing before the Planning Commission. The recommendations of the ERB will be incorporated into the Planning Commission agenda report for the Project. The Planning Commission will formulate a recommendation for the City Council's consideration on whether to certify the Final EIR, approve the proposed LCPA and corollary amendments, and approve the Phase 1 Project CDP.

It should be noted that the Planning Commission public hearing scheduled for July 21, 2014 is for the Commission to accept public comments on the DEIR. The public review period closes on July 28, 2014.

[8] The Wave Property (APN 4458-022-019) is located just north of the County-owned property on Civic Center Way where the Malibu Library is located.

EXHIBITS:

Unless otherwise noted, the following exhibits were distributed to the ERB on the City's FTP Site and are available for public review by contacting the Planning Department at (310) 456-2489, extension 245 or visiting the Planning Department public counter.

1. Project Plans (95% construction drawings)
2. CDP Site Plan and Attachment - *hardcopy*
3. Phase 1 through 3 Build-out Aerial Plan - *hardcopy*
4. Landscape Plan - *hardcopy*
5. Draft Fuel Modification Plan - *hardcopy*
6. Topographic Surveys (treatment plant site) - *hardcopy*
7. Slope Analysis (treatment plant site) - *hardcopy*
8. Bluffs Park and Legacy Park Pump Station Plans
9. Department Review Sheets
10. Technical Reports
    a. Geology Report
    b. Concept Report for Phase 1 CDP
11. Treatment Plant Site Photos, Architectural and Landscape Renderings
12. Draft EIR and Appendices

ATTACHMENT NO. 5

MEETING AGENDA
CCWTF

Thursday, August 14, 2014, 9:00 AM
City Hall – Surfrider Conference Room
23825 Stuart Ranch Road

1. Status of the Assimilative Capacity/Anti-Degradation TM analysis by the Regional Board.- Eric
2. Status of Draft WDR's – Don
3. Status of the DEIR – Leslie / Bonnie
4. MOU timeframes – Eric
5. Salt and Nutrient Management Plan – Leslie
6. Questions and Answers
7. Next meeting date and time

Draft Meeting Minutes

City of Malibu Civic Center Wastewater Treatment Facility Project

Subject:	**Project Status**
Prepared For:	Craig George/City of Malibu
Prepared By:	Leslie Dumas/RMC
Date/Time:	August 14, 2014 at 9:00 AM
Project Number:	0127-006

Attendees: Craig George, Andrew Sheldon, Bob Brager, Bonnie Blue/City of Malibu; Leslie Dumas, Steve Clary/RMC Water and Environment; Eric Wu, Don Tsai/LA RWQCB

1. Purpose of Meeting

The purpose of the meeting was to provide a project status update for the City of Malibu's Civic Center Wastewater Treatment Facility Project.

2. Discussion Summary

2.1 Status of Assimilative Capacity/Anti-Degradation TM Analysis

- The LARWQCB has not reviewed the TM yet. They expect to complete all comments and review by the end of September.
- On September 3rd, RMC is scheduled to have a conference call with CP Lai and Ginachi Amah of the LARWQCB on the Salt and Nutrient Management Plan (SNMP). Leslie will forward the meeting announcement to Eric.
- Regarding the Title 22 report, it will be completed by RMC in the next few days and will be ready for review. RMC will send the report to Kurt Souza of the Drinking Water Division at the SWRCB (former of CDPH) with copies of Sam Unger of the LARWQCB.
- RMC will also upload the draft Title 22 report into Geotracker.

2.2 Status of Draft WDR's

- Don has finished drafting the permit. It was two basic parts: (1) Findings and (2) Requirements (which includes the numerical limitations)
- On June 5, 2014, Don sent a sample WDR/WRR to the City; the City's permit should be similar and should be completed in October.
- The Draft WRR/WDR should be released for public comment in November (the LARWQCB is aiming for around November 15th). The permit is scheduled to go before the Board in February.
- The City has a ballot measure on the CCWTF initiative on November 4th; however, the Assessment District cannot be formed until after the EIR is certified and the draft WRR/WDR is released.

2.3 Status of DEIR

- The draft Final EIR (FEIR) should be completed and released for review on October 23rd. The Planning Commission will review the FEIR and issue recommendations at its November 17th meeting. The City Council should move to certify the FEIR at its December 8th meeting.
- The City and RMC have reviewed the comments received on the Public DEIR and there are no major issues that will need to be addressed.

- RMC and the City have a call next week to discuss the best method for addressing non-CEQA related comments received during the public comment period.

2.4 MOU Timeframes

- As long as the City is making progress, the RWQCB won't be enforcing the MOU deadlines.
- The RWQCB is considering revising the MOU prior to November 2015 to update the deadlines to reflect a more up-to-date timeframe.
- The City would like the MOU to be revised in March/April of 2015 to give the Assessment District sufficient time to move forward. The City should confirm these dates for the MOU revision to Eric can take the request for MOU revision to Sam Unger.
- The RWQCB needs to agenize the MOU revisions early next year in order to get it on the Board calendar.
- The RWQCB has not yet looked at the draft surface water and groundwater monitoring plans that were submitted.
- One key issue is that the Malibu Lagoon restoration project was completed last summer, and this past winter was an unusual once, so there are really no baseline data against which to compare project impacts on the creek and/or lagoon. In doing the restoration, the Lagoon surface area was increased by 2 acres and the main channel alignment revised to change where the channel breaches. This has changed the creek/lagoon hydraulics and water quality.
- The restoration project is currently monitoring at 8 sites in the restored area; no monitoring is occurring in the central channel.

2.5 Salt and Nutrient Management Plan

- RMC drafted and submitted to TMs to the LARWQCB for the SNMP; the first was on the basin management goals and objectives, and the second was the assimilative capacity/anti-degradation TM.
- To complete the SNMP, RMC needs to identify and evaluate basin management strategies and complete the monitoring plans. These four 'pieces' will then get rolled up into a SNMP document.
- RMC still needs to formalize documentation on the SNMP outreach. There is a webpage at the City's website for the SNMP; this webpage includes the two TMs that were submitted.
- The La Paz site has been publically listed as property for sale.
- Pio Lombardo (representative for La Paz) has requested to be added to the SNMP stakeholder list.
- La Paz is not part of the Community Services District
- The La Paz WDR expires in November of 2014.

3. Other

- The next meeting will be held on September 17, 2014 at 9 AM

4. Action Items

Action Item Summary Table

Responsible Party		Task/Action Item
Organization	**Name**	
LARWQCB	Eric Wu/Don Tsai	Review the draft surface water and groundwater monitoring programs
RMC	Leslie Dumas	Send September 3rd meeting information to Eric Wu/LARWQCB
RMC	Leslie Dumas	When completed, send draft Title 22 report to Kurt Souza at SWRCB-DDW with a copy to Sam Unger/LARWQCB
City of Malibu	Craig George	Confirm target dates for initiating MOU revisions

MEETING AGENDA
CCWTF

Wednesday September 17, 2014, 9:00 AM
City Hall – Surfrider Conference Room
23825 Stuart Ranch Road

1. EIR, CDP, LCPA Status Update – Bonnie
2. Anti-Degradation Analysis Review – Eric, Don, Leslie
3. Salt and Nutrient Management Plan – Leslie
4. WDR Status Update – Don
5. Review of City's Proposed Monitoring Programs for the MOU and the Prohibition – Steve, Leslie, Craig
6. MOU Schedule and Revised Timelines – Craig, Barbara
7. Entitlement Status of the CCWTF – Bonnie, Craig, Steve
8. Questions and Answers
9. Next Meeting Date and Time

Draft Meeting Minutes

City of Malibu Civic Center Wastewater Treatment Facility Project

Subject:	**Project Status**
Prepared For:	Craig George/City of Malibu
Prepared By:	Leslie Dumas/RMC
Date/Time:	September 17, 2014 at 9:00 AM
Project Number:	0127-006

Attendees: Craig George, Andrew Sheldon, Bob Brager, Barbara Cameron, Bonnie Blue/City of Malibu; Leslie Dumas, Steve Clary/RMC Water and Environment; Eric Wu, Don Tsai/LA RWQCB

1. Purpose of Meeting

The purpose of the meeting was to provide a project status update for the City of Malibu's Civic Center Wastewater Treatment Facility Project.

2. Discussion Summary

2.1 EIR, CDP, LCPA Status Update

- RMC has incorporated all response to comments except 3 into the draft Final EIR. They have also prepared a table summarizing the responses and linking them to annotated public letters. The City is currently working on responses to the non-CEQA comments received, most of which had to do with the cost of the project. They should have those completed by next week.
- The draft Final EIR is still on schedule to be released on October 23rd. RMC should have a screencheck draft of the Final EIR to the City by September 30th.
- In regards to the CDP, the blower building was moved further form the property boundary at the request of the LA County Fire Department. The site plans/drawings have been revised, and an updated CDP site plan completed and sent to Bonnie. This map is being used as the base map for the fuel modification plan and is currently being revised for that submittal.
- Catalina Ironwood trees will be used next to the blower building in place of what was originally recommended for that location. The landscape plans have been revised.
- The geology reporting has been approved for the CDP application.
- There is nothing new to report on the LCPA; there has been no negative feedback from the California Coastal Commission on the proposed amendment.
- The EIR, CDP and LCPA are presently scheduled to go to the planning commission in November.

2.2 Assimilative Capacity/Anti-Degradation Analysis Review and SNMP

- The City and RMC had a meeting with the part of the RWQCB managing salt and nutrient management planning. They would like to have the groundwater basin divided into two management areas (a northern area and a southern area) and have the assimilative capacity/anti-degradation analysis rerun by management area.
- The revised modeling work should be done by mid-October.

- The same assimilative capacity/anti-degradation analysis will be used for both the permitting and the SNMP.
- The SNMP development is being conducted independent of the permitting and is on its own schedule.

2.3 Status of WDR

- Don has incorporated recent information into the draft permit. As it currently stands, the permit is 62 pages long and the monitoring program is 24 pages long.
- Don has some suggestions on renaming sampling locations and has added some recommendations to the monitoring program for monitoring at the POTW.
- Don's schedule is to have the permit and monitoring program finalized within the next two weeks. From there, it will go to Eric for review, and then to Debbie and Sam Unger for review.
- The draft WDR/WRR is scheduled to be released mid-November for public review. There will be a 60 day public review period before the permit goes to the February 6, 2015 Board meeting.
- The City should see the draft permit around mid-October.
- Leslie checked with Kurt Souza (Division of Drinking Water; formerly CDPH) about the Title 22 report. He's going to get feedback from his staff on the report. Kurt was also interested in the status of the proposed well ordinance.
- The RWQCB has assembled a list of reports/documents that they have received since March of 2014. They will send that to everyone to make sure it's complete. In general, the document can be grouped into three categories:
    1. Modeling documents –CP has reviewed the modeling and generally agrees with the modeling process. He should be providing his comments by the end of the week.
    2. Water quality analyses – this includes the assimilative capacity and anti-degradation analyses. The results of these analyses feed into the effluent discharge limits that will be in the permits
    3. Environmental impact assessments – these documents include the sea level rise analysis and ocean dilution analyses.
- The RWQCB is going to prepare one response letter for each category of submittals. These letters should be sent by mid-October.
- The City would like to include these letters in their staff report to the planning commission in November.

2.4 Proposed Monitoring Plan

- The RWQCB generally agrees with the proposed monitoring locations.
- The proposed monitoring plan is going to be used for pre-plan monitoring.
- The MOU states that there needs to be 3 ocean monitoring locations along Malibu Road. What the MOU fails to communicate is that these sites need to be situated to determine if Malibu Colony needs to get off septic or not.
- Marie Canyon is already being monitoring weekly. This monitoring should be incorporated into the monitoring program.

2.5 MOU Modifications

- It is possible that the Phase 2 project will be delayed. If it's delayed, there will be an opportunity to determine if the groundwater basin water quality has improved.
- There needs to be sufficient surface water monitoring locations to determine water quality changes in groundwater in the Malibu Valley Groundwater Basin and in Winter Canyon, and in surface water by phase in order to determine if Phase 1 will be required.
- The USGS recommended near-shore monitoring to be as close to low tide, between 8 am and 4 pm. This methodology was adopted for the Marie Canyon monitoring.
- The RWQCB is going to visit the proposed monitoring locations today.
- Barbara proposes adding an additional surface water monitoring location on Malibu Creek upstream at the City boundary.
- The earliest date for the RWQCB Board meeting on the MOU revisions is the February 2015 meeting, which is the same one as for the WDR. This may be too much to do in one meeting.
- Revisions to the MOU are not a Basin Plan amendment so it does not need a 30-dayreview period. However, given the community, a 30-day review period would be good.

2.6 Entitlement Status

- Craig will coordinate with Leslie on the well ordinance.
- Barbara will contact the SWRCB in regards to the additional information submitted to them on the cultural survey and to check and see what no comment letter from National Marine Fisheries means (should we still expect comments from them?)

3. Other

- Jim may be open to considering moving the planning commission meeting to December and the City Council meeting on the EIR, CDP and LCP to January 12th to ensure noticing requirements are met.
- Also to be determined is when the new well ordinance will go to City Council for approval. The ordinance may not need to go to the planning commission; it will depend on what section of the City code it will go in.
- The assessment district initiative is on the November 4th ballot.
- We may want to consider having a TAC meeting before releasing the WDR to the public.
- The next meeting will be held on November 5, 2014 at 9 AM

4. Action Items

Action Item Summary Table

Responsible Party		Task/Action Item
Organization	**Name**	
LARWQCB	Eric Wu/Don Tsai	Send summary of submitted documents out for review
RMC	Leslie Dumas	Respond to comments on monitoring plan for Don Tsai
RMC	Leslie Dumas	Update the assimilative capacity/anti-degradation analysis to evaluate the water quality impacts by management area
City of Malibu	Craig George	Complete preparation of draft well ordinance

ATTACHMENT NO. 6

Malibu Civic Center Stakeholders Meeting

July 31, 2014
Malibu City Hall
8:30 a.m.

Meeting Agenda

- Regional Water Quality Control Board
- Community Facilities District (CFD)
- Outreach Meetings/Presentations
- Assessment District (AD)
- Wastewater Facility Design
- Questions/Comments
- Next Meeting August 28, 2014
- Adjourn

Regional Water Quality Control Board

- Joint Progress Meetings with Board Staff (Dr. Eric Wu and Dr. Don Tsai of Groundwater and Permitting Unit)
- Monthly Meetings:
  - April 17, 2013 ✓
  - June 19, 2013 ✓
  - July 17, 2013 ✓
  - August 28, 2013 ✓
  - September 24, 2013 ✓
  - October 30, 2013 ✓
  - October 30, 2013 ✓
  - November/December 8, 2013 ✓
  - January 8, 2014 ✓
  - February 12, 2014 ✓
  - March 17, 2014 ✓
  - March 25, 2014 ✓
  - April 30, 2014 ✓
  - May 28, 2014 ✓
  - July 9, 2014 ✓
  - August 13, 2014 (Next Meeting)

Regional Water Quality Control Board

- Topics of Discussion:
  - Status of the Injection and Modeling Program
  - Status of the City's Regulatory Obligations
    - CDP
    - CEQA
    - EIR
    - LCPA
  - Design Updates
  - Recycled Water Use and Opportunities
  - WDR Discharge Limits
  - WDR – Project Permits for Injection Program
  - Public Outreach
- City Manager Present a Project update to RWQCB on 3-6-14

Regional Water Quality Control Board

- Quarterly Progress Reports to RWQCB Executive Officer, Mr. Sam Unger (2014, 1st Quarter Report sent to RWQCB on 3-31-14)

- Quarterly Progress Reports to RWQCB Executive Officer, Mr. Sam Unger (2014, 2nd Quarter Report sent to RWQCB on 7-1-14)

Community Facilities District (CFD)

- Bond sale closed in February 2013 ✓
- City received funds in February 2013 ✓
- No other updates

Outreach Meetings/Presentations

- **August 6, 2013:** Project Technical Advisory Committee (TAC) at City Hall. ✓
- **August 17, 2013:** Project Presentation to Malibu Knolls HOA. ✓
- **August 21, 2013:** Discussions with Pepperdine University Officials regarding possible future recycled water use and opportunities. ✓ ✓
- **August 22, 2013:** Project Presentation to Wastewater Advisory Committee. ✓
- **September 12, 2013:** City Manager presentation of project update to the RWQCB. ✓
- **October 6, 2013:** Project update to Malibu Colony HOA. ✓
- **November 21, 2013:** Issued Notice of Preparation (NOP) for Draft EIR. ✓
- **December 11, 2013:** Held Public Project Scoping Meeting. ✓
- **December 11, 2013:** Held Nov/Dec Stakeholders Meeting. ✓
- **December 12, 2013:** Held 3rd Project Technical Advisory Committee (TAC). ✓
- **February 20, 2014:** Held 4th Project Technical Advisory Committee (TAC). ✓
- **March 6, 2014:** City Manager gave a project update to RWQCB. ✓

Outreach Meetings/Presentations

- **June 25, 2014:** Project Public Workshop at City Hall. ✓
- **July 21, 2014:** DEIR Public Hearing/Planning Commission at City Hall ✓
- **July 23, 2014:** Environmental Review Board Meeting at City Hall. ✓

Assessment District (AD)

- **June 24, 2013:** Sent out RFP for Assessment Engineering Consultant. ✓
- **August 1, 2013:** Two proposals received. ✓
- **September 23, 2013:** City Council approved David Taussig & Assoc., Inc. as the Assessment Engineering Consultant for the formation of the Assessment District for the project. ✓
- **October 3, 2013:** Notice to Proceed/Kick-off Meeting. ✓
- **December 11, 2013:** At Stakeholders Meeting, 1st Presentation of Preliminary Assessment Analysis for Phase 1. ✓
- **April 3, 2014:** At Stakeholders Meeting, 2nd Presentation of Preliminary Assessment Analysis for Phase 1. ✓
- **Current:** Further refining analysis as additional information is obtained.

Wastewater Facility Design

- Groundwater Injection Study
  - Phase 1 – cursory modeling and scoping ✓
  - Phase 2 – preliminary feasibility assessment ✓
  - Phase 3 – monitoring & injection wells
    - Construction ✓
    - Testing ✓
    - Analysis ✓

    Results:
    - Has recycled water reuse been maximized? Yes ✓
    - Is there sufficient groundwater injection capacity? Yes ✓
    - Will injected water flow to Malibu Creek or Lagoon? No ✓
    - Will groundwater quality be impacted by the injection? No ✓
    - Will there be ocean water quality impacts? No ✓

    Conclusions:
    - The project will lower groundwater levels. ✓
    - The groundwater basin has sufficient injection capacity for all project phases. ✓
    - The injection capacity has a large safety factor. ✓

    Final Steps :
    - Sensitivity Analysis. ✓
    - Sea Level Rise Evaluation. ✓

Wastewater Facility Design

- Regulatory Obligations
  - LCPA
    - Amend existing site use for Public Facilities ✓
    - Zoning Ordinance Revisions & Code Enforcement Subcommittee (ZORACES) (This item was heard on January 28, 2014) ✓
    - Planning Commission
    - City Council
    - Coastal Commission for certification
  - EIR
    - Project description ✓
    - NOP ✓
    - Scoping Meeting ✓
    - Administrative Draft EIR ✓
    - Install Story Poles at plant site. ✓

Wastewater Facility Design

- EIR (Continued)
  - Draft EIR (released 5/30/14. 60-day circulation) ✓
  - Planning Com. July 21, 2014 (Draft EIR comment hearing) ✓
  - ERB Meeting (July 23, 2014) ✓
  - DEIR Comment Period Closes July 28, 2014 ✓
  - Final EIR Released October 2014 (est.)
  - Planning Com. (Final EIR/CDP/LCPA Hearing)
  - City Council (Final EIR/CDP/LCPA Hearing)

Wastewater Facility Design

- CDP
  - Application Package
    - Project Plans ✓
    - Preliminary Reports ✓
      - Biology/Habitat Assessment ✓
      - Cultural Resources ✓
      - Geology ✓
      - Tree Survey
  - ERB ✓
  - Planning Commission
  - City Council

Wastewater Facility Design

- Design
  - Treatment Plant Facility
  - Injection System
  - Collection System
  - Recycled Water System
  - **Current:** ***Plans/Specs. are 95-98% complete!*** 

Questions / Comments

Next meeting August 28, 2014



Thank you

Malibu Civic Center Stakeholders Meeting

September 24, 2014
Malibu City Hall
8:30 a.m.

Meeting Agenda

- Regional Water Quality Control Board
- Community Facilities District (CFD)
- Outreach Meetings/Presentations
- Assessment District (AD)
- Wastewater Facility Design
- Questions/Comments
- Next Meeting October 30, 2014
- Adjourn

Regional Water Quality Control Board

- Joint Progress Meetings with Board Staff (Dr. Eric Wu and Dr. Don Tsai of Groundwater and Permitting Unit)
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  - ✓ June 19, 2013 ✓
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  - ✓ November/December 8, 2013 ✓
  - ✓ January 8, 2014 ✓
  - ✓ February 12, 2014 ✓
  - March 17, 2014 ✓
  - March 25, 2014 ✓
  - April 30, 2014 ✓
  - May 28, 2014 ✓
  - July 9, 2014 ✓
  - August 13, 2014 ✓
  - September 17, 2014 ✓
  - November 5, 2014 –Next Mtg.

Regional Water Quality Control Board

- Topics of Discussion:
  - Status of the Injection and Modeling Program
  - Status of the City's Regulatory Obligations
    - CDP
    - CEQA
    - EIR
    - LCPA
  - Design Updates
  - Recycled Water Use and Opportunities
  - WDR Discharge Limits
  - WDR – Project Permits for Injection Program
  - Public Outreach
- City Manager Present a Project update to RWQCB on 3-6-14 ✓

Regional Water Quality Control Board

- Quarterly Progress Reports to RWQCB Executive Officer, Mr. Sam Unger (2014, 1st Quarter Report sent to RWQCB on 3-31-14) ✓
- Quarterly Progress Reports to RWQCB Executive Officer, Mr. Sam Unger (2014, **2nd** Quarter Report sent to RWQCB on 7-1-14) ✓
- Quarterly Progress Reports to RWQCB Executive Officer, Mr. Sam Unger (2014, **3rd** Quarter Report sent to RWQCB on 9-30-14)

Community Facilities District (CFD)

- Bond sale closed in February 2013 ✓
- City received funds in February 2013 ✓
- No other updates

Outreach Meetings/Presentations

- **August 6, 2013:** Project Technical Advisory Committee (TAC) at City Hall. ✓
- **August 17, 2013:** Project Presentation to Malibu Knolls HOA. ✓
- **August 21, 2013:** Discussions with Pepperdine University Officials regarding possible future recycled water use and opportunities. ✓
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Outreach Meetings/Presentations

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- **July 21, 2014:** DEIR Public Hearing/Planning Commission at City Hall ✓
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Assessment District (AD)

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- **April 3, 2014:** At Stakeholders Meeting, **2nd** Presentation of Preliminary Assessment Analysis for Phase 1. ✓
- **August 28, 2014:** At Stakeholders Meeting, **3rd** Presentation of Preliminary Assessment Analysis for Phase 1 ✓
- **Current:** Further refining analysis as additional information is obtained.

Wastewater Facility Design

- Groundwater Injection Study
  - Phase 1 – cursory modeling and scoping ✓
  - Phase 2 – preliminary feasibility assessment ✓
  - Phase 3 – monitoring & injection wells
    - Construction ✓
    - Testing ✓
    - Analysis ✓

  Results:
  - Has recycled water reuse been maximized? Yes ✓
  - Is there sufficient groundwater injection capacity? Yes ✓
  - Will injected water flow to Malibu Creek or Lagoon? No ✓
  - Will groundwater quality be impacted by the injection? No ✓
  - Will there be ocean water quality impacts? No ✓

  Conclusions:
  - The project will lower groundwater levels. ✓
  - The groundwater basin has sufficient injection capacity for all project phases. ✓
  - The injection capacity has a large safety factor. ✓

  Final Steps :
  - Sensitivity Analysis. ✓
  - Sea Level Rise Evaluation. ✓

Wastewater Facility Design

- Regulatory Obligations
  - LCPA
    - Amend existing site use for Public Facilities ✓
    - Zoning Ordinance Revisions & Code Enforcement Subcommittee (ZORACES) (This item was heard on January 28, 2014) ✓
    - Planning Commission
    - City Council
    - Coastal Commission for certification
  - EIR
    - Project description ✓
    - NOP ✓
    - Scoping Meeting ✓
    - Administrative Draft EIR ✓
    - Install Story Poles at plant site. ✓

Wastewater Facility Design

- EIR (Continued)
  - Draft EIR (released 5/30/14. 60-day circulation) ✓
  - Planning Com. July 21, 2014 (Draft EIR comment hearing) ✓
  - ERB Meeting (July 23, 2014) ✓
  - DEIR Comment Period Closes July 28, 2014 ✓
  - Final EIR to be Released October 2014 (est.)
  - Planning Com. (Final EIR/CDP/LCPA Hearing) TBD
  - City Council (Final EIR/CDP/LCPA Hearing) TBD

Wastewater Facility Design

- CDP
  - Application Package
    - Project Plans ✓
    - Preliminary Reports ✓
      - Biology/Habitat Assessment ✓
      - Cultural Resources ✓
      - Geology ✓
      - Tree Survey
  - ERB ✓
  - Planning Commission
  - City Council

Wastewater Facility Design

- Design
  - Treatment Plant Facility
  - Injection System
  - Collection System
  - Recycled Water System
  - **Current:** ***Plans/Specs. are 96-98% complete!***



Questions / Comments

Next meeting October 30, 2014



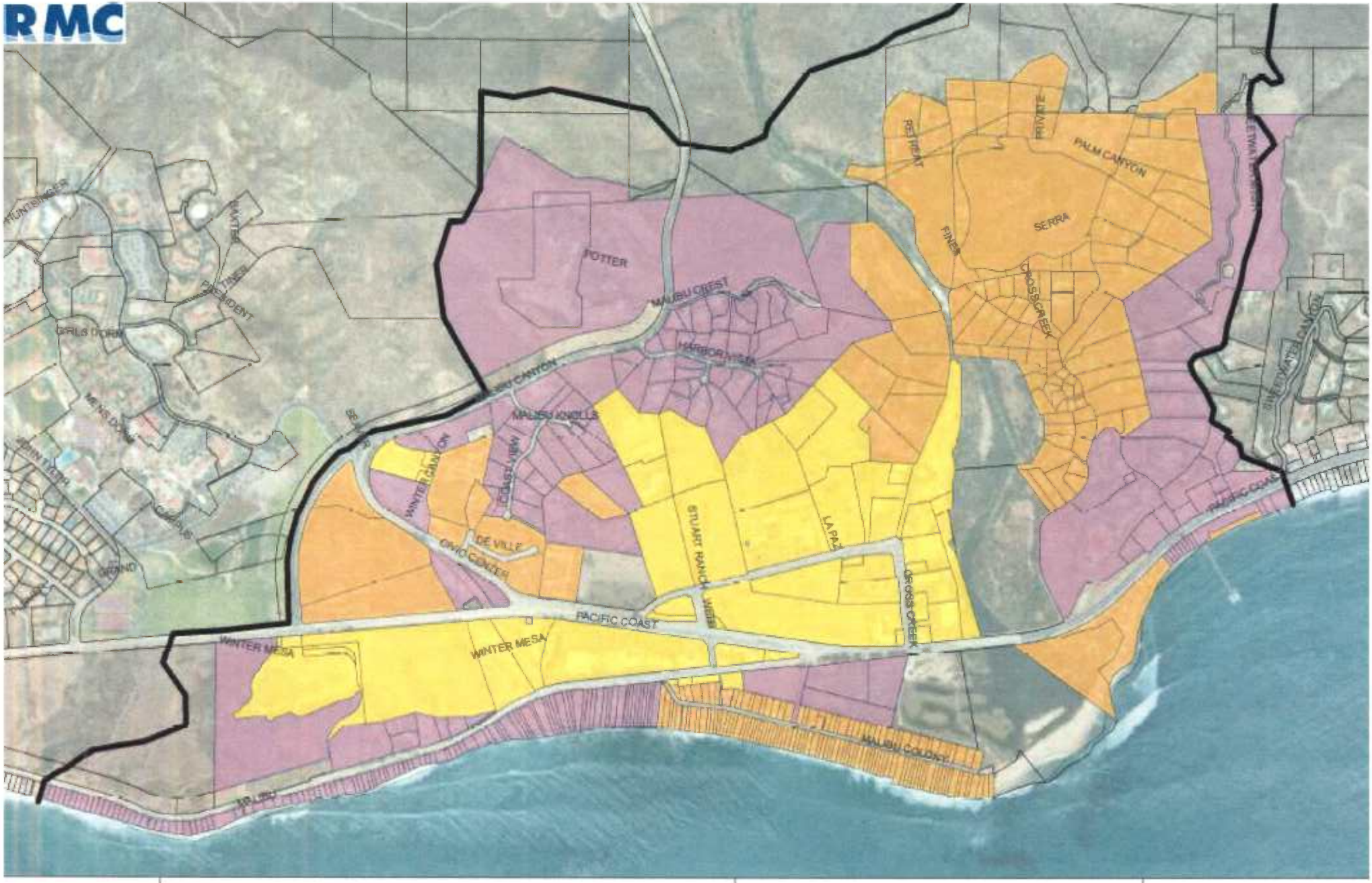
Thank you

ATTACHMENT NO. 7

CITY OF MALIBU

PRELIMINARY PHASE I
WASTEWATER TREATMENT PLANT
ASSESSMENT ANALYSIS

AUGUST 28, 2014


RMC
POTTER
MALIBU CREST
HARBOR VISTA
MALIBU KNOLLS
WINTER CANYON
COAST VIEW
DE VILLE
CIVIC CENTER
STUART RANCH
LA PAZ
CROSS CREEK
PACIFIC COAST
WINTER MESA
MALIBU COLONY
PALM CANYON
SERRA
FINNEY
RETREAT
CRASS CREEK
GIRLS DORM
MENS DORM
N
0 500 1,000 2,000
Feet
RWQCB Phase
Phase 1
Phase 2
Phase 3
City of Malibu
Prohibition Area
4/8/2014

Estimated Phase I Wastewater Treatment Plant One-Time Capital Costs[1,2]

Facility Component	Gross Costs	Oversizing Adjustment	Net Assessable Costs
Treatment Plant	$13,900,000		$13,900,000
Treatment Plant Land	$1,200,000		$1,200,000
Collection/Distribution System	$7,200,000	($600,000)	$6,600,000
Recycled Water Injection System	$800,000		$800,000
Design/Miscellaneous	$7,318,039	($20,000)	$7,290,039
LA County Contribution	($1,172,000)		($1,172,000)
Funded by CFD 2012-1	($5,000,000)		($5,000,000)
Payoff of CFD 2012-1	$6,076,551		$6,076,551
CM/Engineering Services	$3,800,000		$3,800,000
Total	**$34,122,590**	**($620,000)**	**$33,502,590**

[1] Includes construction contingency of 20% and an allowance for inflation through 2014.
[2] Excludes connection to the wastewater treatment system, disposition of existing wastewater treatment system.

Estimated Phase I Wastewater Treatment Plant Operation & Maintenance Costs

Facility Component	Annual Costs
Treatment Plant	$672,000
Collection/Distribution System	$216,000
Recycled Water Injection System	$24,000
Total	**$912,000**

Estimated Phase I Assessment District Bonded Indebtedness

Bond Component	Bond Principal	Percent of Total
Treatment Plant	$15,100,000	37.4%
Collection/Distribution System	$7,400,000	18.3%
Design/CM/Engineering Services	$11,002,590	27.3%
Bond Reserve[3]	$3,286,453	8.1%
Capitalized Interest[4]	$2,824,500	7.0%
Bond Issuance Costs	$672,467	1.7%
Assessment District Formation	$63,990	0.2%
Total	**$40,350,000**	**100.0%**

[3] Applied to final year of Phase I Assessment District debt service.
[4] Applied to first year of Phase I Assessment District debt service until assessments can be enrolled on property tax bills.

Assessment Methodology

- Treatment Plant Costs
  - Allocated based on estimated BOD (biochemical oxygen demand) load
- Collection and Distribution Systems Costs
  - Allocated based on estimated wastewater flow

Non-Residential BOD Load Assumptions

- Formula
  - BOD Concentration x Flow x 8.345/1,000,000
- BOD Concentration
  - Non-Residential
    - 80%/20% Retail/Restaurant: 435 milligrams/litre
    - 100% Retail: 313 milligrams/litre

Wastewater Flow Assumptions
Non-Residential

• Floor Area Ratio[5,6]	0.15
• Retail/Restaurant Ratio[7]	Retail: 80% Restaurant: 20%
• Gallons Per Day Per Building Square Foot	Retail: 0.020 Restaurant: 0.675 Average: 0.150

[5] Ratio of building square footage to parcel square footage.

[6] Existing building square footage used for developed property. Building square footage based on FAR of 0.15 or submitted plans, if greater, used for undeveloped property.

[7] Existing mix used for developed property. 80%/20% mix or submitted plans used for undeveloped property.

Hypothetical Assessment Calculation for a Phase I Non-Residential Parcel Step 1 – Load and Flow Calculations

Estimated System Total	1 Acre Non-Residential Parcel
BOD Load: 631.7192 Pounds / Day	BOD Load • 3.5578 Pounds / Day (435 x 980.1 x 8.345 / 1,000,000) • 0.5632% of Total (3.5578 / 631.7192)
Flow: 184,179.1413 Gallons / Day	Flow: • 980.1 Gallons / Day (43,560 x 0.15 x 0.15) • 0.5322% of Total (980.1 / 184,179.1413)

Hypothetical Assessment Calculation for a Phase I Non-Residential Parcel Step 2 – Assessment Apportionment

Component	Total	Parcel Assessment [8,9]	% of Subtotal	% of Total
Treatment Plant	$15,100,000	$85,043		0.56%
Collection/Distribution System	$7,400,000	$39,379		0.53%
Subtotal Construction	$22,500,000	$124,422	0.55%	
Design/CM/Engineering Services	$11,002,590	$60,843		0.55%
Bond Reserve	$3,286,453	$18,174		0.55%
Capitalized Interest	$2,824,500	$15,619		0.55%
Bond Issuance Costs	$672,467	$3,719		0.55%
Assessment District Formation	$63,990	$354		0.55%
Total	**$40,350,000**	**$223,130**		**0.55%**

[8] Excludes on-site connection to the wastewater treatment system, disposition of existing private wastewater treatment system.
[9] Excludes annual Phase I assessment district administrative costs.

Residential BOD Load Assumptions

- Formula
  - BOD Concentration x Flow x 8.345/1,000,000
- BOD Concentration
  - Residential: 313 milligrams/litre

WASTEWATER FLOW ASSUMPTIONS RESIDENTIAL

• Gallons Per Day Per "Estate" Home	712[10]
• Gallons Per Day Per Single Family Home	366
• Gallons Per Day per Condominium	200

[10] Based on EIR prepared for Phase I residential development submittal.

Hypothetical Assessment Calculation for a Phase I Estate Home
Step 1 – Load and Flow Calculations

Estimated System Total	Phase I Estate Home
BOD Load: 631.7192 Pounds / Day	BOD Load • 1.8600 Pounds / Day (313 x 712 x 8.345 / 1,000,000) • 0.2944% of Total (1.8600 / 631.7192)
Flow: 184,179.1413 Gallons / Day	Flow: • 712 Gallons / Day • 0.3866% of Total (712 / 184,179.1413)

Hypothetical Assessment Calculation for a Phase I Estate Home
Step 2 – Assessment Apportionment

Component	Total	Parcel Assessment [11,12]	% of Subtotal	% of Total
Treatment Plant	$15,100,000	$44,453		0.29%
Collection/Distribution System	$7,400,000	$28,607		0.39%
Subtotal Construction	$22,500,000	$73,060	0.32%	
Design/CM/Engineering Services	$11,002,590	$35,727		0.32%
Bond Reserve	$3,286,453	$10,672		0.32%
Capitalized Interest	$2,824,500	$9,171		0.32%
Bond Issuance Costs	$672,467	$2,184		0.32%
Assessment District Formation	$63,990	$208		0.32%
Total	**$40,350,000**	**$131,021**		**0.32%**

[11] Excludes on-site connection to the wastewater treatment system, disposition of existing private wastewater treatment system.
[12] Excludes annual Phase I assessment district administrative costs.

Summary of Estimated Phase I Assessments

Land Use	Assessment Lien	Annual Assessment Installment[13]	Annual Operation & Maintenance	Total Monthly Payment
Phase I Non-Residential Acre	$223,130	$18,174	$5,062	$1,936
Phase I Estate Home	$131,021	$10,672	$2,906	$1,131

[13] Excludes annual assessment district administrative costs.

Hypothetical Assessment Calculation for Phase II Residential Load and Flow Calculations

Estimated System Total	Phase II Residential
BOD Load: TBD	BOD Load • **Estate**: 1.8600 Pounds / Day (313 x 712 x 8.345 / 1,000,000) • **Single Family**: 0.9560 Pounds / Day (313 x 366 x 8.345 / 1,000,000) • **Condominium**: 0.5224 Pounds / Day (313 x 200 x 8.345 / 1,000,000)
Flow: TBD	Flow: • **Estate**: 712 Gallons / Day • **Single Family**: 366 Gallons / Day • **Condominium**: 200 Gallons / Day

Order of Magnitude Assessment Calculation for a Phase II Estate Home

Component	Phase I Estate Home [14,15]	Phase II to Phase I Ratio	Phase II Estate Home	
Treatment Plant	$44,453	100%	$44,453	
Collection/Distribution System	$28,607	100%	$28,607	
Subtotal Construction	$73,060	100%	$73,060	
Design/CM/Engineering Services	$35,727	100%	$35,727	
Bond Reserve	$10,672	100%	$10,672	
Capitalized Interest	$9,171	100%	$9,171	
Bond Issuance Costs	$2,184	100%	$2,184	
Assessment District Formation	$208	100%	$208	
Total	**$131,021**	**100%**	**$131,021**	

[14] Excludes on-site connection to the wastewater treatment system, disposition of existing private wastewater treatment system.
[15] Excludes annual Phase I assessment district administrative costs.

Order of Magnitude Assessment Calculation for a Phase II Single Family Home

Component	Phase I Estate Home [16,17]	Phase II to Phase I Ratio	Phase II Single Family Home	
Treatment Plant	$44,453	51%	$22,851	
Collection/Distribution System	$28,607	51%	$14,705	
Subtotal Construction	$73,060	51%	$37,556	
Design/CM/Engineering Services	$35,727	51%	$18,365	
Bond Reserve	$10,672	51%	$5,486	
Capitalized Interest	$9,171	51%	$4,715	
Bond Issuance Costs	$2,184	51%	$1,122	
Assessment District Formation	$208	51%	$107	
Total	**$131,021**	**51%**	**$67,351**	

[16] Excludes on-site connection to the wastewater treatment system, disposition of existing private wastewater treatment system.
[17] Excludes annual Phase I assessment district administrative costs.

Order of Magnitude Assessment Calculation for a Phase II Condominium

Component	Phase I Estate Home [18,19]	Phase II to Phase I Ratio	Phase II Condominium	
Treatment Plant	$44,453	28%	$12,487	
Collection/Distribution System	$28,607	28%	$8,036	
Subtotal Construction	$73,060	28%	$20,523	
Design/CM/Engineering Services	$35,727	28%	$10,036	
Bond Reserve	$10,672	28%	$2,998	
Capitalized Interest	$9,171	28%	$2,576	
Bond Issuance Costs	$2,184	28%	$613	
Assessment District Formation	$208	28%	$58	
Total	**$131,021**	**28%**	**$36,804**	

[18] Excludes on-site connection to the wastewater treatment system, disposition of existing private wastewater treatment system.
[19] Excludes annual Phase I assessment district administrative costs.

Summary of Order of Magnitude Phase II Assessments

Land Use	Assessment Lien	Annual Assessment Installment[20]	Annual Operation & Maintenance	Total Monthly Payment
Phase II Estate Home	$131,021	$10,672	$2,906	$1,131
Phase II Single Family Home	$67,351	$5,486	$1,494	$581
Phase II Condominium	$36,804	$2,998	$816	$318

[20] Excludes annual Phase I assessment district administrative costs.

PAYMENT OF ASSESSMENTS

- Phase I assessments may be paid in cash 30 days following establishment of the Phase I assessment district[21]

- If not paid in cash, Phase I assessments will be financed by the issuance of bonds
  - 30 year term
  - Interest subject to market conditions (currently 7.00%)

[21] Assessments paid in cash will be less bond reserve , capitalized interest, and bond issuance costs.

ATTACHMENT NO. 8

Memorandum

RMC Water and Environment

City of Malibu Civic Center Wastewater Treatment Facility Project

Subject: **Annual Self-Monitoring Report for NPDES No. CAG994005, CI-9778**

Prepared For: Los Angeles Regional Water Quality Control Board

Prepared by: Leslie Dumas, P.E.

Date: July 7, 2014

1 Introduction

The City of Malibu (City) conducted a field program to gather information and data to be used in the design of a centralized wastewater collection and treatment system that includes a percolation and groundwater injection system in the Winter Canyon and Civic Center areas of the Malibu Valley Groundwater Basin. The field program was conducted to support development of the Civic Center Wastewater Treatment Facility (CCWWTF) project, which itself is being conducted in response to Los Angeles Regional Water Quality Control Board (LARWQCB) Resolution R4-2009-007 (November 2009), prohibiting new onsite wastewater disposal systems (OWDS) and OWDS discharges in the Malibu Civic Center Area; State Water Resources Control Board (SWRCB) Resolution 2010-0045, which approved the amendment and established a phased schedule for compliance; and the August 2011 Memorandum of Understanding (MOU), signed by both the City of Malibu (City) and the LARWQCB memorializing the requirements of the resolutions and defining the Prohibition Zone areas.

2 Field Program Summary

As part of the CCWTF project field program, three existing test wells (MCWP-MW01, -MW02 and –MW03) were tested (pumped) to determine current specific well capacity. If a drop-off in specific capacity was observed, the well was then redeveloped and retested (re-pumped). All pumped waters were treated using a portable water treatment system designed for the project. Treated waters were then discharged to a designed storm drain location, based on test well site, as designated under permits NPDES Permit CAG994005, CI-9778 and CI-9779. The portable treatment system was designed by, and is maintained by, Pure Effects, Inc. of Fullerton, CA. System maintenance includes periodic monitoring and change-out of treatment resins and bag filters, as needed.

Following completion of the specific capacity testing/redevelopment phase, an injection testing program was then conducted at each test well site under Order No. 2012-0010-DWQ, CI-9949. Potable water obtained from Los Angeles Water Works District 29 was used as injectate during the testing, and backwash water was treated onsite using the afore-mentioned potable treatment system and discharged under the aforementioned permits.

This memorandum summarizes groundwater extractions from the test well located on Malibu Road and associated discharges from the portable treatment system that that occurred during the field program conducted in 2013.

3 Summary of Discharges

During 2013, the following activities were conducted in the field that required the the treatment and discharge of extracted groundwaters from well MCWP-MW03:

- Treatment system setup and pre-discharge sampling at MCWP-MW03 – June 21, 2013
- Well pre-development specific capacity testing – July 1, 2013
- Well redevelopment and retesting – July 2, 2013
- Installation of injection test plumbing and pump testing – July 3, 2013
- Installation and certification of backflow prevention device – July 5, 2013
- Pre-injection specific capacity testing; Hydrant flushing – July 8, 2013
- Installation and testing of injection equipment – July 9, 2013
- Variable rate injection test followed by backflushing – July 10, 2013
- 24-hr injection test followed by backflushing – July 11 - 12, 2013
- 7-day injection test followed by backflushing – July 15 - 22, 2013
- Replacement of resin and granular activated carbon filter; Water retreated and analyzed for discharge – July 24, 2013
- 7-day aquifer recovery period (i.e., no pumping or injection) – July 22 - 28, 2013
- 72 hour pumping test; Post-injection specific capacity testing – July 29 - August 1, 2013

Tables 1 and 2 summarize the volume of water treated and discharged in 2013.

4 Laboratory Analyses

All laboratory analyses were conducted by Test America Laboratories, Inc. (ELAP certification number 2706 and NELAP certification number 01108CA) and Aquatic Testing Laboratories (ELAP certification number 1775). All analyses were conducted at analytical laboratories certified for such analyses by the Department of Public Health or approved by the Executive Officer and in accordance with current U.S. Environmental Protection Agency (EPA) guideline procedures or as specified in the aforementioned Monitoring Program.

All analytical reports for samples collected in association with this permit are included as an attachment to this memorandum. Table 3 summarizes the water quality data collected for this permit in 2013.

5 Summary of Non-Compliance

Groundwater extracted from well MCWP-MW03 was treated and held prior to receipt of analytical results and clearance for discharge. Preliminary treatment samples collected on June 20th indicated that treated effluent did not meet discharge limitations for total dissolved solids (TDS) and sulfate (which are at higher concentrations in groundwater from MCWP-MW03 than from the other two test wells). Flows through the treatment system were then adjusted, and the groundwater from MCWP-MW03 treated and retested on June 27th. TDS and sulfate concentrations in the treated effluent did meet the discharge limitations, and the treated effluent was discharged to the prescribed discharge location.

Additionally, due to a sample collection error, pre-injection testing samples collected on July 8th for treated effluent were not analyzed for pH and oil and grease. Finally, laboratory results indicated that treated effluent did not meet discharge limitations for total dissolved solids (TDS) and sulfate (which are at higher concentrations in groundwater from MCWP-MW03 than from the other two test wells).

Following confirm of treatment system breakthrough, the treatment system was adjusted by replacing the treatment resin and granular activated carbon (GAC) in the treatment train. Groundwater from MCWP-MW03 was then treated and retested on July 31st. TDS and sulfate concentrations in the treated effluent post-system maintenance did meet the discharge limitations, and the treated effluent was discharged to the prescribed discharge location.

6 Mitigation/Remedial Actions

Flows through the portable treatment system were modified (resin and GAC units replaced) and treated effluent retested to demonstrate compliance with discharge limitations prior to release at the prescribed discharge location.

7 Certification Statement

I certify under penalty of law that this document, including all attachments and supplemental information, was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and completed. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

Executed on the 7th day of July, 2014 at 10:00 AM.

Robert L. Brager

Signature

Public Works Director

Title

Table 1: Summary of Discharges – All Wells

Date/Time	Totalizer (100 gallons)	Volume (gallons)
6/7/2013	793424	
6/7/2013	793582	15,800
6/7/2013	793791	20,900
6/7/2013	793934	14,300
6/7/2013	794173	23,900
7/1/13 9:30	794427	23,400
7/3/13 15:00	794661	2,900
7/8/13 9:00	794690	43,100
7/10/13 17:05	795121	2,300
7/10/13 17:30	795144	--
7/12/13 10:20	795144	6,800
7/29/13 9:00	795212	200,000
7/30/13 9:30	797212	223,100
7/31/13 9:30	799443	221,700
8/1/13 9:30	801660	--
8/5/13 9:25	801716	1,500
8/6/13 10:00	801731	20,600
8/7/13 8:40	801937	12,300
8/8/13 9:45	802060	2,400
8/9/13 10:50	802084	--
8/12/13 10:45	802084	--
8/19/13 18:30	802084	2,500
8/19/13 18:50	802109	--
8/26/13 8:50	802109	12,300
8/26/13 11:00	802232	--
8/28/13 10:15	802271	1,700
8/28/13 11:25	802288	--
8/29/13 10:45	802288	13,700
8/30/13 13:10	802425	9,800
8/30/13 17:30	802523	2,500
9/3/13 16:50	802548	2,600
9/5/13 11:20	802574	--

Date/Time	Totalizer (100 gallons)	Volume (gallons)
9/13 /13 13:30	802580	--
9/19/13 11:00	802580	--
9/19/13 14:50	802761	18,100
9/20/13 11:40	802874	11,300

Table 2: Summary of Discharges – MCWP-MW03

Activity	Date(s)	Discharge (gallons)
Pre-discharge testing of treatment system at MCWP-MW03	June 21, 2013 – June 30, 2013	0
Well redevelopment and retesting	July 2, 2013	23,400
Installation of injection test plumbing and pump testing	July 3, 2013	2,900
Installation and certification of backflow prevention device	July 5, 2013	0
Pre-injection specific capacity testing; Hydrant flushing	July 8, 2013	43,100
Installation and testing of injection equipment	July 9, 2013	0
Variable rate injection test; Backflushing	July 10, 2013	2,300
24-hr injection test; Backflushing	July 11-12, 2013	6,800
7-day injection test; Backflushing*	July 15- 22, 2013	0
Replacement of resin and granular activated carbon filter; Water retreated and analyzed for discharge.	July 24, 2013	0
7-day aquifer recovery period (i.e., no pumping or injection)	July 22-28, 2013	0
72 hour pumping test; Post-injection specific capacity testing.	July 29 - August 1, 2013	644,800

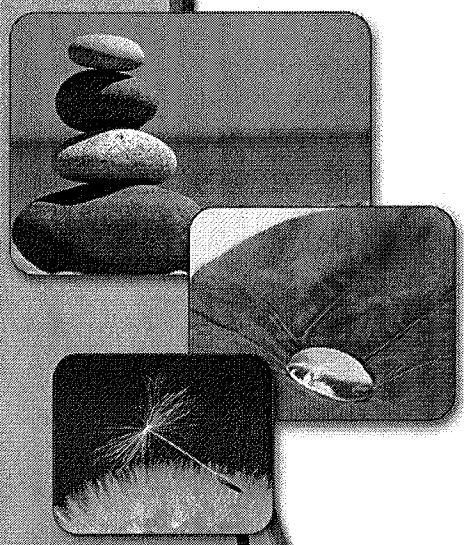
Table 3: Water Quality Testing Results

Constituent	Effluent Discharge Limit*	Unit	Pre-Injection Well Capacity Testing		Post-Injection Well Capacity Testing	
			Sampling Event Date	Results	Sampling Event Date	Results
Temperature+	--	°C	6/20/2013	20.5		
pH+	--	unitless	6/20/2013	7.2		
Total Suspended Solids	150	mg/L	6/20/2013	<10		
Turbidity	150	NTU	6/20/2013	0.22		
BOD_5	30	mg/L	6/20/2013	<2		
Settleable Solids	0.3	mL/L	6/20/2013	<0.1		
Residual Chlorine	0.1	mg/L	6/20/2013	<0.1		
Total Dissolved Solids	2,000	mg/L	6/20/2013	2,100		
Total Dissolved Solids	2,000	mg/L	6/27/2013	320		
Sulfate	500	mg/L	6/20/2013	650		
Sulfate	500	mg/L	6/27/2013	5.4		
Chloride	500	mg/L	6/20/2013	320		
Boron	2	mg/L	6/20/2013	0.62		
Nitrate-N + Nitrite-N	10	mg/L	6/20/2013	0.99		
Copper	1,000	g/L	6/20/2013	<10		
Lead	50	g/L	6/20/2013	<5		
Total Chromium	50	g/L	6/20/2013	<5		
1,1 Dichloroethane	5	g/L	6/20/2013	<2		
1,1 Dichloroethylene	6	g/L	6/20/2013	<5		
1,1,1 Trichloroethane	200	g/L	6/20/2013	<2		
1,1,2 Trichloroethane	5	g/L	6/20/2013	<2		
1,1,2,2 Tetrachlorethane	1	g/L	6/20/2013	<2		
1,2 Dichloroethane	0.5	g/L	6/20/2013	<2		
1,2-trans Dichloroethylene	10	g/L	6/20/2013	<2		
Tetrachloroethylene	5	g/L	6/20/2013	<2		
Trichloroethylene	5	g/L	6/20/2013	<2		
Carbon Tetrachloride	0.5	g/L	6/20/2013	<5		
Vinyl Chloride	0.5	g/L	6/20/2013	<5		
Total Trihalomethanes	80	g/L	6/20/2013	<2		
Benzene	1	g/L	6/20/2013	<2		
Methy tertiary butyl ether (MTBE)	5	g/L	6/20/2013	<1		
pH+	--	unitless	7/8/2013	7.3	7/31/2013	8.4
Temperature+	--	°F	7/8/2013	21.7	7/31/2013	19.1
Total Suspended Solids	50	mg/L	7/8/2013	<1	7/31/2013	<1
Turbidity	50	NTU	7/8/2013	0.71	7/31/2013	<0.1
$BOD_5$20°C	20	mg/L	7/8/2013	<2	7/31/2013	<2
Oil and Grease	--	mg/L	--	--	7/31/2013	<4.8

Constituent	Effluent Discharge Limit*	Unit	Pre-Injection Well Capacity Testing		Post-Injection Well Capacity Testing	
			Sampling Event Date	Results	Sampling Event Date	Results
Settleable Solids	0.1	mL/L	7/8/2013	<0.1	7/31/2013	<0.1
Residual Chlorine	0.1	mg/L	7/8/2013	<0.1	7/31/2013	<0.1
Total Dissolved Solids	2000	mg/L	7/8/2013	2700	7/31/2013	1100
Total Dissolved Solids	2000	mg/L	7/24/2013	180	--	--
Sulfate	500	mg/L	7/8/2013	900	7/31/2013	350
Sulfate	500	mg/L	7/24/2013	51	--	--
Chloride	500	mg/L	7/8/2013	420	7/31/2013	170
Boron	2	mg/L	7/8/2013	0.38	7/31/2013	0.24
Nitrogen (Nitrate-N + Nitrite-N)	10	mg/L	7/8/2013	<0.52	7/31/2013	0.51
Copper	1000	µg/L	7/8/2013	<10	7/31/2013	<10
Lead	50	µg/L	7/8/2013	<5	7/31/2013	<5
Total Chromium	50	µg/L	7/8/2013	<5	7/31/2013	<5
1,1-Dichloroethane	5	µg/L	7/8/2013	<2.0	7/31/2013	<2
1,1-Dichloroethylene	6	µg/L	7/8/2013	<5.0	7/31/2013	<5
1,1,1-Trichloroethane	200	µg/L	7/8/2013	<2.0	7/31/2013	<2
1,1,2-Trichloroethane	5	µg/L	7/8/2013	<2.0	7/31/2013	<2
1,1,2,2-Tetrachlorethane	1	µg/L	7/8/2013	<2.0	7/31/2013	<2
1,2-Dichloroethane	0.5	µg/L	7/8/2013	<2.0	7/31/2013	<2
1,2-trans-Dichloroethylene	10	µg/L	7/8/2013	<2.0	7/31/2013	<2
Tetrachloroethylene	5	µg/L	7/8/2013	<2.0	7/31/2013	<2
Trichloroethylene	5	µg/L	7/8/2013	<2.0	7/31/2013	<2
Carbon Tetrachloride	0.5	µg/L	7/8/2013	<5.0	7/31/2013	<5
Vinyl Chloride	0.5	µg/L	7/8/2013	<5.0	7/31/2013	<5
Total Trihalomethanes	80	µg/L	7/8/2013	<2.0	7/31/2013	<1
Benzene	1	µg/L	7/8/2013	<2.0	7/31/2013	<2
Methy tertiary butyl ether (MTBE)	5	µg/L	7/8/2013	<1.0	7/31/2013	<1
Acute Toxicity	--	% survival	--	--	7/31/2013	100%

* Daily Maximum Effluent Limit as set forth in permit.
+ Field measurement

Analytical Laboratory Reports



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-50981-1
TestAmerica Sample Delivery Group: MW03
Client Project/Site: Malibu - Well Installation

For:
RMC Water and Environment
2001 N. Main Street
Suite 400
Walnut Creek, California 94596

Attn: Leslie Dumas

Authorized for release by:
7/17/2013 10:02:27 AM

Janice Hsu, Project Manager I
janice.hsu@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-50981-1
SDG: MW03

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-50981-1	MCWP-MW03 (Treated)	Water	07/08/13 10:45	07/08/13 15:50

Case Narrative

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-50981-1
SDG: MW03

Job ID: 440-50981-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-50981-1

Comments
No additional comments.

Receipt
The sample was received on 7/8/2013 3:50 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 12.7° C.

GC/MS VOA
No analytical or quality issues were noted.

HPLC
Method(s) 300.0: The following sample(s) was diluted for nitrite due to the nature of the sample matrix: MCWP-MW03 (Treated) (440-50981-1). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry
Method(s) 1664A: Insufficient sample volume was available to perform batch matrix spike/matrix spike duplicate (MS/MSD) associated with batch 116802. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

No other analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-50981-1
SDG: MW03

Client Sample ID: MCWP-MW03 (Treated)
Date Collected: 07/08/13 10:45
Date Received: 07/08/13 15:50

Lab Sample ID: 440-50981-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			07/09/13 02:41	1
1,1,1-Trichloroethane	ND		2.0		ug/L			07/09/13 02:41	1
1,1,2,2-Tetrachloroethane	ND		2.0		ug/L			07/09/13 02:41	1
1,1,2-Trichloroethane	ND		2.0		ug/L			07/09/13 02:41	1
1,1-Dichloroethane	ND		2.0		ug/L			07/09/13 02:41	1
1,1-Dichlorethylene	ND		5.0		ug/L			07/09/13 02:41	1
1,1-Dichloropropene	ND		2.0		ug/L			07/09/13 02:41	1
1,2,3-Trichlorobenzene	ND		5.0		ug/L			07/09/13 02:41	1
1,2,3-Trichloropropane	ND		10		ug/L			07/09/13 02:41	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			07/09/13 02:41	1
1,2,4-Trimethylbenzene	ND		2.0		ug/L			07/09/13 02:41	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			07/09/13 02:41	1
1,2-Dichlorobenzene	ND		2.0		ug/L			07/09/13 02:41	1
1,2-Dichloroethane	ND		2.0		ug/L			07/09/13 02:41	1
1,2-Dichloropropane	ND		2.0		ug/L			07/09/13 02:41	1
1,3,5-Trimethylbenzene	ND		2.0		ug/L			07/09/13 02:41	1
1,3-Dichlorobenzene	ND		2.0		ug/L			07/09/13 02:41	1
1,3-Dichloropropane	ND		2.0		ug/L			07/09/13 02:41	1
1,4-Dichlorobenzene	ND		2.0		ug/L			07/09/13 02:41	1
2,2-Dichloropropane	ND		2.0		ug/L			07/09/13 02:41	1
2-Chlorotoluene	ND		5.0		ug/L			07/09/13 02:41	1
4-Chlorotoluene	ND		5.0		ug/L			07/09/13 02:41	1
Benzene	ND		2.0		ug/L			07/09/13 02:41	1
Bromobenzene	ND		5.0		ug/L			07/09/13 02:41	1
Bromoform	ND		5.0		ug/L			07/09/13 02:41	1
Bromomethane	ND		5.0		ug/L			07/09/13 02:41	1
Carbon tetrachloride	ND		5.0		ug/L			07/09/13 02:41	1
Chlorobenzene	ND		2.0		ug/L			07/09/13 02:41	1
Chloroethane	ND		5.0		ug/L			07/09/13 02:41	1
Chloroform	ND		2.0		ug/L			07/09/13 02:41	1
Chloromethane	ND		5.0		ug/L			07/09/13 02:41	1
cis-1,2-Dichloroethene	ND		2.0		ug/L			07/09/13 02:41	1
cis-1,3-Dichloropropene	ND		2.0		ug/L			07/09/13 02:41	1
Dibromomethane	ND		2.0		ug/L			07/09/13 02:41	1
Dichlorodifluoromethane	ND		5.0		ug/L			07/09/13 02:41	1
Ethylbenzene	ND		2.0		ug/L			07/09/13 02:41	1
Hexachlorobutadiene	ND		5.0		ug/L			07/09/13 02:41	1
Isopropylbenzene	ND		2.0		ug/L			07/09/13 02:41	1
m,p-Xylene	ND		2.0		ug/L			07/09/13 02:41	1
Methylene Chloride	ND		5.0		ug/L			07/09/13 02:41	1
Naphthalene	ND		5.0		ug/L			07/09/13 02:41	1
n-Butylbenzene	ND		5.0		ug/L			07/09/13 02:41	1
N-Propylbenzene	ND		2.0		ug/L			07/09/13 02:41	1
o-Xylene	ND		2.0		ug/L			07/09/13 02:41	1
sec-Butylbenzene	ND		5.0		ug/L			07/09/13 02:41	1
Styrene	ND		2.0		ug/L			07/09/13 02:41	1
tert-Butylbenzene	ND		5.0		ug/L			07/09/13 02:41	1
Tetrachloroethene	ND		2.0		ug/L			07/09/13 02:41	1
Toluene	ND		2.0		ug/L			07/09/13 02:41	1

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-50981-1
SDG: MW03

Client Sample ID: MCWP-MW03 (Treated)
Date Collected: 07/08/13 10:45
Date Received: 07/08/13 15:50

Lab Sample ID: 440-50981-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-trans-Dichloroethylene	ND		2.0		ug/L			07/09/13 02:41	1
trans-1,3-Dichloropropene	ND		2.0		ug/L			07/09/13 02:41	1
Trichloroethylene	ND		2.0		ug/L			07/09/13 02:41	1
Trichlorofluoromethane	ND		5.0		ug/L			07/09/13 02:41	1
Vinyl chloride	ND		5.0		ug/L			07/09/13 02:41	1
1,2-Dibromoethane (EDB)	ND		2.0		ug/L			07/09/13 02:41	1
Bromochloromethane	ND		5.0		ug/L			07/09/13 02:41	1
Bromodichloromethane	ND		2.0		ug/L			07/09/13 02:41	1
Dibromochloromethane	ND		2.0		ug/L			07/09/13 02:41	1
p-Isopropyltoluene	ND		2.0		ug/L			07/09/13 02:41	1
Methyl-t-Butyl Ether (MTBE)	ND		1.0		ug/L			07/09/13 02:41	1
Trihalomethanes, Total	ND		2.0		ug/L			07/09/13 02:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*80 - 120*		*07/09/13 02:41*	*1*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*		*07/09/13 02:41*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 120*		*07/09/13 02:41*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.52		mg/L			07/08/13 18:20	2
Chloride	**420**		50		mg/L			07/08/13 18:37	100
Nitrite as NO2	ND		1.0		mg/L			07/08/13 18:20	2
Nitrate as NO3	**1.8**		1.0		mg/L			07/08/13 18:20	2
Sulfate	**900**		50		mg/L			07/08/13 18:37	100

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.38**		0.050		mg/L		07/08/13 18:30	07/09/13 11:47	1
Chromium	ND		5.0		ug/L		07/08/13 18:30	07/09/13 11:47	1
Lead	ND		5.0		ug/L		07/08/13 18:30	07/09/13 11:47	1
Copper	ND		10		ug/L		07/08/13 18:30	07/09/13 11:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	ND		4.7		mg/L		07/11/13 06:17	07/11/13 06:23	1
Total Dissolved Solids	**2700**		20		mg/L			07/08/13 17:08	1
Total Suspended Solids	ND		1.0		mg/L			07/08/13 18:59	1
Biochemical Oxygen Demand	ND		2.0		mg/L			07/10/13 08:15	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	**0.71**		0.10		NTU			07/09/13 11:38	1
Settleable Solids	ND		0.10		mL/L/Hr			07/09/13 12:17	1
Residual Chlorine	ND	HF	0.10		mg/L			07/09/13 14:50	1

Method Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-50981-1
SDG: MW03

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2130B	Turbidity	SM	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 2540F	Solids, Settleable	SM	TAL IRV
SM 4500 Cl G	Chlorine, Residual	SM	TAL IRV
SM5210B	BOD, 5 Day	SM	TAL IRV

Protocol References:

1664A = EPA-821-98-002

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-50981-1
SDG: MW03

Client Sample ID: MCWP-MW03 (Treated)

Date Collected: 07/08/13 10:45
Date Received: 07/08/13 15:50

Lab Sample ID: 440-50981-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	116134	07/09/13 02:41	MP	TAL IRV
Total/NA	Analysis	300.0		2	1 mL		116053	07/08/13 18:20	CC	TAL IRV
Total/NA	Analysis	300.0		100	1 mL		116054	07/08/13 18:37	CC	TAL IRV
Total Recoverable	Prep	200.2			50 mL	50 mL	116176	07/08/13 18:30	ND	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			116342	07/09/13 11:47	VS	TAL IRV
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	116003	07/08/13 17:08	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	100 mL	116175	07/08/13 18:59	DK	TAL IRV
Total/NA	Analysis	SM 2130B		1		20 mL	116331	07/09/13 11:38	ST	TAL IRV
Total/NA	Analysis	SM 2540F		1	1100 mL	1100 mL	116340	07/09/13 12:17	ST	TAL IRV
Total/NA	Analysis	SM 4500 Cl G		1	10 mL	10 mL	116382	07/09/13 14:50	QPD	TAL IRV
Total/NA	Analysis	SM5210B		1		300 mL	116584	07/10/13 08:15	KYP	TAL IRV
Total/NA	Prep	1664A			1055 mL	1000 mL	116801	07/11/13 06:17	DA	TAL IRV
Total/NA	Analysis	1664A		1			116802	07/11/13 06:23	DA	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-116134/4
Matrix: Water
Analysis Batch: 116134

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			07/08/13 20:13	1
1,1,1-Trichloroethane	ND		2.0		ug/L			07/08/13 20:13	1
1,1,2,2-Tetrachloroethane	ND		2.0		ug/L			07/08/13 20:13	1
1,1,2-Trichloroethane	ND		2.0		ug/L			07/08/13 20:13	1
1,1-Dichloroethane	ND		2.0		ug/L			07/08/13 20:13	1
1,1-Dichlorethylene	ND		5.0		ug/L			07/08/13 20:13	1
1,1-Dichloropropene	ND		2.0		ug/L			07/08/13 20:13	1
1,2,3-Trichlorobenzene	ND		5.0		ug/L			07/08/13 20:13	1
1,2,3-Trichloropropane	ND		10		ug/L			07/08/13 20:13	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			07/08/13 20:13	1
1,2,4-Trimethylbenzene	ND		2.0		ug/L			07/08/13 20:13	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			07/08/13 20:13	1
1,2-Dichlorobenzene	ND		2.0		ug/L			07/08/13 20:13	1
1,2-Dichloroethane	ND		2.0		ug/L			07/08/13 20:13	1
1,2-Dichloropropane	ND		2.0		ug/L			07/08/13 20:13	1
1,3,5-Trimethylbenzene	ND		2.0		ug/L			07/08/13 20:13	1
1,3-Dichlorobenzene	ND		2.0		ug/L			07/08/13 20:13	1
1,3-Dichloropropane	ND		2.0		ug/L			07/08/13 20:13	1
1,4-Dichlorobenzene	ND		2.0		ug/L			07/08/13 20:13	1
2,2-Dichloropropane	ND		2.0		ug/L			07/08/13 20:13	1
2-Chlorotoluene	ND		5.0		ug/L			07/08/13 20:13	1
4-Chlorotoluene	ND		5.0		ug/L			07/08/13 20:13	1
Benzene	ND		2.0		ug/L			07/08/13 20:13	1
Bromobenzene	ND		5.0		ug/L			07/08/13 20:13	1
Bromoform	ND		5.0		ug/L			07/08/13 20:13	1
Bromomethane	ND		5.0		ug/L			07/08/13 20:13	1
Carbon tetrachloride	ND		5.0		ug/L			07/08/13 20:13	1
Chlorobenzene	ND		2.0		ug/L			07/08/13 20:13	1
Chloroethane	ND		5.0		ug/L			07/08/13 20:13	1
Chloroform	ND		2.0		ug/L			07/08/13 20:13	1
Chloromethane	ND		5.0		ug/L			07/08/13 20:13	1
cis-1,2-Dichloroethene	ND		2.0		ug/L			07/08/13 20:13	1
cis-1,3-Dichloropropene	ND		2.0		ug/L			07/08/13 20:13	1
Dibromomethane	ND		2.0		ug/L			07/08/13 20:13	1
Dichlorodifluoromethane	ND		5.0		ug/L			07/08/13 20:13	1
Ethylbenzene	ND		2.0		ug/L			07/08/13 20:13	1
Hexachlorobutadiene	ND		5.0		ug/L			07/08/13 20:13	1
Isopropylbenzene	ND		2.0		ug/L			07/08/13 20:13	1
m,p-Xylene	ND		2.0		ug/L			07/08/13 20:13	1
Methylene Chloride	ND		5.0		ug/L			07/08/13 20:13	1
Naphthalene	ND		5.0		ug/L			07/08/13 20:13	1
n-Butylbenzene	ND		5.0		ug/L			07/08/13 20:13	1
N-Propylbenzene	ND		2.0		ug/L			07/08/13 20:13	1
o-Xylene	ND		2.0		ug/L			07/08/13 20:13	1
sec-Butylbenzene	ND		5.0		ug/L			07/08/13 20:13	1
Styrene	ND		2.0		ug/L			07/08/13 20:13	1
tert-Butylbenzene	ND		5.0		ug/L			07/08/13 20:13	1
Tetrachloroethene	ND		2.0		ug/L			07/08/13 20:13	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-116134/4
Matrix: Water
Analysis Batch: 116134

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		2.0		ug/L			07/08/13 20:13	1
1,2-trans-Dichloroethylene	ND		2.0		ug/L			07/08/13 20:13	1
trans-1,3-Dichloropropene	ND		2.0		ug/L			07/08/13 20:13	1
Trichloroethylene	ND		2.0		ug/L			07/08/13 20:13	1
Trichlorofluoromethane	ND		5.0		ug/L			07/08/13 20:13	1
Vinyl chloride	ND		5.0		ug/L			07/08/13 20:13	1
1,2-Dibromoethane (EDB)	ND		2.0		ug/L			07/08/13 20:13	1
Bromochloromethane	ND		5.0		ug/L			07/08/13 20:13	1
Bromodichloromethane	ND		2.0		ug/L			07/08/13 20:13	1
Dibromochloromethane	ND		2.0		ug/L			07/08/13 20:13	1
p-Isopropyltoluene	ND		2.0		ug/L			07/08/13 20:13	1
Methyl-t-Butyl Ether (MTBE)	ND		1.0		ug/L			07/08/13 20:13	1
Trihalomethanes, Total	ND		2.0		ug/L			07/08/13 20:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*80 - 120*		*07/08/13 20:13*	*1*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*		*07/08/13 20:13*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*		*07/08/13 20:13*	*1*

Lab Sample ID: LCS 440-116134/5
Matrix: Water
Analysis Batch: 116134

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	25.0	25.6		ug/L		102	60 - 141
1,1,1-Trichloroethane	25.0	23.2		ug/L		93	70 - 130
1,1,2,2-Tetrachloroethane	25.0	20.5		ug/L		82	63 - 130
1,1,2-Trichloroethane	25.0	21.0		ug/L		84	70 - 130
1,1-Dichloroethane	25.0	21.8		ug/L		87	64 - 130
1,1-Dichlorethylene	25.0	23.3		ug/L		93	70 - 130
1,1-Dichloropropene	25.0	22.4		ug/L		90	70 - 130
1,2,3-Trichlorobenzene	25.0	25.2		ug/L		101	60 - 140
1,2,3-Trichloropropane	25.0	21.4		ug/L		85	63 - 130
1,2,4-Trichlorobenzene	25.0	25.1		ug/L		100	60 - 140
1,2,4-Trimethylbenzene	25.0	23.1		ug/L		92	70 - 135
1,2-Dibromo-3-Chloropropane	25.0	21.0		ug/L		84	52 - 140
1,2-Dichlorobenzene	25.0	24.0		ug/L		96	70 - 130
1,2-Dichloroethane	25.0	23.7		ug/L		95	57 - 138
1,2-Dichloropropane	25.0	21.4		ug/L		85	67 - 130
1,3,5-Trimethylbenzene	25.0	23.3		ug/L		93	70 - 136
1,3-Dichlorobenzene	25.0	24.2		ug/L		97	70 - 130
1,3-Dichloropropane	25.0	21.1		ug/L		84	70 - 130
1,4-Dichlorobenzene	25.0	23.7		ug/L		95	70 - 130
2,2-Dichloropropane	25.0	22.5		ug/L		90	68 - 141
2-Chlorotoluene	25.0	22.2		ug/L		89	70 - 130
4-Chlorotoluene	25.0	22.4		ug/L		90	70 - 130
Benzene	25.0	19.4		ug/L		78	68 - 130
Bromobenzene	25.0	26.6		ug/L		106	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-116134/5
Matrix: Water
Analysis Batch: 116134

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoform	25.0	24.7		ug/L		99	60 - 148
Bromomethane	25.0	24.3		ug/L		97	64 - 139
Carbon tetrachloride	25.0	24.8		ug/L		99	60 - 150
Chlorobenzene	25.0	23.4		ug/L		94	70 - 130
Chloroethane	25.0	24.3		ug/L		97	64 - 135
Chloroform	25.0	22.3		ug/L		89	70 - 130
Chloromethane	25.0	24.0		ug/L		96	47 - 140
cis-1,2-Dichloroethene	25.0	23.7		ug/L		95	70 - 133
cis-1,3-Dichloropropene	25.0	23.0		ug/L		92	70 - 133
Dibromomethane	25.0	23.4		ug/L		94	70 - 130
Dichlorodifluoromethane	25.0	19.0		ug/L		76	29 - 150
Ethylbenzene	25.0	22.5		ug/L		90	70 - 130
Hexachlorobutadiene	25.0	24.5		ug/L		98	10 - 150
Isopropylbenzene	25.0	23.9		ug/L		96	70 - 136
m,p-Xylene	50.0	42.9		ug/L		86	70 - 130
Methylene Chloride	25.0	21.3		ug/L		85	52 - 130
Naphthalene	25.0	23.0		ug/L		92	60 - 140
n-Butylbenzene	25.0	21.8		ug/L		87	65 - 150
N-Propylbenzene	25.0	22.9		ug/L		91	67 - 139
o-Xylene	25.0	21.2		ug/L		85	70 - 130
sec-Butylbenzene	25.0	22.4		ug/L		90	70 - 138
Styrene	25.0	22.6		ug/L		90	70 - 134
tert-Butylbenzene	25.0	24.3		ug/L		97	70 - 130
Tetrachloroethene	25.0	23.7		ug/L		95	70 - 130
Toluene	25.0	21.9		ug/L		87	70 - 130
1,2-trans-Dichloroethylene	25.0	24.0		ug/L		96	70 - 130
trans-1,3-Dichloropropene	25.0	24.1		ug/L		96	70 - 132
Trichloroethylene	25.0	24.0		ug/L		96	70 - 130
Trichlorofluoromethane	25.0	28.6		ug/L		114	60 - 150
Vinyl chloride	25.0	23.3		ug/L		93	59 - 133
1,2-Dibromoethane (EDB)	25.0	23.5		ug/L		94	70 - 130
Bromochloromethane	25.0	25.0		ug/L		100	70 - 130
Bromodichloromethane	25.0	23.2		ug/L		93	70 - 132
Dibromochloromethane	25.0	26.0		ug/L		104	69 - 145
p-Isopropyltoluene	25.0	23.5		ug/L		94	70 - 132
Methyl-t-Butyl Ether (MTBE)	25.0	22.2		ug/L		89	63 - 131

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*90*		*80 - 120*
Dibromofluoromethane (Surr)	*99*		*80 - 120*

Lab Sample ID: LCSD 440-116134/6
Matrix: Water
Analysis Batch: 116134

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	25.0	25.7		ug/L		103	60 - 141	0	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 440-116134/6
Matrix: Water
Analysis Batch: 116134

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	25.0	22.8		ug/L		91	70 - 130	2	20
1,1,2,2-Tetrachloroethane	25.0	19.1		ug/L		76	63 - 130	7	25
1,1,2-Trichloroethane	25.0	20.9		ug/L		84	70 - 130	1	20
1,1-Dichloroethane	25.0	21.6		ug/L		86	64 - 130	1	20
1,1-Dichlorethylene	25.0	22.4		ug/L		90	70 - 130	4	20
1,1-Dichloropropene	25.0	22.5		ug/L		90	70 - 130	1	20
1,2,3-Trichlorobenzene	25.0	24.3		ug/L		97	60 - 140	3	20
1,2,3-Trichloropropane	25.0	19.7		ug/L		79	63 - 130	8	20
1,2,4-Trichlorobenzene	25.0	25.4		ug/L		101	60 - 140	1	20
1,2,4-Trimethylbenzene	25.0	23.1		ug/L		92	70 - 135	0	20
1,2-Dibromo-3-Chloropropane	25.0	18.7		ug/L		75	52 - 140	12	30
1,2-Dichlorobenzene	25.0	23.6		ug/L		95	70 - 130	1	20
1,2-Dichloroethane	25.0	23.7		ug/L		95	57 - 138	0	20
1,2-Dichloropropane	25.0	21.5		ug/L		86	67 - 130	0	20
1,3,5-Trimethylbenzene	25.0	22.9		ug/L		92	70 - 136	2	20
1,3-Dichlorobenzene	25.0	24.0		ug/L		96	70 - 130	1	20
1,3-Dichloropropane	25.0	20.2		ug/L		81	70 - 130	4	20
1,4-Dichlorobenzene	25.0	23.7		ug/L		95	70 - 130	0	20
2,2-Dichloropropane	25.0	22.4		ug/L		89	68 - 141	1	25
2-Chlorotoluene	25.0	21.9		ug/L		88	70 - 130	2	20
4-Chlorotoluene	25.0	22.3		ug/L		89	70 - 130	1	20
Benzene	25.0	19.5		ug/L		78	68 - 130	1	20
Bromobenzene	25.0	26.2		ug/L		105	70 - 130	1	20
Bromoform	25.0	24.4		ug/L		98	60 - 148	1	25
Bromomethane	25.0	24.3		ug/L		97	64 - 139	0	20
Carbon tetrachloride	25.0	25.4		ug/L		101	60 - 150	2	25
Chlorobenzene	25.0	23.4		ug/L		93	70 - 130	0	20
Chloroethane	25.0	24.2		ug/L		97	64 - 135	0	20
Chloroform	25.0	21.6		ug/L		86	70 - 130	3	20
Chloromethane	25.0	23.2		ug/L		93	47 - 140	3	25
cis-1,2-Dichloroethene	25.0	23.3		ug/L		93	70 - 133	2	20
cis-1,3-Dichloropropene	25.0	23.7		ug/L		95	70 - 133	3	25
Dibromomethane	25.0	23.8		ug/L		95	70 - 130	2	20
Dichlorodifluoromethane	25.0	18.5		ug/L		74	29 - 150	3	30
Ethylbenzene	25.0	22.6		ug/L		90	70 - 130	0	20
Hexachlorobutadiene	25.0	24.2		ug/L		97	10 - 150	1	20
Isopropylbenzene	25.0	23.2		ug/L		93	70 - 136	3	20
m,p-Xylene	50.0	42.7		ug/L		85	70 - 130	0	20
Methylene Chloride	25.0	20.6		ug/L		82	52 - 130	4	20
Naphthalene	25.0	21.1		ug/L		84	60 - 140	8	25
n-Butylbenzene	25.0	22.1		ug/L		88	65 - 150	1	20
N-Propylbenzene	25.0	22.1		ug/L		88	67 - 139	3	20
o-Xylene	25.0	21.2		ug/L		85	70 - 130	0	20
sec-Butylbenzene	25.0	22.0		ug/L		88	70 - 138	2	20
Styrene	25.0	22.3		ug/L		89	70 - 134	1	20
tert-Butylbenzene	25.0	23.7		ug/L		95	70 - 130	3	20
Tetrachloroethene	25.0	23.8		ug/L		95	70 - 130	0	20
Toluene	25.0	22.0		ug/L		88	70 - 130	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 440-116134/6
Matrix: Water
Analysis Batch: 116134

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-trans-Dichloroethylene	25.0	22.8		ug/L		91	70 - 130	5	20
trans-1,3-Dichloropropene	25.0	24.7		ug/L		99	70 - 132	2	20
Trichloroethylene	25.0	23.9		ug/L		96	70 - 130	0	20
Trichlorofluoromethane	25.0	27.8		ug/L		111	60 - 150	3	20
Vinyl chloride	25.0	23.2		ug/L		93	59 - 133	0	30
1,2-Dibromoethane (EDB)	25.0	22.9		ug/L		92	70 - 130	2	20
Bromochloromethane	25.0	24.9		ug/L		99	70 - 130	1	20
Bromodichloromethane	25.0	23.2		ug/L		93	70 - 132	0	20
Dibromochloromethane	25.0	26.3		ug/L		105	69 - 145	1	20
p-Isopropyltoluene	25.0	23.0		ug/L		92	70 - 132	2	20
Methyl-t-Butyl Ether (MTBE)	25.0	21.2		ug/L		85	63 - 131	5	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*
Dibromofluoromethane (Surr)	*96*		*80 - 120*

Lab Sample ID: 440-50780-C-1 MS
Matrix: Water
Analysis Batch: 116134

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	ND		25.0	25.9		ug/L		104	60 - 149
1,1,1-Trichloroethane	ND		25.0	22.9		ug/L		92	70 - 130
1,1,2,2-Tetrachloroethane	ND		25.0	20.4		ug/L		82	63 - 130
1,1,2-Trichloroethane	ND		25.0	20.6		ug/L		82	70 - 130
1,1-Dichloroethane	ND		25.0	21.6		ug/L		86	65 - 130
1,1-Dichlorethylene	ND		25.0	25.1		ug/L		101	70 - 130
1,1-Dichloropropene	ND		25.0	22.8		ug/L		91	64 - 130
1,2,3-Trichlorobenzene	ND		25.0	23.8		ug/L		95	60 - 140
1,2,3-Trichloropropane	ND		25.0	29.1		ug/L		116	60 - 130
1,2,4-Trichlorobenzene	ND		25.0	24.8		ug/L		99	60 - 140
1,2,4-Trimethylbenzene	ND		25.0	22.9		ug/L		92	70 - 130
1,2-Dibromo-3-Chloropropane	ND		25.0	21.4		ug/L		86	48 - 140
1,2-Dichlorobenzene	ND		25.0	23.7		ug/L		95	70 - 130
1,2-Dichloroethane	ND		25.0	23.7		ug/L		95	56 - 146
1,2-Dichloropropane	ND		25.0	20.9		ug/L		84	69 - 130
1,3,5-Trimethylbenzene	ND		25.0	23.1		ug/L		92	70 - 130
1,3-Dichlorobenzene	ND		25.0	24.1		ug/L		97	70 - 130
1,3-Dichloropropane	ND		25.0	21.0		ug/L		84	70 - 130
1,4-Dichlorobenzene	ND		25.0	23.8		ug/L		95	70 - 130
2,2-Dichloropropane	ND		25.0	22.7		ug/L		91	69 - 138
2-Chlorotoluene	ND		25.0	22.3		ug/L		89	70 - 130
4-Chlorotoluene	ND		25.0	22.8		ug/L		91	70 - 130
Benzene	ND		25.0	19.3		ug/L		77	66 - 130
Bromobenzene	ND		25.0	26.2		ug/L		105	70 - 130
Bromoform	ND		25.0	24.7		ug/L		99	59 - 150
Bromomethane	ND		25.0	22.8		ug/L		91	62 - 131

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-50780-C-1 MS
Matrix: Water
Analysis Batch: 116134

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon tetrachloride	ND		25.0	26.0		ug/L		104	60 - 150
Chlorobenzene	ND		25.0	23.2		ug/L		93	70 - 130
Chloroethane	ND		25.0	23.1		ug/L		93	68 - 130
Chloroform	ND		25.0	21.5		ug/L		86	70 - 130
Chloromethane	ND		25.0	23.4		ug/L		94	39 - 144
cis-1,2-Dichloroethene	ND		25.0	22.7		ug/L		91	70 - 130
cis-1,3-Dichloropropene	ND		25.0	22.8		ug/L		91	70 - 133
Dibromomethane	ND		25.0	23.2		ug/L		93	70 - 130
Dichlorodifluoromethane	ND		25.0	19.0		ug/L		76	25 - 142
Ethylbenzene	ND		25.0	22.8		ug/L		91	70 - 130
Hexachlorobutadiene	ND		25.0	23.4		ug/L		94	10 - 150
Isopropylbenzene	ND		25.0	24.1		ug/L		96	70 - 132
m,p-Xylene	ND		50.0	44.1		ug/L		86	70 - 133
Methylene Chloride	ND		25.0	20.3		ug/L		81	52 - 130
Naphthalene	ND		25.0	22.2		ug/L		89	60 - 140
n-Butylbenzene	ND		25.0	22.1		ug/L		88	61 - 149
N-Propylbenzene	ND		25.0	23.1		ug/L		92	66 - 135
o-Xylene	ND		25.0	21.7		ug/L		85	70 - 133
sec-Butylbenzene	ND		25.0	22.4		ug/L		90	67 - 134
Styrene	ND		25.0	21.2		ug/L		85	29 - 150
tert-Butylbenzene	ND		25.0	24.0		ug/L		96	70 - 130
Tetrachloroethene	ND		25.0	24.6		ug/L		98	70 - 137
Toluene	ND		25.0	22.3		ug/L		86	70 - 130
1,2-trans-Dichloroethylene	ND		25.0	23.6		ug/L		94	70 - 130
trans-1,3-Dichloropropene	ND		25.0	23.8		ug/L		95	70 - 138
Trichloroethylene	ND		25.0	23.3		ug/L		93	70 - 130
Trichlorofluoromethane	ND		25.0	28.3		ug/L		113	60 - 150
Vinyl chloride	ND		25.0	19.0		ug/L		76	50 - 137
1,2-Dibromoethane (EDB)	ND		25.0	23.6		ug/L		94	70 - 131
Bromochloromethane	ND		25.0	24.1		ug/L		97	70 - 130
Bromodichloromethane	ND		25.0	23.0		ug/L		92	70 - 138
Dibromochloromethane	ND		25.0	26.3		ug/L		105	70 - 148
p-Isopropyltoluene	ND		25.0	23.4		ug/L		93	70 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	21.5		ug/L		86	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*95*		*80 - 120*
4-Bromofluorobenzene (Surr)	*91*		*80 - 120*
Dibromofluoromethane (Surr)	*95*		*80 - 120*

Lab Sample ID: 440-50780-C-1 MSD
Matrix: Water
Analysis Batch: 116134

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	ND		25.0	26.3		ug/L		105	60 - 149	2	20
1,1,1-Trichloroethane	ND		25.0	23.6		ug/L		94	70 - 130	3	20
1,1,2,2-Tetrachloroethane	ND		25.0	20.3		ug/L		81	63 - 130	0	30

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-50780-C-1 MSD
Matrix: Water
Analysis Batch: 116134

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,2-Trichloroethane	ND		25.0	20.5		ug/L		82	70 - 130	1	25
1,1-Dichloroethane	ND		25.0	21.7		ug/L		87	65 - 130	1	20
1,1-Dichlorethylene	ND		25.0	25.9		ug/L		103	70 - 130	3	20
1,1-Dichloropropene	ND		25.0	22.9		ug/L		92	64 - 130	0	20
1,2,3-Trichlorobenzene	ND		25.0	24.3		ug/L		97	60 - 140	2	20
1,2,3-Trichloropropane	ND		25.0	28.5		ug/L		114	60 - 130	2	30
1,2,4-Trichlorobenzene	ND		25.0	25.1		ug/L		101	60 - 140	1	20
1,2,4-Trimethylbenzene	ND		25.0	23.4		ug/L		93	70 - 130	2	25
1,2-Dibromo-3-Chloropropane	ND		25.0	20.4		ug/L		81	48 - 140	5	30
1,2-Dichlorobenzene	ND		25.0	23.7		ug/L		95	70 - 130	0	20
1,2-Dichloroethane	ND		25.0	23.9		ug/L		96	56 - 146	1	20
1,2-Dichloropropane	ND		25.0	20.9		ug/L		83	69 - 130	0	20
1,3,5-Trimethylbenzene	ND		25.0	23.3		ug/L		93	70 - 130	1	20
1,3-Dichlorobenzene	ND		25.0	24.4		ug/L		97	70 - 130	1	20
1,3-Dichloropropane	ND		25.0	20.8		ug/L		83	70 - 130	1	25
1,4-Dichlorobenzene	ND		25.0	23.7		ug/L		95	70 - 130	1	20
2,2-Dichloropropane	ND		25.0	22.5		ug/L		90	69 - 138	1	25
2-Chlorotoluene	ND		25.0	22.6		ug/L		90	70 - 130	1	20
4-Chlorotoluene	ND		25.0	23.2		ug/L		93	70 - 130	1	20
Benzene	ND		25.0	19.8		ug/L		79	66 - 130	2	20
Bromobenzene	ND		25.0	26.5		ug/L		106	70 - 130	1	20
Bromoform	ND		25.0	25.8		ug/L		103	59 - 150	4	25
Bromomethane	ND		25.0	23.2		ug/L		93	62 - 131	2	25
Carbon tetrachloride	ND		25.0	25.9		ug/L		103	60 - 150	1	25
Chlorobenzene	ND		25.0	23.5		ug/L		94	70 - 130	1	20
Chloroethane	ND		25.0	22.9		ug/L		92	68 - 130	1	25
Chloroform	ND		25.0	21.8		ug/L		87	70 - 130	1	20
Chloromethane	ND		25.0	23.9		ug/L		96	39 - 144	2	25
cis-1,2-Dichloroethene	ND		25.0	23.2		ug/L		93	70 - 130	2	20
cis-1,3-Dichloropropene	ND		25.0	23.1		ug/L		93	70 - 133	1	20
Dibromomethane	ND		25.0	23.3		ug/L		93	70 - 130	1	25
Dichlorodifluoromethane	ND		25.0	18.7		ug/L		75	25 - 142	2	30
Ethylbenzene	ND		25.0	23.2		ug/L		93	70 - 130	2	20
Hexachlorobutadiene	ND		25.0	23.7		ug/L		95	10 - 150	1	20
Isopropylbenzene	ND		25.0	24.2		ug/L		97	70 - 132	0	20
m,p-Xylene	ND		50.0	45.2		ug/L		89	70 - 133	2	25
Methylene Chloride	ND		25.0	20.6		ug/L		82	52 - 130	1	20
Naphthalene	ND		25.0	22.3		ug/L		89	60 - 140	0	30
n-Butylbenzene	ND		25.0	22.6		ug/L		90	61 - 149	2	20
N-Propylbenzene	ND		25.0	23.1		ug/L		93	66 - 135	0	20
o-Xylene	ND		25.0	22.1		ug/L		87	70 - 133	2	20
sec-Butylbenzene	ND		25.0	22.5		ug/L		90	67 - 134	1	20
Styrene	ND		25.0	22.2		ug/L		89	29 - 150	5	30
tert-Butylbenzene	ND		25.0	24.4		ug/L		97	70 - 130	2	20
Tetrachloroethene	ND		25.0	24.8		ug/L		99	70 - 137	1	20
Toluene	ND		25.0	22.5		ug/L		87	70 - 130	1	20
1,2-trans-Dichloroethylene	ND		25.0	23.5		ug/L		94	70 - 130	1	20
trans-1,3-Dichloropropene	ND		25.0	24.1		ug/L		97	70 - 138	1	25

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-50780-C-1 MSD
Matrix: Water
Analysis Batch: 116134

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Trichloroethylene	ND		25.0	23.6		ug/L		94	70 - 130	1	20
Trichlorofluoromethane	ND		25.0	28.4		ug/L		114	60 - 150	0	25
Vinyl chloride	ND		25.0	19.7		ug/L		79	50 - 137	3	30
1,2-Dibromoethane (EDB)	ND		25.0	23.6		ug/L		94	70 - 131	0	25
Bromochloromethane	ND		25.0	24.2		ug/L		97	70 - 130	0	25
Bromodichloromethane	ND		25.0	23.3		ug/L		93	70 - 138	1	20
Dibromochloromethane	ND		25.0	26.5		ug/L		106	70 - 148	1	25
p-Isopropyltoluene	ND		25.0	23.6		ug/L		94	70 - 130	1	20
Methyl-t-Butyl Ether (MTBE)	ND		25.0	21.4		ug/L		85	70 - 130	0	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*95*		*80 - 120*
4-Bromofluorobenzene (Surr)	*91*		*80 - 120*
Dibromofluoromethane (Surr)	*95*		*80 - 120*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-116053/4
Matrix: Water
Analysis Batch: 116053

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.26		mg/L			07/08/13 13:57	1
Nitrite as NO2	ND		0.50		mg/L			07/08/13 13:57	1
Nitrate as NO3	ND		0.50		mg/L			07/08/13 13:57	1

Lab Sample ID: LCS 440-116053/2
Matrix: Water
Analysis Batch: 116053

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as NO2	5.00	5.12		mg/L		102	90 - 110
Nitrate as NO3	5.00	4.83		mg/L		97	90 - 110

Lab Sample ID: 440-50888-J-1 MS
Matrix: Water
Analysis Batch: 116053

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as NO2	ND		50.0	54.2		mg/L		108	80 - 120
Nitrate as NO3	ND		50.0	50.0		mg/L		100	80 - 120

Lab Sample ID: 440-50888-J-1 MSD
Matrix: Water
Analysis Batch: 116053

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as NO2	ND		50.0	55.7		mg/L		111	80 - 120	3	20

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 440-50888-J-1 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116053

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as NO3	ND		50.0	52.1		mg/L		104	80 - 120	4	20

Lab Sample ID: MB 440-116054/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116054

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			07/08/13 13:57	1
Sulfate	ND		0.50		mg/L			07/08/13 13:57	1

Lab Sample ID: LCS 440-116054/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116054

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.92		mg/L		98	90 - 110
Sulfate	10.0	9.93		mg/L		99	90 - 110

Lab Sample ID: 440-50888-J-1 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116054

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	160		50.0	202		mg/L		85	80 - 120
Sulfate	210		100	309		mg/L		94	80 - 120

Lab Sample ID: 440-50888-J-1 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116054

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	160		50.0	206		mg/L		93	80 - 120	2	20
Sulfate	210		100	314		mg/L		99	80 - 120	2	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-116176/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 116342 — **Prep Batch: 116176**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.050		mg/L		07/08/13 18:30	07/09/13 11:33	1
Chromium	ND		5.0		ug/L		07/08/13 18:30	07/09/13 11:33	1
Lead	ND		5.0		ug/L		07/08/13 18:30	07/09/13 11:33	1
Copper	ND		10		ug/L		07/08/13 18:30	07/09/13 11:33	1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 440-116176/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 116342 — **Prep Batch: 116176**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.500	0.473		mg/L		95	85 - 115
Chromium	500	477		ug/L		95	85 - 115
Lead	500	480		ug/L		96	85 - 115
Copper	500	481		ug/L		96	85 - 115

Lab Sample ID: 440-50981-E-1-B MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 116342 — **Prep Batch: 116176**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.38		0.500	0.901		mg/L		103	70 - 130
Chromium	ND		500	466		ug/L		93	70 - 130
Lead	ND		500	457		ug/L		91	70 - 130
Copper	ND		500	481		ug/L		96	70 - 130

Lab Sample ID: 440-50981-E-1-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 116342 — **Prep Batch: 116176**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.38		0.500	0.877		mg/L		99	70 - 130	3	20
Chromium	ND		500	459		ug/L		92	70 - 130	1	20
Lead	ND		500	449		ug/L		90	70 - 130	2	20
Copper	ND		500	465		ug/L		93	70 - 130	3	20

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-116801/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116802 — **Prep Batch: 116801**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	ND		5.0		mg/L		07/11/13 06:17	07/11/13 06:23	1

Lab Sample ID: LCS 440-116801/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116802 — **Prep Batch: 116801**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM	20.0	18.3		mg/L		92	78 - 114

Lab Sample ID: LCSD 440-116801/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116802 — **Prep Batch: 116801**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM	20.0	17.4		mg/L		87	78 - 114	5	11

Method: SM 2130B - Turbidity

Lab Sample ID: MB 440-116331/5
Matrix: Water
Analysis Batch: 116331

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.10		NTU			07/09/13 11:38	1

Lab Sample ID: 440-50953-B-1 DU
Matrix: Water
Analysis Batch: 116331

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	0.19		0.170		NTU		11	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-116003/1
Matrix: Water
Analysis Batch: 116003

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10		mg/L			07/08/13 10:02	1

Lab Sample ID: LCS 440-116003/2
Matrix: Water
Analysis Batch: 116003

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	984		mg/L		98	90 - 110

Lab Sample ID: 440-50497-F-3 DU
Matrix: Water
Analysis Batch: 116003

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	480		484		mg/L		2	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-116175/1
Matrix: Water
Analysis Batch: 116175

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		10		mg/L			07/08/13 18:28	1

Lab Sample ID: LCS 440-116175/2
Matrix: Water
Analysis Batch: 116175

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	986		mg/L		99	85 - 115

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: 440-50898-A-1 DU
Matrix: Water
Analysis Batch: 116175

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	19		19.5		mg/L		3	10

Method: SM 4500 Cl G - Chlorine, Residual

Lab Sample ID: MB 440-116382/1
Matrix: Water
Analysis Batch: 116382

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Residual Chlorine	ND		0.10		mg/L			07/09/13 14:50	1

Lab Sample ID: 440-50954-G-1 DU
Matrix: Water
Analysis Batch: 116382

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Residual Chlorine	ND	HF	ND	HF	mg/L		NC	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-116584/1 USB
Matrix: Water
Analysis Batch: 116584

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			07/10/13 08:15	1

Lab Sample ID: LCS 440-116584/4
Matrix: Water
Analysis Batch: 116584

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	199	193		mg/L		97	85 - 115

Lab Sample ID: LCSD 440-116584/5
Matrix: Water
Analysis Batch: 116584

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand	199	198		mg/L		100	85 - 115	3	20

GC/MS VOA

Analysis Batch: 116134

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-50780-C-1 MS	Matrix Spike	Total/NA	Water	8260B	
440-50780-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
440-50981-1	MCWP-MW03 (Treated)	Total/NA	Water	8260B	
LCS 440-116134/5	Lab Control Sample	Total/NA	Water	8260B	
LCSD 440-116134/6	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 440-116134/4	Method Blank	Total/NA	Water	8260B	

HPLC/IC

Analysis Batch: 116053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-50888-J-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-50888-J-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
440-50981-1	MCWP-MW03 (Treated)	Total/NA	Water	300.0	
LCS 440-116053/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-116053/4	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 116054

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-50888-J-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-50888-J-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
440-50981-1	MCWP-MW03 (Treated)	Total/NA	Water	300.0	
LCS 440-116054/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-116054/4	Method Blank	Total/NA	Water	300.0	

Metals

Prep Batch: 116176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-50981-1	MCWP-MW03 (Treated)	Total Recoverable	Water	200.2	
440-50981-E-1-B MS	Matrix Spike	Total Recoverable	Water	200.2	
440-50981-E-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	
LCS 440-116176/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
MB 440-116176/1-A	Method Blank	Total Recoverable	Water	200.2	

Analysis Batch: 116342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-50981-1	MCWP-MW03 (Treated)	Total Recoverable	Water	200.7 Rev 4.4	116176
440-50981-E-1-B MS	Matrix Spike	Total Recoverable	Water	200.7 Rev 4.4	116176
440-50981-E-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7 Rev 4.4	116176
LCS 440-116176/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	116176
MB 440-116176/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	116176

General Chemistry

Analysis Batch: 116003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-50497-F-3 DU	Duplicate	Total/NA	Water	SM 2540C	
440-50981-1	MCWP-MW03 (Treated)	Total/NA	Water	SM 2540C	
LCS 440-116003/2	Lab Control Sample	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 116003 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-116003/1	Method Blank	Total/NA	Water	SM 2540C	

Analysis Batch: 116175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-50898-A-1 DU	Duplicate	Total/NA	Water	SM 2540D	
440-50981-1	MCWP-MW03 (Treated)	Total/NA	Water	SM 2540D	
LCS 440-116175/2	Lab Control Sample	Total/NA	Water	SM 2540D	
MB 440-116175/1	Method Blank	Total/NA	Water	SM 2540D	

Analysis Batch: 116331

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-50953-B-1 DU	Duplicate	Total/NA	Water	SM 2130B	
440-50981-1	MCWP-MW03 (Treated)	Total/NA	Water	SM 2130B	
MB 440-116331/5	Method Blank	Total/NA	Water	SM 2130B	

Analysis Batch: 116340

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-50981-1	MCWP-MW03 (Treated)	Total/NA	Water	SM 2540F	

Analysis Batch: 116382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-50954-G-1 DU	Duplicate	Total/NA	Water	SM 4500 Cl G	
440-50981-1	MCWP-MW03 (Treated)	Total/NA	Water	SM 4500 Cl G	
MB 440-116382/1	Method Blank	Total/NA	Water	SM 4500 Cl G	

Analysis Batch: 116584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-50981-1	MCWP-MW03 (Treated)	Total/NA	Water	SM5210B	
LCS 440-116584/4	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-116584/5	Lab Control Sample Dup	Total/NA	Water	SM5210B	
USB 440-116584/1 USB	Method Blank	Total/NA	Water	SM5210B	

Prep Batch: 116801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-50981-1	MCWP-MW03 (Treated)	Total/NA	Water	1664A	
LCS 440-116801/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-116801/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	
MB 440-116801/1-A	Method Blank	Total/NA	Water	1664A	

Analysis Batch: 116802

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-50981-1	MCWP-MW03 (Treated)	Total/NA	Water	1664A	116801
LCS 440-116801/2-A	Lab Control Sample	Total/NA	Water	1664A	116801
LCSD 440-116801/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	116801
MB 440-116801/1-A	Method Blank	Total/NA	Water	1664A	116801

Qualifiers

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-50981-1
SDG: MW03

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-14
Arizona	State Program	9	AZ0671	10-13-13
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-14
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-28-14 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-13
New Mexico	State Program	6	N/A	01-31-14
Northern Mariana Islands	State Program	9	MP0002	01-31-14
Oregon	NELAP	10	4005	09-12-13
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

* Expired certification is currently pending renewal and is considered valid.

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Leslie Dumas	Site Contact: Robert Marks	Date: 7/8/13	COC No:
RMC Water and Environment	Tel/Fax:	Lab Contact: Janice Hsu	Carrier:	____ of ____ COCs
2001 N. Main Street Suite 400	Analysis Turnaround Time			Job No.
Walnut Creek, CA 94596	Calendar (C) or Work Days (W) ___W___			
(925) 627-4100 Phone	TAT if different from Below __5 days_____			SDG No.
(925) 627-4101 FAX	☐ 2 weeks			
Project Name: Malibu - Well Installation	☐ 1 week			
Site: MW03	☐ 2 days			
PO#	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Preservatives	Matrix	# of Cont.	Filtered Sample	TSS	Turbidity	BOD	Settleable Solids	Residual Chlorine	Sulfate	Chloride	NO3 + NO2	TDS	Boron, Copper, Lead, Chromium	8260 VOA (include MTBE)	Oil & Grease	Sample Specific Notes:
MCWP - MW03 (Treated)	7/8/13	10:45	N/A	W	5		X	X	X	X	X	X	X	X	X				48 hours hold time for Thrbidity.
"	"	"	HNO3	W	1											X			BOD & NO3 + NO2
"	"	"	HCL	W	3												X		
"	"	"	HCL	W	1													X	

7/8/13 16:15

440-50981 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments:

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
[signature]	PWR Inc.	7/8 14:15	[signature]	SUNZ15E	07-08-13 14:15
EDWIN Jonas	SUNZ15E	7/8 15:50	Received by	Company:	Date/Time
Relinquished by	Company	Date/Time.	Received by: [signature]	Company TA	Date/Time. 7/8/13 15:50

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7/11/2013

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Login Sample Receipt Checklist

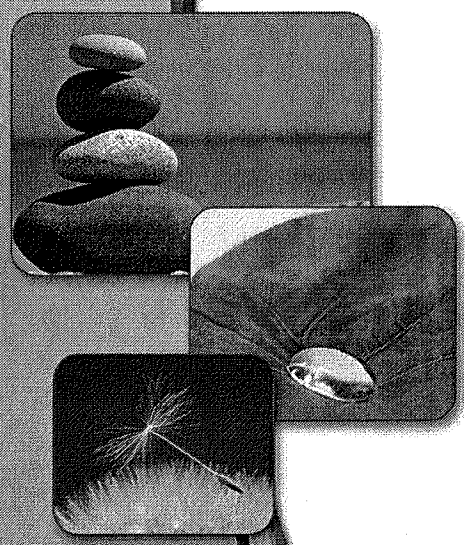
Client: RMC Water and Environment

Job Number: 440-50981-1
SDG Number: MW03

Login Number: 50981
List Number: 1
Creator: Avila, Stephanie

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	Robert Marks
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-52448-1
Client Project/Site: Malibu Test Well

For:
RMC Water and Environment
2001 N. Main Street
Suite 400
Walnut Creek, California 94596

Attn: Leslie Dumas

Authorized for release by:
7/26/2013 1:59:06 PM

Janice Hsu, Project Manager I
janice.hsu@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: RMC Water and Environment
Project/Site: Malibu Test Well

TestAmerica Job ID: 440-52448-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-52448-1	Malibu Wells	Water	07/24/13 09:00	07/24/13 11:30

Case Narrative

Client: RMC Water and Environment
Project/Site: Malibu Test Well

TestAmerica Job ID: 440-52448-1

Job ID: 440-52448-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-52448-1

Comments
No additional comments.

Receipt
The sample was received on 7/24/2013 11:30 AM; the sample arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 11.3° C.

HPLC
No analytical or quality issues were noted.

General Chemistry
No analytical or quality issues were noted.

Client Sample Results

Client: RMC Water and Environment
Project/Site: Malibu Test Well

TestAmerica Job ID: 440-52448-1

Client Sample ID: Malibu Wells
Date Collected: 07/24/13 09:00
Date Received: 07/24/13 11:30

Lab Sample ID: 440-52448-1
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	51		2.5		mg/L			07/24/13 13:13	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	180		10		mg/L			07/25/13 10:30	1

Method Summary

Client: RMC Water and Environment
Project/Site: Malibu Test Well

TestAmerica Job ID: 440-52448-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: RMC Water and Environment
Project/Site: Malibu Test Well

TestAmerica Job ID: 440-52448-1

Client Sample ID: Malibu Wells

Date Collected: 07/24/13 09:00
Date Received: 07/24/13 11:30

Lab Sample ID: 440-52448-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0	DL	5	1 mL		119650	07/24/13 13:13	NN	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	119896	07/25/13 10:30	XL	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-119650/4
Matrix: Water
Analysis Batch: 119650

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50		mg/L			07/24/13 12:08	1

Lab Sample ID: LCS 440-119650/2
Matrix: Water
Analysis Batch: 119650

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	9.52		mg/L		95	90 - 110

Method: 300.0 - Anions, Ion Chromatography - DL

Lab Sample ID: 440-52448-1 MS
Matrix: Water
Analysis Batch: 119650

Client Sample ID: Malibu Wells
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate - DL	51		10.0	62.5	4	mg/L		114	80 - 120

Lab Sample ID: 440-52448-1 MSD
Matrix: Water
Analysis Batch: 119650

Client Sample ID: Malibu Wells
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate - DL	51		10.0	61.6	4	mg/L		105	80 - 120	1	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-119896/1
Matrix: Water
Analysis Batch: 119896

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10		mg/L			07/25/13 10:30	1

Lab Sample ID: LCS 440-119896/2
Matrix: Water
Analysis Batch: 119896

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	988		mg/L		99	90 - 110

Lab Sample ID: 440-52448-1 DU
Matrix: Water
Analysis Batch: 119896

Client Sample ID: Malibu Wells
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	180		180		mg/L		2	10

QC Association Summary

Client: RMC Water and Environment
Project/Site: Malibu Test Well

TestAmerica Job ID: 440-52448-1

HPLC/IC

Analysis Batch: 119650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-52448-1 - DL	Malibu Wells	Total/NA	Water	300.0	
440-52448-1 MS - DL	Malibu Wells	Total/NA	Water	300.0	
440-52448-1 MSD - DL	Malibu Wells	Total/NA	Water	300.0	
LCS 440-119650/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-119650/4	Method Blank	Total/NA	Water	300.0	

General Chemistry

Analysis Batch: 119896

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-52448-1	Malibu Wells	Total/NA	Water	SM 2540C	
440-52448-1 DU	Malibu Wells	Total/NA	Water	SM 2540C	
LCS 440-119896/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 440-119896/1	Method Blank	Total/NA	Water	SM 2540C	

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: RMC Water and Environment
Project/Site: Malibu Test Well

TestAmerica Job ID: 440-52448-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-14
Arizona	State Program	9	AZ0671	10-13-13
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-14
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-28-14 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-13
New Mexico	State Program	6	N/A	01-31-14
Northern Mariana Islands	State Program	9	MP0002	01-31-14
Oregon	NELAP	10	4005	09-12-13
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

* Expired certification is currently pending renewal and is considered valid.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-0013 (0513)

CHAIN OF CUSTODY FORM

17461 Derian Ave., #100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297

7/26/2013

Page _____ of _____

Client Name / Address:	Project / PO Number:
RMC WATER + ENVIRO	MALIBU Test well
Project Manager: JANICE HSU	Phone Number:
Sampler: BOB MENTZ	Fax Number:

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	2540 CALCD TDS	300 ORGFM 28-D	Special Instructions
~~2540C CALCD SOLIDS~~									
~~300 ORGFM 28D~~									
MALIBU WELLS	W	PLAS 500 ml	1	7-24-13	8:00A	—	X	X	

M.S. 7/24/13 H-25 * 5 7/24/13 1:49

Page 12 of 13

440-52448 Chain of Custody

Relinquished By:	Date / Time:	Received By:	Date / Time:	Turnaround Time: (Check)	
	7-24-13 11:30 A			same day ____	72 hours ____
Relinquished By:	Date / Time:	Received By:	Date / Time:	24 hours ✓	5 days ____
				48 hours ____	normal ____
Relinquished By:	Date / Time:	Received in Lab By:	Date / Time:	Sample Integrity: (Check)	
			7/24/13 1:30	intact ✓	on ice ✓

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

1.8/1.3

Login Sample Receipt Checklist

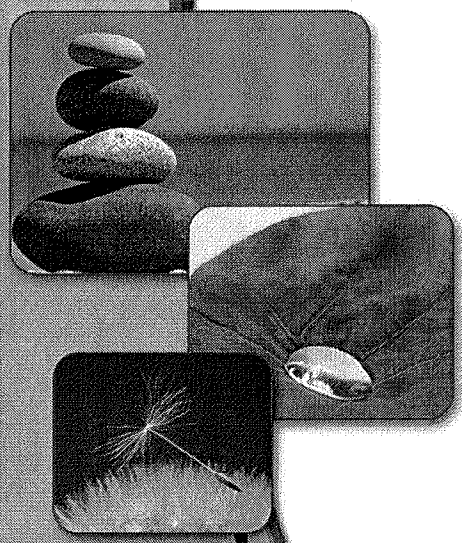
Client: RMC Water and Environment

Job Number: 440-52448-1

Login Number: 52448
List Number: 1
Creator: Sung, Hubert

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	N/A	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	False	outside of temp, received same day
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	Bob Mentz
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	



TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-53064-1
TestAmerica Sample Delivery Group: MCWP - MW03
Client Project/Site: Malibu - Well Installation

For:
RMC Water and Environment
2001 N. Main Street
Suite 400
Walnut Creek, California 94596

Attn: Leslie Dumas

Authorized for release by:
8/9/2013 3:40:11 PM

Janice Hsu, Project Manager I
janice.hsu@testamericainc.com

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Sample Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-53064-1
SDG: MCWP - MW03

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-53064-1	MCWP-MW03 Effluent	Water	07/31/13 10:00	07/31/13 18:45

Case Narrative

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-53064-1
SDG: MCWP - MW03

Job ID: 440-53064-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-53064-1

Comments
Added Topsmelt Fish test per client's request.

Receipt
The sample was received on 7/31/2013 6:45 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.6° C.

GC/MS VOA
No analytical or quality issues were noted.

HPLC
No analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry
Method(s) 1664A: Insufficient sample volume was available to perform batch matrix spike/matrix spike duplicate (MS/MSD) associated with batch 122706. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

No other analytical or quality issues were noted.

Subcontract non-Sister
No analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

Client Sample Results

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-53064-1
SDG: MCWP - MW03

Client Sample ID: MCWP-MW03 Effluent
Date Collected: 07/31/13 10:00
Date Received: 07/31/13 18:45

Lab Sample ID: 440-53064-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0	ug/L			08/01/13 11:43	1
1,1,1-Trichloroethane	ND		2.0	ug/L			08/01/13 11:43	1
1,1,2,2-Tetrachloroethane	ND		2.0	ug/L			08/01/13 11:43	1
1,1,2-Trichloroethane	ND		2.0	ug/L			08/01/13 11:43	1
1,1-Dichloroethane	ND		2.0	ug/L			08/01/13 11:43	1
1,1-Dichlorethylene	ND		5.0	ug/L			08/01/13 11:43	1
1,1-Dichloropropene	ND		2.0	ug/L			08/01/13 11:43	1
1,2,3-Trichlorobenzene	ND		5.0	ug/L			08/01/13 11:43	1
1,2,3-Trichloropropane	ND		10	ug/L			08/01/13 11:43	1
1,2,4-Trichlorobenzene	ND		5.0	ug/L			08/01/13 11:43	1
1,2,4-Trimethylbenzene	ND		2.0	ug/L			08/01/13 11:43	1
1,2-Dibromo-3-Chloropropane	ND		5.0	ug/L			08/01/13 11:43	1
1,2-Dichlorobenzene	ND		2.0	ug/L			08/01/13 11:43	1
1,2-Dichloroethane	ND		2.0	ug/L			08/01/13 11:43	1
1,2-Dichloropropane	ND		2.0	ug/L			08/01/13 11:43	1
1,3,5-Trimethylbenzene	ND		2.0	ug/L			08/01/13 11:43	1
1,3-Dichlorobenzene	ND		2.0	ug/L			08/01/13 11:43	1
1,3-Dichloropropane	ND		2.0	ug/L			08/01/13 11:43	1
1,4-Dichlorobenzene	ND		2.0	ug/L			08/01/13 11:43	1
2,2-Dichloropropane	ND		2.0	ug/L			08/01/13 11:43	1
2-Chlorotoluene	ND		5.0	ug/L			08/01/13 11:43	1
4-Chlorotoluene	ND		5.0	ug/L			08/01/13 11:43	1
Benzene	ND		2.0	ug/L			08/01/13 11:43	1
Bromobenzene	ND		5.0	ug/L			08/01/13 11:43	1
Bromoform	ND		5.0	ug/L			08/01/13 11:43	1
Bromomethane	ND		5.0	ug/L			08/01/13 11:43	1
Carbon tetrachloride	ND		5.0	ug/L			08/01/13 11:43	1
Chlorobenzene	ND		2.0	ug/L			08/01/13 11:43	1
Chloroethane	ND		5.0	ug/L			08/01/13 11:43	1
Chloroform	ND		2.0	ug/L			08/01/13 11:43	1
Chloromethane	ND		5.0	ug/L			08/01/13 11:43	1
cis-1,2-Dichloroethene	ND		2.0	ug/L			08/01/13 11:43	1
cis-1,3-Dichloropropene	ND		2.0	ug/L			08/01/13 11:43	1
Dibromomethane	ND		2.0	ug/L			08/01/13 11:43	1
Dichlorodifluoromethane	ND		5.0	ug/L			08/01/13 11:43	1
Ethylbenzene	ND		2.0	ug/L			08/01/13 11:43	1
Hexachlorobutadiene	ND		5.0	ug/L			08/01/13 11:43	1
Isopropylbenzene	ND		2.0	ug/L			08/01/13 11:43	1
m,p-Xylene	ND		2.0	ug/L			08/01/13 11:43	1
Methylene Chloride	ND		5.0	ug/L			08/01/13 11:43	1
Naphthalene	ND		5.0	ug/L			08/01/13 11:43	1
n-Butylbenzene	ND		5.0	ug/L			08/01/13 11:43	1
N-Propylbenzene	ND		2.0	ug/L			08/01/13 11:43	1
o-Xylene	ND		2.0	ug/L			08/01/13 11:43	1
sec-Butylbenzene	ND		5.0	ug/L			08/01/13 11:43	1
Styrene	ND		2.0	ug/L			08/01/13 11:43	1
tert-Butylbenzene	ND		5.0	ug/L			08/01/13 11:43	1
Tetrachloroethene	ND		2.0	ug/L			08/01/13 11:43	1
Toluene	ND		2.0	ug/L			08/01/13 11:43	1

Client Sample ID: MCWP-MW03 Effluent
Date Collected: 07/31/13 10:00
Date Received: 07/31/13 18:45

Lab Sample ID: 440-53064-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-trans-Dichloroethylene	ND		2.0	ug/L			08/01/13 11:43	1
trans-1,3-Dichloropropene	ND		2.0	ug/L			08/01/13 11:43	1
Trichloroethylene	ND		2.0	ug/L			08/01/13 11:43	1
Trichlorofluoromethane	ND		5.0	ug/L			08/01/13 11:43	1
Vinyl chloride	ND		5.0	ug/L			08/01/13 11:43	1
1,2-Dibromoethane (EDB)	ND		2.0	ug/L			08/01/13 11:43	1
Bromochloromethane	ND		5.0	ug/L			08/01/13 11:43	1
Bromodichloromethane	ND		2.0	ug/L			08/01/13 11:43	1
Dibromochloromethane	ND		2.0	ug/L			08/01/13 11:43	1
p-Isopropyltoluene	ND		2.0	ug/L			08/01/13 11:43	1
Methyl-t-Butyl Ether (MTBE)	ND		1.0	ug/L			08/01/13 11:43	1
Trihalomethanes, Total	ND		1.0	ug/L			08/01/13 11:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*80 - 120*		*08/01/13 11:43*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*08/01/13 11:43*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*08/01/13 11:43*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.51**		0.26	mg/L			07/31/13 22:51	1
Nitrite as NO2	ND		0.50	mg/L			07/31/13 22:51	1
Nitrate as NO3	**2.3**		0.50	mg/L			07/31/13 22:51	1
Chloride	**170**		10	mg/L			07/31/13 23:04	20
Sulfate	**350**		10	mg/L			07/31/13 23:04	20

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.24**		0.050	mg/L		08/01/13 08:03	08/01/13 12:37	1
Chromium	ND		5.0	ug/L		08/01/13 08:03	08/01/13 12:37	1
Lead	ND		5.0	ug/L		08/01/13 08:03	08/01/13 12:37	1
Copper	ND		10	ug/L		08/01/13 08:03	08/01/13 12:37	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**8.35**	**HF**	0.100	SU			08/08/13 13:41	1
Temperature	**25.0**	**HF**	1.00	Degrees C			08/08/13 13:41	1
HEM	ND		4.8	mg/L		08/07/13 06:24	08/07/13 06:32	1
Turbidity	ND		0.10	NTU			08/01/13 14:11	1
Total Dissolved Solids	**1100**		10	mg/L			08/01/13 00:02	1
Total Suspended Solids	ND		1.0	mg/L			07/31/13 23:53	1
Settleable Solids	ND		0.10	mL/L/Hr			08/01/13 09:48	1
Residual Chlorine	ND	HF	0.10	mg/L			08/01/13 13:27	1
Biochemical Oxygen Demand	ND		2.0	mg/L			08/01/13 10:05	1

Method Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-53064-1
SDG: MCWP - MW03

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
150.1	pH (Electrometric)	MCAWW	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2130B	Turbidity	SM	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 2540F	Solids, Settleable	SM	TAL IRV
SM 4500 Cl G	Chlorine, Residual	SM	TAL IRV
SM5210B	BOD, 5 Day	SM	TAL IRV
Topsmelt test	General Sub Contract Method	NONE	SC0127

Protocol References:

1664A = EPA-821-98-002

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

NONE = NONE

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

SC0127 = Aquatic Testing Laboratories, 4350 Transport #107, Ventura, CA 93003

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-53064-1
SDG: MCWP - MW03

Client Sample ID: MCWP-MW03 Effluent

Date Collected: 07/31/13 10:00
Date Received: 07/31/13 18:45

Lab Sample ID: 440-53064-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	121442	08/01/13 11:43	YK	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		121181	07/31/13 22:51	NN	TAL IRV
Total/NA	Analysis	300.0		20	1 mL		121182	07/31/13 23:04	NN	TAL IRV
Total Recoverable	Prep	200.2			50 mL	50 mL	121448	08/01/13 08:03	EN	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			121563	08/01/13 12:37	MP	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	121171	08/01/13 00:02	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	100 mL	121406	07/31/13 23:53	DK	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1000 mL	121486	08/01/13 09:48	NT	TAL IRV
Total/NA	Analysis	SM5210B		1		300 mL	121492	08/01/13 10:05	TAI	TAL IRV
Total/NA	Analysis	SM 4500 Cl G		1	10 mL	10 mL	121562	08/01/13 13:27	TAI	TAL IRV
Total/NA	Analysis	SM 2130B		1		20 mL	121579	08/01/13 14:11	TR	TAL IRV
Total/NA	Prep	1664A			1050 mL	1000 mL	122705	08/07/13 06:24	DA	TAL IRV
Total/NA	Analysis	1664A		1			122706	08/07/13 06:32	DA	TAL IRV
Total/NA	Analysis	150.1		1		50 mL	123139	08/08/13 13:41	TR	TAL IRV

Laboratory References:

SC0127 = Aquatic Testing Laboratories, 4350 Transport #107, Ventura, CA 93003

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-121442/5
Matrix: Water
Analysis Batch: 121442

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0	ug/L			08/01/13 10:13	1
1,1,1-Trichloroethane	ND		2.0	ug/L			08/01/13 10:13	1
1,1,2,2-Tetrachloroethane	ND		2.0	ug/L			08/01/13 10:13	1
1,1,2-Trichloroethane	ND		2.0	ug/L			08/01/13 10:13	1
1,1-Dichloroethane	ND		2.0	ug/L			08/01/13 10:13	1
1,1-Dichlorethylene	ND		5.0	ug/L			08/01/13 10:13	1
1,1-Dichloropropene	ND		2.0	ug/L			08/01/13 10:13	1
1,2,3-Trichlorobenzene	ND		5.0	ug/L			08/01/13 10:13	1
1,2,3-Trichloropropane	ND		10	ug/L			08/01/13 10:13	1
1,2,4-Trichlorobenzene	ND		5.0	ug/L			08/01/13 10:13	1
1,2,4-Trimethylbenzene	ND		2.0	ug/L			08/01/13 10:13	1
1,2-Dibromo-3-Chloropropane	ND		5.0	ug/L			08/01/13 10:13	1
1,2-Dichlorobenzene	ND		2.0	ug/L			08/01/13 10:13	1
1,2-Dichloroethane	ND		2.0	ug/L			08/01/13 10:13	1
1,2-Dichloropropane	ND		2.0	ug/L			08/01/13 10:13	1
1,3,5-Trimethylbenzene	ND		2.0	ug/L			08/01/13 10:13	1
1,3-Dichlorobenzene	ND		2.0	ug/L			08/01/13 10:13	1
1,3-Dichloropropane	ND		2.0	ug/L			08/01/13 10:13	1
1,4-Dichlorobenzene	ND		2.0	ug/L			08/01/13 10:13	1
2,2-Dichloropropane	ND		2.0	ug/L			08/01/13 10:13	1
2-Chlorotoluene	ND		5.0	ug/L			08/01/13 10:13	1
4-Chlorotoluene	ND		5.0	ug/L			08/01/13 10:13	1
Benzene	ND		2.0	ug/L			08/01/13 10:13	1
Bromobenzene	ND		5.0	ug/L			08/01/13 10:13	1
Bromoform	ND		5.0	ug/L			08/01/13 10:13	1
Bromomethane	ND		5.0	ug/L			08/01/13 10:13	1
Carbon tetrachloride	ND		5.0	ug/L			08/01/13 10:13	1
Chlorobenzene	ND		2.0	ug/L			08/01/13 10:13	1
Chloroethane	ND		5.0	ug/L			08/01/13 10:13	1
Chloroform	ND		2.0	ug/L			08/01/13 10:13	1
Chloromethane	ND		5.0	ug/L			08/01/13 10:13	1
cis-1,2-Dichloroethene	ND		2.0	ug/L			08/01/13 10:13	1
cis-1,3-Dichloropropene	ND		2.0	ug/L			08/01/13 10:13	1
Dibromomethane	ND		2.0	ug/L			08/01/13 10:13	1
Dichlorodifluoromethane	ND		5.0	ug/L			08/01/13 10:13	1
Ethylbenzene	ND		2.0	ug/L			08/01/13 10:13	1
Hexachlorobutadiene	ND		5.0	ug/L			08/01/13 10:13	1
Isopropylbenzene	ND		2.0	ug/L			08/01/13 10:13	1
m,p-Xylene	ND		2.0	ug/L			08/01/13 10:13	1
Methylene Chloride	ND		5.0	ug/L			08/01/13 10:13	1
Naphthalene	ND		5.0	ug/L			08/01/13 10:13	1
n-Butylbenzene	ND		5.0	ug/L			08/01/13 10:13	1
N-Propylbenzene	ND		2.0	ug/L			08/01/13 10:13	1
o-Xylene	ND		2.0	ug/L			08/01/13 10:13	1
sec-Butylbenzene	ND		5.0	ug/L			08/01/13 10:13	1
Styrene	ND		2.0	ug/L			08/01/13 10:13	1
tert-Butylbenzene	ND		5.0	ug/L			08/01/13 10:13	1
Tetrachloroethene	ND		2.0	ug/L			08/01/13 10:13	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-121442/5
Matrix: Water
Analysis Batch: 121442

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		2.0	ug/L			08/01/13 10:13	1
1,2-trans-Dichloroethylene	ND		2.0	ug/L			08/01/13 10:13	1
trans-1,3-Dichloropropene	ND		2.0	ug/L			08/01/13 10:13	1
Trichloroethylene	ND		2.0	ug/L			08/01/13 10:13	1
Trichlorofluoromethane	ND		5.0	ug/L			08/01/13 10:13	1
Vinyl chloride	ND		5.0	ug/L			08/01/13 10:13	1
1,2-Dibromoethane (EDB)	ND		2.0	ug/L			08/01/13 10:13	1
Bromochloromethane	ND		5.0	ug/L			08/01/13 10:13	1
Bromodichloromethane	ND		2.0	ug/L			08/01/13 10:13	1
Dibromochloromethane	ND		2.0	ug/L			08/01/13 10:13	1
p-Isopropyltoluene	ND		2.0	ug/L			08/01/13 10:13	1
Methyl-t-Butyl Ether (MTBE)	ND		1.0	ug/L			08/01/13 10:13	1
Trihalomethanes, Total	ND		1.0	ug/L			08/01/13 10:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*107*		*80 - 120*		*08/01/13 10:13*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*08/01/13 10:13*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 120*		*08/01/13 10:13*	*1*

Lab Sample ID: LCS 440-121442/6
Matrix: Water
Analysis Batch: 121442

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	25.0	23.6		ug/L		94	60 - 141
1,1,1-Trichloroethane	25.0	21.8		ug/L		87	70 - 130
1,1,2,2-Tetrachloroethane	25.0	23.0		ug/L		92	63 - 130
1,1,2-Trichloroethane	25.0	24.1		ug/L		97	70 - 130
1,1-Dichloroethane	25.0	23.3		ug/L		93	64 - 130
1,1-Dichlorethylene	25.0	24.0		ug/L		96	70 - 130
1,1-Dichloropropene	25.0	23.2		ug/L		93	70 - 130
1,2,3-Trichlorobenzene	25.0	24.2		ug/L		97	60 - 140
1,2,3-Trichloropropane	25.0	22.1		ug/L		89	63 - 130
1,2,4-Trichlorobenzene	25.0	25.0		ug/L		100	60 - 140
1,2,4-Trimethylbenzene	25.0	26.3		ug/L		105	70 - 135
1,2-Dibromo-3-Chloropropane	25.0	20.3		ug/L		81	52 - 140
1,2-Dichlorobenzene	25.0	24.4		ug/L		98	70 - 130
1,2-Dichloroethane	25.0	22.8		ug/L		91	57 - 138
1,2-Dichloropropane	25.0	23.9		ug/L		96	67 - 130
1,3,5-Trimethylbenzene	25.0	26.1		ug/L		104	70 - 136
1,3-Dichlorobenzene	25.0	24.8		ug/L		99	70 - 130
1,3-Dichloropropane	25.0	22.7		ug/L		91	70 - 130
1,4-Dichlorobenzene	25.0	23.6		ug/L		94	70 - 130
2,2-Dichloropropane	25.0	24.0		ug/L		96	68 - 141
2-Chlorotoluene	25.0	25.0		ug/L		100	70 - 130
4-Chlorotoluene	25.0	25.4		ug/L		102	70 - 130
Benzene	25.0	22.9		ug/L		92	68 - 130
Bromobenzene	25.0	26.6		ug/L		106	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-121442/6
Matrix: Water
Analysis Batch: 121442

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoform	25.0	23.0		ug/L		92	60 - 148
Bromomethane	25.0	25.6		ug/L		103	64 - 139
Carbon tetrachloride	25.0	21.7		ug/L		87	60 - 150
Chlorobenzene	25.0	22.9		ug/L		92	70 - 130
Chloroethane	25.0	24.3		ug/L		97	64 - 135
Chloroform	25.0	24.4		ug/L		97	70 - 130
Chloromethane	25.0	22.9		ug/L		92	47 - 140
cis-1,2-Dichloroethene	25.0	28.0		ug/L		112	70 - 133
cis-1,3-Dichloropropene	25.0	27.3		ug/L		109	70 - 133
Dibromomethane	25.0	24.1		ug/L		97	70 - 130
Dichlorodifluoromethane	25.0	19.1		ug/L		76	29 - 150
Ethylbenzene	25.0	24.3		ug/L		97	70 - 130
Hexachlorobutadiene	25.0	21.8		ug/L		87	10 - 150
Isopropylbenzene	25.0	27.3		ug/L		109	70 - 136
m,p-Xylene	50.0	49.2		ug/L		98	70 - 130
Methylene Chloride	25.0	24.2		ug/L		97	52 - 130
Naphthalene	25.0	23.8		ug/L		95	60 - 140
n-Butylbenzene	25.0	24.2		ug/L		97	65 - 150
N-Propylbenzene	25.0	25.5		ug/L		102	67 - 139
o-Xylene	25.0	25.3		ug/L		101	70 - 130
sec-Butylbenzene	25.0	24.7		ug/L		99	70 - 138
Styrene	25.0	25.7		ug/L		103	70 - 134
tert-Butylbenzene	25.0	25.7		ug/L		103	70 - 130
Tetrachloroethene	25.0	21.1		ug/L		85	70 - 130
Toluene	25.0	24.9		ug/L		100	70 - 130
1,2-trans-Dichloroethylene	25.0	25.1		ug/L		101	70 - 130
trans-1,3-Dichloropropene	25.0	27.5		ug/L		110	70 - 132
Trichloroethylene	25.0	22.5		ug/L		90	70 - 130
Trichlorofluoromethane	25.0	26.3		ug/L		105	60 - 150
Vinyl chloride	25.0	22.7		ug/L		91	59 - 133
1,2-Dibromoethane (EDB)	25.0	23.6		ug/L		94	70 - 130
Bromochloromethane	25.0	25.4		ug/L		102	70 - 130
Bromodichloromethane	25.0	25.4		ug/L		102	70 - 132
Dibromochloromethane	25.0	24.2		ug/L		97	69 - 145
p-Isopropyltoluene	25.0	23.6		ug/L		94	70 - 132
Methyl-t-Butyl Ether (MTBE)	25.0	27.9		ug/L		112	63 - 131

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*106*		*80 - 120*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*
Dibromofluoromethane (Surr)	*107*		*80 - 120*

Lab Sample ID: 440-53064-1 MS
Matrix: Water
Analysis Batch: 121442

Client Sample ID: MCWP-MW03 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	ND		25.0	23.5		ug/L		94	60 - 149

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-53064-1 MS
Matrix: Water
Analysis Batch: 121442

Client Sample ID: MCWP-MW03 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		25.0	21.7		ug/L		87	70 - 130
1,1,2,2-Tetrachloroethane	ND		25.0	22.7		ug/L		91	63 - 130
1,1,2-Trichloroethane	ND		25.0	23.9		ug/L		96	70 - 130
1,1-Dichloroethane	ND		25.0	21.8		ug/L		87	65 - 130
1,1-Dichlorethylene	ND		25.0	22.7		ug/L		91	70 - 130
1,1-Dichloropropene	ND		25.0	23.2		ug/L		93	64 - 130
1,2,3-Trichlorobenzene	ND		25.0	25.1		ug/L		100	60 - 140
1,2,3-Trichloropropane	ND		25.0	21.4		ug/L		86	60 - 130
1,2,4-Trichlorobenzene	ND		25.0	26.8		ug/L		107	60 - 140
1,2,4-Trimethylbenzene	ND		25.0	24.4		ug/L		97	70 - 130
1,2-Dibromo-3-Chloropropane	ND		25.0	20.8		ug/L		83	48 - 140
1,2-Dichlorobenzene	ND		25.0	24.5		ug/L		98	70 - 130
1,2-Dichloroethane	ND		25.0	23.2		ug/L		93	56 - 146
1,2-Dichloropropane	ND		25.0	23.7		ug/L		95	69 - 130
1,3,5-Trimethylbenzene	ND		25.0	24.8		ug/L		99	70 - 130
1,3-Dichlorobenzene	ND		25.0	24.3		ug/L		97	70 - 130
1,3-Dichloropropane	ND		25.0	22.9		ug/L		92	70 - 130
1,4-Dichlorobenzene	ND		25.0	23.6		ug/L		95	70 - 130
2,2-Dichloropropane	ND		25.0	24.6		ug/L		98	69 - 138
2-Chlorotoluene	ND		25.0	24.0		ug/L		96	70 - 130
4-Chlorotoluene	ND		25.0	24.5		ug/L		98	70 - 130
Benzene	ND		25.0	22.6		ug/L		91	66 - 130
Bromobenzene	ND		25.0	25.5		ug/L		102	70 - 130
Bromoform	ND		25.0	23.6		ug/L		94	59 - 150
Bromomethane	ND		25.0	24.2		ug/L		97	62 - 131
Carbon tetrachloride	ND		25.0	22.2		ug/L		89	60 - 150
Chlorobenzene	ND		25.0	22.5		ug/L		90	70 - 130
Chloroethane	ND		25.0	23.1		ug/L		93	68 - 130
Chloroform	ND		25.0	23.3		ug/L		93	70 - 130
Chloromethane	ND		25.0	22.2		ug/L		89	39 - 144
cis-1,2-Dichloroethene	ND		25.0	26.6		ug/L		106	70 - 130
cis-1,3-Dichloropropene	ND		25.0	26.9		ug/L		107	70 - 133
Dibromomethane	ND		25.0	24.5		ug/L		98	70 - 130
Dichlorodifluoromethane	ND		25.0	20.7		ug/L		83	25 - 142
Ethylbenzene	ND		25.0	24.1		ug/L		96	70 - 130
Hexachlorobutadiene	ND		25.0	22.7		ug/L		91	10 - 150
Isopropylbenzene	ND		25.0	26.0		ug/L		104	70 - 132
m,p-Xylene	ND		50.0	48.7		ug/L		97	70 - 133
Methylene Chloride	ND		25.0	22.7		ug/L		91	52 - 130
Naphthalene	ND		25.0	24.2		ug/L		97	60 - 140
n-Butylbenzene	ND		25.0	24.6		ug/L		98	61 - 149
N-Propylbenzene	ND		25.0	24.7		ug/L		99	66 - 135
o-Xylene	ND		25.0	25.1		ug/L		100	70 - 133
sec-Butylbenzene	ND		25.0	24.3		ug/L		97	67 - 134
Styrene	ND		25.0	21.5		ug/L		86	29 - 150
tert-Butylbenzene	ND		25.0	24.8		ug/L		99	70 - 130
Tetrachloroethene	ND		25.0	21.4		ug/L		86	70 - 137
Toluene	ND		25.0	24.8		ug/L		99	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-53064-1 MS
Matrix: Water
Analysis Batch: 121442

Client Sample ID: MCWP-MW03 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-trans-Dichloroethylene	ND		25.0	24.2		ug/L		97	70 - 130
trans-1,3-Dichloropropene	ND		25.0	27.3		ug/L		109	70 - 138
Trichloroethylene	ND		25.0	22.5		ug/L		90	70 - 130
Trichlorofluoromethane	ND		25.0	26.9		ug/L		108	60 - 150
Vinyl chloride	ND		25.0	23.3		ug/L		93	50 - 137
1,2-Dibromoethane (EDB)	ND		25.0	23.8		ug/L		95	70 - 131
Bromochloromethane	ND		25.0	24.7		ug/L		99	70 - 130
Bromodichloromethane	ND		25.0	25.8		ug/L		103	70 - 138
Dibromochloromethane	ND		25.0	24.4		ug/L		98	70 - 148
p-Isopropyltoluene	ND		25.0	23.3		ug/L		93	70 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	27.5		ug/L		110	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*105*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*80 - 120*

Lab Sample ID: 440-53064-1 MSD
Matrix: Water
Analysis Batch: 121442

Client Sample ID: MCWP-MW03 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	ND		25.0	24.1		ug/L		96	60 - 149	2	20
1,1,1-Trichloroethane	ND		25.0	22.0		ug/L		88	70 - 130	2	20
1,1,2,2-Tetrachloroethane	ND		25.0	22.8		ug/L		91	63 - 130	1	30
1,1,2-Trichloroethane	ND		25.0	23.8		ug/L		95	70 - 130	0	25
1,1-Dichloroethane	ND		25.0	22.1		ug/L		88	65 - 130	1	20
1,1-Dichlorethylene	ND		25.0	23.6		ug/L		94	70 - 130	4	20
1,1-Dichloropropene	ND		25.0	23.9		ug/L		96	64 - 130	3	20
1,2,3-Trichlorobenzene	ND		25.0	25.1		ug/L		101	60 - 140	0	20
1,2,3-Trichloropropane	ND		25.0	22.2		ug/L		89	60 - 130	3	30
1,2,4-Trichlorobenzene	ND		25.0	26.2		ug/L		105	60 - 140	2	20
1,2,4-Trimethylbenzene	ND		25.0	24.4		ug/L		97	70 - 130	0	25
1,2-Dibromo-3-Chloropropane	ND		25.0	22.5		ug/L		90	48 - 140	8	30
1,2-Dichlorobenzene	ND		25.0	24.3		ug/L		97	70 - 130	1	20
1,2-Dichloroethane	ND		25.0	22.7		ug/L		91	56 - 146	3	20
1,2-Dichloropropane	ND		25.0	23.4		ug/L		94	69 - 130	1	20
1,3,5-Trimethylbenzene	ND		25.0	24.9		ug/L		100	70 - 130	0	20
1,3-Dichlorobenzene	ND		25.0	24.0		ug/L		96	70 - 130	1	20
1,3-Dichloropropane	ND		25.0	23.7		ug/L		95	70 - 130	3	25
1,4-Dichlorobenzene	ND		25.0	23.2		ug/L		93	70 - 130	2	20
2,2-Dichloropropane	ND		25.0	24.9		ug/L		99	69 - 138	1	25
2-Chlorotoluene	ND		25.0	23.9		ug/L		96	70 - 130	0	20
4-Chlorotoluene	ND		25.0	24.4		ug/L		97	70 - 130	0	20
Benzene	ND		25.0	22.5		ug/L		90	66 - 130	1	20
Bromobenzene	ND		25.0	25.2		ug/L		101	70 - 130	1	20
Bromoform	ND		25.0	24.3		ug/L		97	59 - 150	3	25
Bromomethane	ND		25.0	24.8		ug/L		99	62 - 131	2	25

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-53064-1 MSD
Matrix: Water
Analysis Batch: 121442

Client Sample ID: MCWP-MW03 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon tetrachloride	ND		25.0	22.3		ug/L		89	60 - 150	1	25
Chlorobenzene	ND		25.0	23.2		ug/L		93	70 - 130	3	20
Chloroethane	ND		25.0	23.9		ug/L		96	68 - 130	3	25
Chloroform	ND		25.0	23.4		ug/L		94	70 - 130	0	20
Chloromethane	ND		25.0	23.6		ug/L		94	39 - 144	6	25
cis-1,2-Dichloroethene	ND		25.0	26.5		ug/L		106	70 - 130	0	20
cis-1,3-Dichloropropene	ND		25.0	26.3		ug/L		105	70 - 133	2	20
Dibromomethane	ND		25.0	24.1		ug/L		97	70 - 130	1	25
Dichlorodifluoromethane	ND		25.0	21.4		ug/L		86	25 - 142	4	30
Ethylbenzene	ND		25.0	25.0		ug/L		100	70 - 130	4	20
Hexachlorobutadiene	ND		25.0	22.7		ug/L		91	10 - 150	0	20
Isopropylbenzene	ND		25.0	26.1		ug/L		104	70 - 132	0	20
m,p-Xylene	ND		50.0	50.4		ug/L		101	70 - 133	4	25
Methylene Chloride	ND		25.0	22.7		ug/L		91	52 - 130	0	20
Naphthalene	ND		25.0	24.8		ug/L		99	60 - 140	2	30
n-Butylbenzene	ND		25.0	24.6		ug/L		99	61 - 149	0	20
N-Propylbenzene	ND		25.0	24.9		ug/L		100	66 - 135	1	20
o-Xylene	ND		25.0	25.7		ug/L		103	70 - 133	3	20
sec-Butylbenzene	ND		25.0	24.3		ug/L		97	67 - 134	0	20
Styrene	ND		25.0	22.4		ug/L		89	29 - 150	4	30
tert-Butylbenzene	ND		25.0	24.8		ug/L		99	70 - 130	0	20
Tetrachloroethene	ND		25.0	22.3		ug/L		89	70 - 137	4	20
Toluene	ND		25.0	24.6		ug/L		98	70 - 130	1	20
1,2-trans-Dichloroethylene	ND		25.0	24.6		ug/L		98	70 - 130	1	20
trans-1,3-Dichloropropene	ND		25.0	27.3		ug/L		109	70 - 138	0	25
Trichloroethylene	ND		25.0	22.4		ug/L		90	70 - 130	0	20
Trichlorofluoromethane	ND		25.0	27.6		ug/L		110	60 - 150	3	25
Vinyl chloride	ND		25.0	24.6		ug/L		99	50 - 137	6	30
1,2-Dibromoethane (EDB)	ND		25.0	24.9		ug/L		100	70 - 131	4	25
Bromochloromethane	ND		25.0	24.7		ug/L		99	70 - 130	0	25
Bromodichloromethane	ND		25.0	24.3		ug/L		97	70 - 138	6	20
Dibromochloromethane	ND		25.0	24.6		ug/L		98	70 - 148	1	25
p-Isopropyltoluene	ND		25.0	23.3		ug/L		93	70 - 130	0	20
Methyl-t-Butyl Ether (MTBE)	ND		25.0	27.8		ug/L		111	70 - 130	1	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*106*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*
Dibromofluoromethane (Surr)	*103*		*80 - 120*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-121181/4
Matrix: Water
Analysis Batch: 121181

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.26	mg/L			07/31/13 10:33	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 440-121181/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 121181

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as NO2	ND		0.50	mg/L			07/31/13 10:33	1
Nitrate as NO3	ND		0.50	mg/L			07/31/13 10:33	1

Lab Sample ID: LCS 440-121181/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 121181

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as NO2	5.00	5.29		mg/L		106	90 - 110
Nitrate as NO3	5.00	5.19		mg/L		104	90 - 110

Lab Sample ID: 440-53040-A-1 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 121181

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as NO2	ND		50.0	55.3		mg/L		111	80 - 120
Nitrate as NO3	14		50.0	58.4		mg/L		89	80 - 120

Lab Sample ID: 440-53040-A-1 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 121181

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as NO2	ND		50.0	55.5		mg/L		111	80 - 120	0	20
Nitrate as NO3	14		50.0	61.0		mg/L		94	80 - 120	4	20

Lab Sample ID: MB 440-121182/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 121182

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	mg/L			07/31/13 10:33	1
Sulfate	ND		0.50	mg/L			07/31/13 10:33	1

Lab Sample ID: LCS 440-121182/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 121182

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.85		mg/L		97	90 - 110
Sulfate	10.0	9.81		mg/L		98	90 - 110

Lab Sample ID: 440-53040-A-1 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 121182

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	160		50.0	212		mg/L		105	80 - 120
Sulfate	260		100	359		mg/L		100	80 - 120

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 440-53040-A-1 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 121182

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	160		50.0	205		mg/L		92	80 - 120	3	20
Sulfate	260		100	349		mg/L		89	80 - 120	3	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-121448/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 121563 — **Prep Batch: 121448**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.050	mg/L		08/01/13 08:03	08/01/13 12:32	1
Chromium	ND		5.0	ug/L		08/01/13 08:03	08/01/13 12:32	1
Lead	ND		5.0	ug/L		08/01/13 08:03	08/01/13 12:32	1
Copper	ND		10	ug/L		08/01/13 08:03	08/01/13 12:32	1

Lab Sample ID: LCS 440-121448/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 121563 — **Prep Batch: 121448**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.500	0.497		mg/L		99	85 - 115
Chromium	500	524		ug/L		105	85 - 115
Lead	500	524		ug/L		105	85 - 115
Copper	500	507		ug/L		101	85 - 115

Lab Sample ID: 440-53064-1 MS — **Client Sample ID: MCWP-MW03 Effluent**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 121563 — **Prep Batch: 121448**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.24		0.500	0.762		mg/L		104	70 - 130
Chromium	ND		500	500		ug/L		100	70 - 130
Lead	ND		500	487		ug/L		97	70 - 130
Copper	ND		500	519		ug/L		104	70 - 130

Lab Sample ID: 440-53064-1 MSD — **Client Sample ID: MCWP-MW03 Effluent**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 121563 — **Prep Batch: 121448**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.24		0.500	0.768		mg/L		105	70 - 130	1	20
Chromium	ND		500	501		ug/L		100	70 - 130	0	20
Lead	ND		500	491		ug/L		98	70 - 130	1	20
Copper	ND		500	521		ug/L		104	70 - 130	0	20

Method: 150.1 - pH (Electrometric)

Lab Sample ID: 440-52348-AP-1 DU
Matrix: Water
Analysis Batch: 123139

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	8.13		8.170		SU		0.5	2
Temperature	25.0		25.00		Degrees C		0	

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-122705/1-A
Matrix: Water
Analysis Batch: 122706

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 122705

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	ND		5.0	mg/L		08/07/13 06:24	08/07/13 06:32	1

Lab Sample ID: LCS 440-122705/2-A
Matrix: Water
Analysis Batch: 122706

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 122705

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM	20.0	17.8		mg/L		89	78 - 114

Lab Sample ID: LCSD 440-122705/3-A
Matrix: Water
Analysis Batch: 122706

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 122705

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM	20.0	17.2		mg/L		86	78 - 114	3	11

Method: SM 2130B - Turbidity

Lab Sample ID: MB 440-121579/5
Matrix: Water
Analysis Batch: 121579

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.10	NTU			08/01/13 14:11	1

Lab Sample ID: 440-53064-1 DU
Matrix: Water
Analysis Batch: 121579

Client Sample ID: MCWP-MW03 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	ND		ND		NTU		NC	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-121171/1
Matrix: Water
Analysis Batch: 121171

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	mg/L			07/31/13 09:16	1

Lab Sample ID: LCS 440-121171/2
Matrix: Water
Analysis Batch: 121171

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	994		mg/L		99	90 - 110

Lab Sample ID: 440-52738-D-1 DU
Matrix: Water
Analysis Batch: 121171

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1000		1030		mg/L		1	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-121406/1
Matrix: Water
Analysis Batch: 121406

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		10	mg/L			07/31/13 23:24	1

Lab Sample ID: LCS 440-121406/2
Matrix: Water
Analysis Batch: 121406

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	993		mg/L		99	85 - 115

Lab Sample ID: 440-53026-C-1 DU
Matrix: Water
Analysis Batch: 121406

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	37		37.3		mg/L		2	10

Method: SM 4500 Cl G - Chlorine, Residual

Lab Sample ID: MB 440-121562/1
Matrix: Water
Analysis Batch: 121562

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Residual Chlorine	ND		0.10	mg/L			08/01/13 13:27	1

Method: SM 4500 Cl G - Chlorine, Residual (Continued)

Lab Sample ID: 440-53064-1 DU — **Client Sample ID: MCWP-MW03 Effluent**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 121562

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Residual Chlorine	ND	HF	ND	HF	mg/L		NC	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-121492/1 USB — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 121492

Analyte	USB Result	USB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	mg/L			08/01/13 10:05	1

Lab Sample ID: LCS 440-121492/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 121492

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	199	214		mg/L		108	85 - 115

Lab Sample ID: LCSD 440-121492/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 121492

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand	199	225		mg/L		113	85 - 115	5	20

GC/MS VOA

Analysis Batch: 121442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53064-1	MCWP-MW03 Effluent	Total/NA	Water	8260B	
440-53064-1 MS	MCWP-MW03 Effluent	Total/NA	Water	8260B	
440-53064-1 MSD	MCWP-MW03 Effluent	Total/NA	Water	8260B	
LCS 440-121442/6	Lab Control Sample	Total/NA	Water	8260B	
MB 440-121442/5	Method Blank	Total/NA	Water	8260B	

HPLC/IC

Analysis Batch: 121181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53040-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-53040-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
440-53064-1	MCWP-MW03 Effluent	Total/NA	Water	300.0	
LCS 440-121181/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-121181/4	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 121182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53040-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-53040-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
440-53064-1	MCWP-MW03 Effluent	Total/NA	Water	300.0	
LCS 440-121182/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-121182/4	Method Blank	Total/NA	Water	300.0	

Metals

Prep Batch: 121448

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53064-1	MCWP-MW03 Effluent	Total Recoverable	Water	200.2	
440-53064-1 MS	MCWP-MW03 Effluent	Total Recoverable	Water	200.2	
440-53064-1 MSD	MCWP-MW03 Effluent	Total Recoverable	Water	200.2	
LCS 440-121448/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
MB 440-121448/1-A	Method Blank	Total Recoverable	Water	200.2	

Analysis Batch: 121563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53064-1	MCWP-MW03 Effluent	Total Recoverable	Water	200.7 Rev 4.4	121448
440-53064-1 MS	MCWP-MW03 Effluent	Total Recoverable	Water	200.7 Rev 4.4	121448
440-53064-1 MSD	MCWP-MW03 Effluent	Total Recoverable	Water	200.7 Rev 4.4	121448
LCS 440-121448/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	121448
MB 440-121448/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	121448

General Chemistry

Analysis Batch: 121171

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-52738-D-1 DU	Duplicate	Total/NA	Water	SM 2540C	
440-53064-1	MCWP-MW03 Effluent	Total/NA	Water	SM 2540C	
LCS 440-121171/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 440-121171/1	Method Blank	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 121406

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53026-C-1 DU	Duplicate	Total/NA	Water	SM 2540D	
440-53064-1	MCWP-MW03 Effluent	Total/NA	Water	SM 2540D	
LCS 440-121406/2	Lab Control Sample	Total/NA	Water	SM 2540D	
MB 440-121406/1	Method Blank	Total/NA	Water	SM 2540D	

Analysis Batch: 121486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53064-1	MCWP-MW03 Effluent	Total/NA	Water	SM 2540F	

Analysis Batch: 121492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53064-1	MCWP-MW03 Effluent	Total/NA	Water	SM5210B	
LCS 440-121492/4	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-121492/5	Lab Control Sample Dup	Total/NA	Water	SM5210B	
USB 440-121492/1 USB	Method Blank	Total/NA	Water	SM5210B	

Analysis Batch: 121562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53064-1	MCWP-MW03 Effluent	Total/NA	Water	SM 4500 Cl G	
440-53064-1 DU	MCWP-MW03 Effluent	Total/NA	Water	SM 4500 Cl G	
MB 440-121562/1	Method Blank	Total/NA	Water	SM 4500 Cl G	

Analysis Batch: 121579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53064-1	MCWP-MW03 Effluent	Total/NA	Water	SM 2130B	
440-53064-1 DU	MCWP-MW03 Effluent	Total/NA	Water	SM 2130B	
MB 440-121579/5	Method Blank	Total/NA	Water	SM 2130B	

Prep Batch: 122705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53064-1	MCWP-MW03 Effluent	Total/NA	Water	1664A	
LCS 440-122705/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-122705/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	
MB 440-122705/1-A	Method Blank	Total/NA	Water	1664A	

Analysis Batch: 122706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53064-1	MCWP-MW03 Effluent	Total/NA	Water	1664A	122705
LCS 440-122705/2-A	Lab Control Sample	Total/NA	Water	1664A	122705
LCSD 440-122705/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	122705
MB 440-122705/1-A	Method Blank	Total/NA	Water	1664A	122705

Analysis Batch: 123139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53064-1	MCWP-MW03 Effluent	Total/NA	Water	150.1	
440-52348-AP-1 DU	Duplicate	Total/NA	Water	150.1	

Qualifiers

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-53064-1
SDG: MCWP - MW03

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-14
Arizona	State Program	9	AZ0671	10-13-13
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-14
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-28-14 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-14
New Mexico	State Program	6	N/A	01-31-14
Northern Mariana Islands	State Program	9	MP0002	01-31-14
Oregon	NELAP	10	4005	09-12-13
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

* Expired certification is currently pending renewal and is considered valid.

LABORATORY REPORT

Aquatic Testing Laboratories
"dedicated to providing quality aquatic toxicity testing"
4350 Transport Street, Unit 107
Ventura, CA 93003
(805) 650-0546 FAX (805) 650-0756
CA DOHS ELAP Cert. No.: 1775

Date: August 5, 2013

Client: Test America – Irvine
17461 Derian Ave., Suite 100
Irvine, CA 92614
Attn: Janice Hsu

Laboratory No.: A-13080105-001
Job No.: 440-53064-1
Sample ID.: 440-53064-1

Sample Control: The sample was received by ATL in a chilled state, within the recommended hold time and with the chain of custody record attached.

Date Sampled:	07/31/13
Date Received:	08/01/13
Temp. Received:	4.2°C
Chlorine (TRC):	0.0 mg/l
Date Tested:	08/01/13 to 08/05/13

Sample Analysis: The following analyses were performed on your sample:

Topsmelt (Atherinops affinis) 96hr Percent Survival Bioassay (EPA 821-R-02-012).

Attached are the test data generated from the analysis of your sample. All testing was conducted under the direct supervision of Joseph A. LeMay. Daily test readings were taken by Joseph A. LeMay (initialed: JAL) and Jacob LeMay (initialed: J).

Result Summary:

Sample ID.	Results
440-53064-1	100% Survival (TUa = 0.0)

Quality Control: Reviewed and approved by:

Joseph A. LeMay
Laboratory Director

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of the Laboratory's name for advertising or publicity purpose without authorization is prohibited.

TOPSMELT PERCENT SURVIVAL BIOASSAY

Aquatic Testing Laboratories

Lab No.: A-13080105-001
Client/ID: TestAmerica 440-53064-1

Start Date: 08/01/2013

TEST SUMMARY

Species: *Atherinops affinis*.
Age: 12 (7-15) days.
Regulations: NPDES.
Test chamber volume: 300 ml.
Feeding: prior to renewal.
Temperature: 20 +/- 1°C.
Aeration: None, unless DO drops below 4.0 mg/l.
Dilution water: none.
QA/QC Batch No.: RT-130801.

Source: Aquatic BioSysytems.
Test type: Static-Renewal @ 48hrs.
Test Protocol: EPA-821-R-02-012.
Endpoints: Percent Survival at 96 hrs.
Test chamber: 500 ml beakers.
Number of replicates: 2.
Number of fish per chamber: 10.
Photoperiod: 16/8 hrs light/dark.

TEST DATA

		°C	DO	pH	Sal.	# Dead		Analyst & Time of Readings
						A	B	
INITIAL	Control	19.9	8.6	7.6	32	0	0	7
	100%	19.9	7.1	7.9	32	0	0	1400 8-1-13
24 Hr	Control	20.0	7.0	7.5	32	0	0	7
	100%	19.9	6.7	8.0	32	0	0	1330 8-2-13
48 Hr	Control	20.0	6.8	7.1	32	0	0	7
	100%	20.0	6.0	7.6	32	0	0	1330 8-3-13
Renewal	Control	19.9	6.9	7.2	32	0	0	7
	100%	19.8	6.7	7.6	32	0	0	1330 8-3-13
72 Hr	Control	19.8	6.7	7.3	32	0	0	7
	100%	19.8	6.6	7.6	32	0	0	1330 8-4-13
96 Hr	Control	20.2	6.7	7.4	32	0	0	
	100%	19.9	7.2	8.2	32	0	0	1400 8-5-13

Comments:

Sample as received: Chlorine: 0.0 mg/l; pH: 7.9 ; Salinity: 0 ppt; Temp: 4.2°C;
DO: 7.1 mg/l; NH_3-N: 0.3 mg/l.

Sample and Control salinity may be adjusted with artificial sea salts.

RESULTS

Percent Survival In: Control: 100 % 100% Sample: 100 %

TestAmerica Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone (949) 261-1022 Fax (949) 260-3297

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

8/9/2013

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Hsu, Janice	Carrier Tracking No(s):	COC No: 440-23840.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: janice.hsu@testamericainc.com		Page: Page 1 of 1
Company: Aquatic Testing Laboratories		**Analysis Requested**		Job #: 440-53064-1
Address: 4350 Transport #107, ,	Due Date Requested: 8/8/2013			**Preservation Codes:**
City: Ventura	TAT Requested (days):			A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2SO3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - ph 4-5 L - EDA Z - other (specify)
State, Zip: CA, 93003				
Phone:	PO #:			Other:
Email:	WO #:			
Project Name: Malibu - Well Installation	Project #: 44008618			
Site:	SSOW#:			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	SUBCONTRACT/ Topsmelt test	Total Number of containers	Special Instructions/Note:
			Preservation Code:					
MCWO-MW03 Effluent (440-53064-1)	7/31/13	10:00 Pacific		Water		X		Topsmelt test

Possible Hazard Identification
Unconfirmed
Deliverable Requested: I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:		Method of Shipment:		
Relinquished by:	Date/Time: 8-1-13 9:00	Company	Received by:	Date/Time: 8-1-13 9:00	Company		
Relinquished by:	Date/Time: 8-1-13 13:10	Company	Received by:	Date/Time: 8-1-13 1310	Company		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 4.2

Aquatic Testing Laboratories

REFERENCE TOXICANT DATA

TOPSMELT TOXICITY TEST
Reference Toxicant

Aquatic Testing Laboratories

QA/QC Batch No.: RT-130801

TEST SUMMARY

Species: *Atherinops affinis*.
Age: 12 days old (7 -15 days old).
Regulations: NPDES.
Test chamber volume: 250 ml.
Feeding: Prior to renewal at 48 hrs.
Temperature: 20 +/- 1°C.
Number of replicates: 2.
Dilution water: lab seawater (32 ppt).
Ref. tox.: Copper chloride.

Source: Aquatic BioSystems.
Test type: Static-Renewal.
Test Protocol: EPA-821-R-02-012.
Endpoints: LC50 at 96 hrs.
Test chamber: 500 ml plastic beakers.
Aeration: None.
Number of organisms per chamber: 10.
Photoperiod: 16/8 hrs light/dark.

TEST DATA

	INITIAL				24 Hr					48 Hr				
Date/Time:	8-1-13 1400				8-2-13 1330					8-3-13 1330				
Analyst:	2				2					2				
	°C	DO	pH	Sal.	°C	DO	pH	# Dead A	# Dead B	°C	DO	pH	# Dead A	# Dead B
Control	19.9	6.7	7.8	32	20.0	6.5	7.7	0	0	19.7	6.0	7.7	0	0
56 ug/l	19.9	7.1	7.9	32	19.9	7.0	7.8	0	0	19.6	6.2	7.8	0	0
100 ug/l	20.0	7.4	8.0	32	19.9	7.1	7.8	0	0	19.7	6.7	7.9	0	0
180 ug/l	20.0	7.5	8.0	32	19.9	7.2	7.9	6	4	19.6	6.7	7.9	1	1
320 ug/l	20.0	7.6	8.0	32	19.8	6.7	7.9	10	10	-	-	-	-	-
560 ug/l	20.0	7.6	8.0	32	19.8	6.8	7.9	10	10	-	-	-	-	-

	RENEWAL				72 Hr					96 Hr				
Date/Time:	8-3-13 1330				8-4-13 1330					8-5-13 1400				
Analyst:	2				2					2				
	°C	DO	pH	Sal.	°C	DO	pH	# Dead A	# Dead B	°C	DO	pH	# Dead A	# Dead B
Control	19.9	6.4	7.8	32	19.8	6.1	7.8	0	0	19.8	7.2	8.0	0	0
56 ug/l	19.8	6.6	7.8	32	19.9	6.7	7.8	0	0	19.7	7.6	8.0	0	0
100 ug/l	19.8	6.9	7.9	32	19.8	6.3	7.8	0	0	19.7	7.4	8.0	0	0
180 ug/l	19.8	7.1	7.9	32	19.8	6.8	7.8	0	0	19.7	7.2	8.0	0	0
320 ug/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-
560 ug/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Comments: Dissolved Oxygen (DO) readings in mg/l O_2.; Salinity (Sal.) readings in ppt.
Concentration-response relationship acceptable? (see attached computer analysis):
(Yes (response curve normal)
No (dose interrupted indicated or non-normal)

Acute Fish Test-96 Hr Survival

Start Date:	8/1/2013 14:00	Test ID:	RT130801ts	Sample ID:	REF-Ref Toxicant
End Date:	8/5/2013 14:00	Lab ID:	CAATL-Aquatic Testing Labs	Sample Type:	CUCL-Copper chloride
Sample Date:	8/1/2013	Protocol:	ACUTE-EPA-821-R-02-012	Test Species:	AA-Atherinops affinis
Comments:					

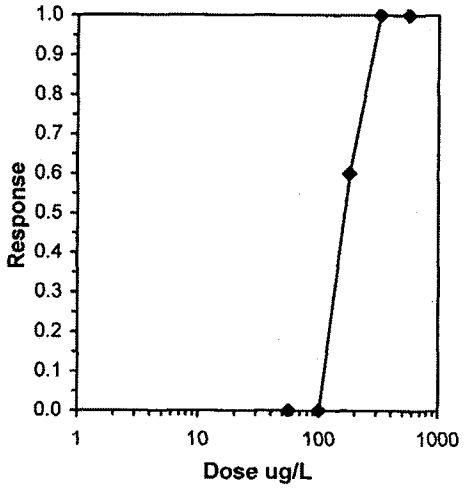
Conc-ug/L	1	2
D-Control	1.0000	1.0000
56	1.0000	1.0000
100	1.0000	1.0000
180	0.3000	0.5000
320	0.0000	0.0000
560	0.0000	0.0000

			Transform: Arcsin Square Root					Number	Total
Conc-ug/L	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
D-Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
56	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
100	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
180	0.4000	0.4000	0.6825	0.5796	0.7854	21.317	2	12	20
320	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20
560	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20

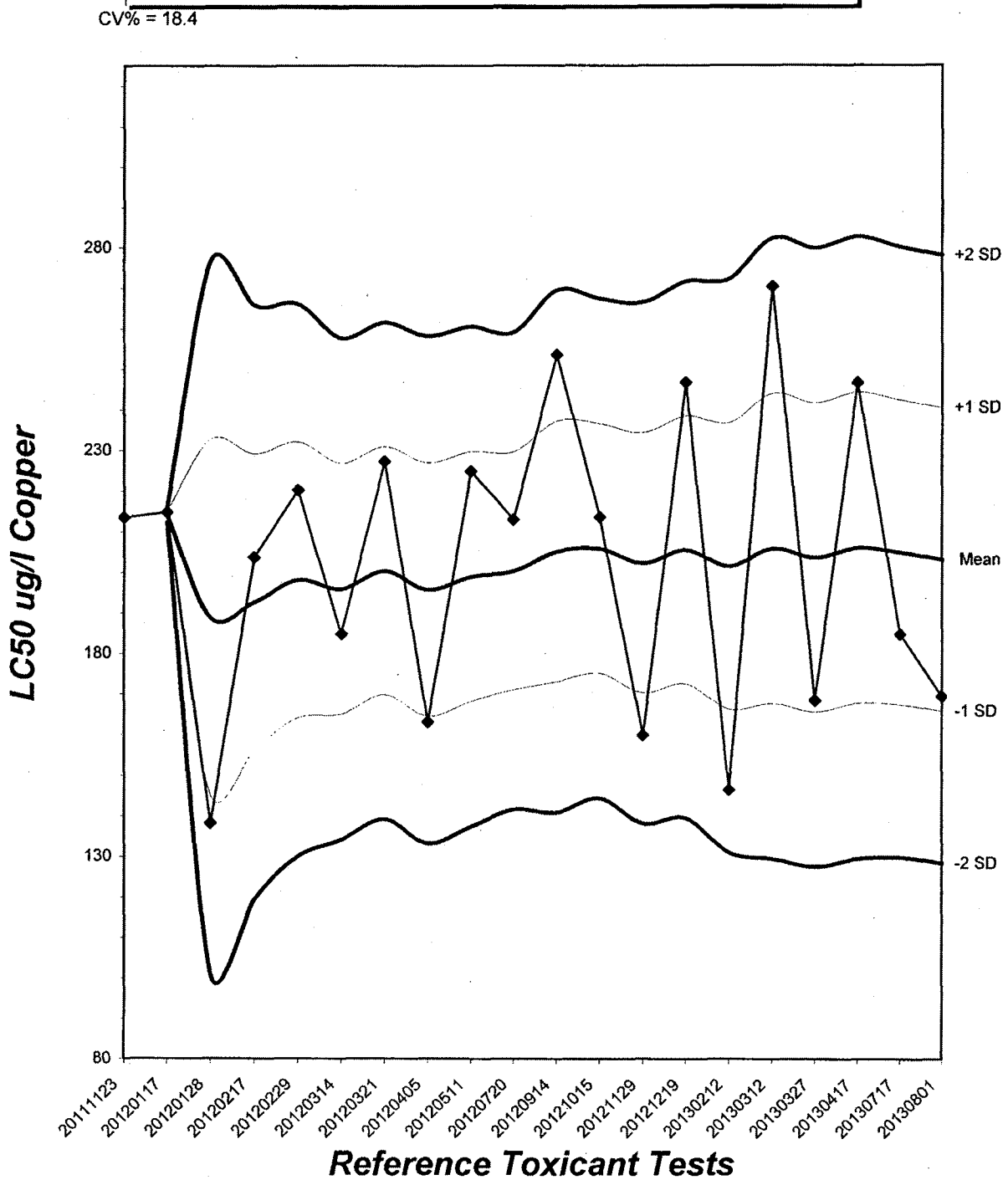
Auxiliary Tests	Statistic	Critical	Skew	Kurt
Normality of the data set cannot be confirmed				
Equality of variance cannot be confirmed				

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%	169.30	149.05	192.31
5.0%	168.38	146.24	193.87
10.0%	167.47	143.20	195.86
20.0%	165.72	135.95	202.01
Auto-0.0%	169.30	149.05	192.31



Topsmelt Acute Laboratory Control Chart



1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax:970/484-2514

ORGANISM HISTORY

DATE: 7/29/2013

SPECIES: *Atherinops affinis*

AGE: 9 day

LIFE STAGE: Larvae

HATCH DATE: 7/20/2013

BEGAN FEEDING: Immediately

FOOD: *Artemia* sp.

Water Chemistry Record:	Current	Range
TEMPERATURE:	22 °C	16-22 °C
SALINITY/CONDUCTIVITY:	30 ppt	28-32 ppt
TOTAL HARDNESS (as $CaCO_3$):	--	--
TOTAL ALKALINITY (as $CaCO_3$):	120 mg/l	120-180 mg/l
pH:	7.89	7.60-8.29

Comments:

Facility Supervisor

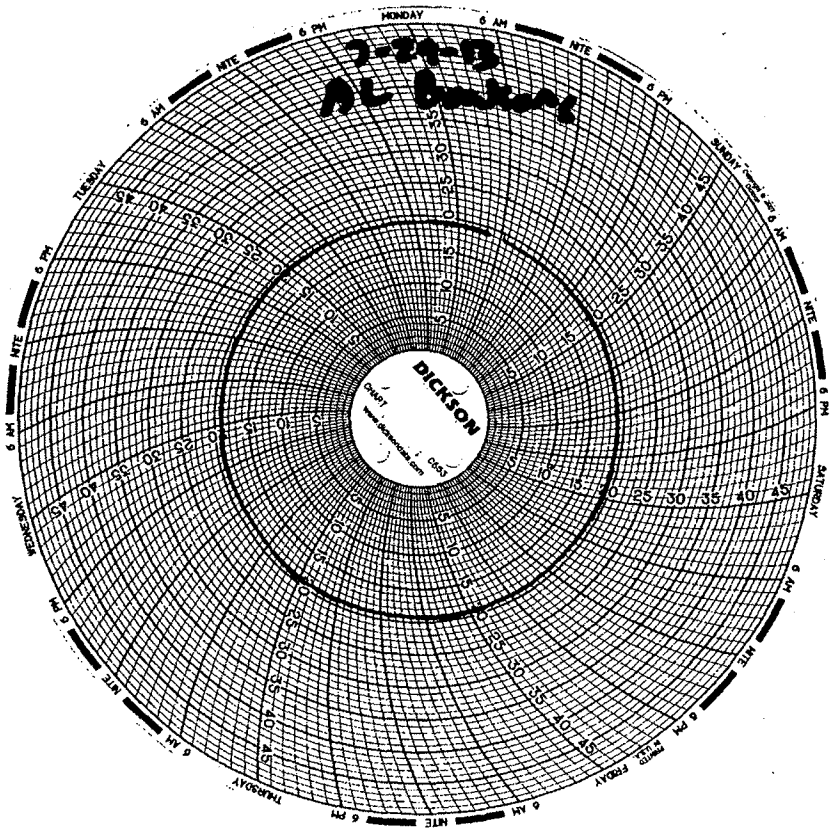
Aquatic Testing Laboratories

Test Temperature Chart

Test No: RT-130801

Date Tested: 08/01/13 to 08/05/13

Acceptable Range: 20 +/- 1°C



Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614
phone 949 261.1022 fax 949 260.3299

Chain of Custody Record

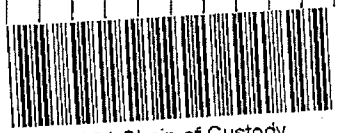
TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Leslie Dumas	Site Contact: Robert Marks	Date: 7/31/13	COC No:
RMC Water and Environment	Tel/Fax:	Lab Contact: Janice Hsu	Carrier:	_____ of _____ COCs
2001 N. Main Street Suite 400	Analysis Turnaround Time			Job No.
Walnut Creek, CA 94596	Calendar (C) or Work Days (W) ___W___			
(925) 627-4100 Phone	TAT if different from Below _5 days_____			SDG No.
(925) 627-4101 FAX	☐ 2 weeks			
Project Name: Malibu - Well Installation	☐ 1 week			
Site: MCWP - MW03	☐ 2 days			
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Preservatives	Matrix	# of Cont.	Filtered Sample	TSS	Turbidity	BOD	Settleable Solids	Residual Chlorine	Sulfate	Chloride	NO3 + NO2	TDS	Boron, Copper, Lead, Chromium	8260 VOA (include MTBE)	CAM 17 Grease	Sample Specific Notes:
MCWP-MW03 Effluent	7/31	10⁰⁰	N/A	W	5		X	X	X	X	X	X	X	X	X				48 hours hold time for Thrbidity,
" " "	"	"	HNO3	W	1											X			BOD & NO3 + NO2
" " "	"	"	HCL	W	3												X		
" " "	"	"		W	1													X	

Page 33 of 34



Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time:
OR Marks	PWR Inc	7/31 15⁴⁵		TAI	7/31/13 15⁴⁵
Relinquished by:	Company:	Date/Time	Received by	Company	Date/Time
	TAI	7/31/13 18:45			
Relinquished by	Company:	Date/Time	Received by:	Company	Date/Time:
				TAI	7/31/13 18:45

8/9/2013

28/36

Login Sample Receipt Checklist

Client: RMC Water and Environment

Job Number: 440-53064-1
SDG Number: MCWP - MW03

Login Number: 53064
List Number: 1
Creator: King, Ronald

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Samplere not listed on chain
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Memorandum

RMC Water and Environment

City of Malibu Civic Center Wastewater Treatment Facility Project

Subject: **Annual Self-Monitoring Report for NPDES No. CAG994005, CI-9779**

Prepared For: Los Angeles Regional Water Quality Control Board

Prepared by: Leslie Dumas, P.E.

Date: July 7, 2014

1 Introduction

The City of Malibu (City) conducted a field program to gather information and data to be used in the design of a centralized wastewater collection and treatment system that includes a percolation and groundwater injection system in the Winter Canyon and Civic Center areas of the Malibu Valley Groundwater Basin. The field program was conducted to support development of the Civic Center Wastewater Treatment Facility (CCWWTF) project, which itself is being conducted in response to Los Angeles Regional Water Quality Control Board (LARWQCB) Resolution R4-2009-007 (November 2009), prohibiting new onsite wastewater disposal systems (OWDS) and OWDS discharges in the Malibu Civic Center Area; State Water Resources Control Board (SWRCB) Resolution 2010-0045, which approved the amendment and established a phased schedule for compliance; and the August 2011 Memorandum of Understanding (MOU), signed by both the City of Malibu (City) and the LARWQCB memorializing the requirements of the resolutions and defining the Prohibition Zone areas.

2 Field Program Summary

As part of the CCWTF project field program, three existing test wells (MCWP-MW01, -MW02 and –MW03) were tested (pumped) to determine current specific well capacity. If a drop-off in specific capacity was observed, the well was then redeveloped and retested (re-pumped). All pumped waters were treated using a portable water treatment system designed for the project. Treated waters were then discharged to a designed storm drain location, based on test well site, as designated under permits NPDES Permit CAG994005, CI-9778 and CI-9779. The portable treatment system was designed by, and is maintained by, Pure Effects, Inc. of Fullerton, CA. System maintenance includes periodic monitoring and change-out of treatment resins and bag filters, as needed.

Following completion of the specific capacity testing/redevelopment phase, an injection testing program was then conducted at each test well site under Order No. 2012-0010-DWQ, CI-9949. Potable water obtained from Los Angeles Water Works District 29 was used as injectate during the testing, and backwash water was treated onsite using the afore-mentioned potable treatment system and discharged under the aforementioned permits.

This memorandum summarizes groundwater extractions from the test wells located in Legacy Park, near Webb Way (well MCWP-MW01) and Cross Creek Road (well MWCP-MW02), and associated discharges from the portable treatment system that that occurred during the field program conducted in 2013.

3 Summary of Discharges

During the 2013 reporting period, the following activities were conducted in the field that required the treatment and discharge of extracted groundwaters from well MCWP-MW01:

- Preparation for injection testing – August 1-2, 2013
- Installation and certification of backflow prevention device; installation of crossing structures; installation and testing of pumping system and treatment system, including relocating hydrant meter to hydrant – August 5, 2013
- Pre-injection specific capacity testing – August 6, 2013
- Hydrant flushing; variable rate injection testing; backflushing – August 7, 2013
- 24-hr injection test; backflushing – August 8-9, 2013
- 7-day injection test – August 12-19, 2013
- Leak observed in injection line and leaking hose replaced – August 15, 2013
- Injection test completed; backflushing – August 19, 2013
- 7-day aquifer recovery period (i.e., no pumping or injection) – August 19-26, 2013
- Post-Injection specific capacity testing – August 26, 2013

During the 2013 reporting period, the following activities were conducted in the field that required the treatment and discharge of extracted groundwaters from well MCWP-MW02:

- Preparation for injection testing – August 27, 2013
- Installation of crossing structures; installation and testing of pumping system and treatment system, including relocating hydrant meter – August 28, 2013
- Pre-injection specific capacity testing – August 29, 2013
- Installation and certification of backflow prevention device; hydrant flushing – August 30, 2013
- Variable rate injection test; backflushing – September 3, 2013
- 24-hr injection test; backflushing – September 4-5, 2013
- 7-day injection test; backflushing – September 6-13, 2013
- 7-day aquifer recovery period (i.e., no pumping or injection) – September 13-19, 2013
- Backflushing – September 19, 2013
- Post-injection specific capacity testing – September 20, 2013
- Complete demobilization from field – September 23, 2013

Tables 1 and 2 summarize the volume of water treated and discharged during 2013.

4 Laboratory Analyses

All laboratory analyses were conducted by Test America Laboratories, Inc. (ELAP certification number 2706 and NELAP certification number 01108CA) and Aquatic Testing Laboratories (ELAP certification number 1775). All analyses were conducted at analytical laboratories certified for such analyses by the Department of Public Health or approved by the Executive Officer and in accordance with current EPA guideline procedures or as specified in the aforementioned Monitoring Program.

All analytical reports for samples collected in association with this permit are included as an attachment to this memorandum. Tables 3 and 4 summarize the water quality data collected for this permit during 2013.

5 Summary of Non-Compliance

Groundwater extracted from wells MCWP-MW01 and MCWP-MW02 were treated and held prior to receipt of analytical results and clearance for discharge. Pre-injection testing samples collected on August 29th at MCWP-MW02 indicated that treated effluent did not meet discharge limitations for sulfate. The treatment system was then adjusted by replacing the treatment resin, and the groundwater from MCWP-MW02 was treated and the discharge was re-sampled on September 10th. Retesting of this samples indicate that sulfate concentrations in the treated effluent did meet the discharge limitations, and the treated effluent was then discharged to the prescribed discharge location.

6 Mitigation/Remedial Actions

The portable treatment system was modified (resin replaced) and treated effluent retested to demonstrate compliance with discharge limitations prior to release at the prescribed discharge location.

7 Certification Statement

I certify under penalty of law that this document, including all attachments and supplemental information, was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and completed. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

Executed on the 7th day of July, 2014 at 10:00 AM.

Robert L. Brager
Signature

Public Works Director
Title

Table 1: Summary of Discharges – All Wells

Date/Time	Totalizer (100 gallons)	Volume (gallons)
7/1/13 9:30	794427	23,400
7/3/13 15:00	794661	2,900
7/8/13 9:00	794690	43,100
7/10/13 17:05	795121	2,300
7/10/13 17:30	795144	--
7/12/13 10:20	795144	6,800
7/29/13 9:00	795212	200,000
7/30/13 9:30	797212	223,100
7/31/13 9:30	799443	221,700
8/1/13 9:30	801660	--
8/5/13 9:25	801716	1,500
8/6/13 10:00	801731	20,600
8/7/13 8:40	801937	12,300
8/8/13 9:45	802060	2,400
8/9/13 10:50	802084	--
8/12/13 10:45	802084	--
8/19/13 18:30	802084	2,500
8/19/13 18:50	802109	--
8/26/13 8:50	802109	12,300
8/26/13 11:00	802232	--
8/28/13 10:15	802271	1,700
8/28/13 11:25	802288	--
8/29/13 10:45	802288	13,700
8/30/13 13:10	802425	9,800
8/30/13 17:30	802523	2,500
9/3/13 16:50	802548	2,600
9/5/13 11:20	802574	--
9/13 /13 13:30	802580	--
9/19/13 11:00	802580	--
9/19/13 14:50	802761	18,100
9/20/13 11:40	802874	11,300

Table 2: Summary of Discharges – MCWP-MW01 and MCWP-MW02

Well	Activity	Date(s)	Discharge (gallons)
MCWP-MW01	Preparation for well redevelopment	August 1-2, 2013	0
	Installation and certification of backflow prevention device; Installation of crossing structures; Installation and testing of pumping system and treatment system, including relocating hydrant meter	August 5, 2013	0
	Pre-injection specific capacity testing	August 6, 2013	20,600
	Hydrant flushing; Variable rate injection test	August 7, 2013	12,300
	24-hr injection test; Backflushing	August 8-9, 2013	2,400
	7-day injection test	August 12-19, 2013	0
	Leak observed in injection line and leaking hose replaced	August 15, 2013	0
	Injection test completed; Backflushing	August 19, 2013	2,500
	7-day aquifer recovery period (i.e., no pumping or injection)	August 19-26, 2013	0
	Post-injection specific capacity testing	August 26, 2013	12,300
MCWP-MW02	Preparation for well redevelopment	August 27, 2013	0
	Installation of crossing structures; Installation and testing of pumping system and treatment system, including relocating hydrant meter	August 28, 2013	0
	Pre-injection specific capacity testing	August 29, 2013	13,700
	Installation and certification of backflow prevention device; Hydrant flushing	August 30, 2013	9,800
	Variable rate injection test; Backflushing	September 3, 2013	2,500
	24-hr injection test; Backflushing	September 4-5, 2013	2,600
	7-day injection test; Water retreated and analyzed for discharge.	September 6-13, 2013	0
	Injection test completed; Backflushing	September 13, 2013	0*
	7-day aquifer recovery period (i.e., no pumping or injection)	September 13-19, 2013	0
	Backflushing	September 19, 2013	18,100
	Post-injection specific capacity testing	September 20, 2013	11,300
	Complete demobilization	September 23, 2013	0

* Backflush water was held pending testing and was ultimately treated and discharged with backflush water on September 19th.

Table 3: Water Quality Testing Results for Discharge of Samples from Well MCWP-MW01

Constituent	Effluent Discharge Limit*	Unit	Pre-Injection Well Capacity Testing		Post-Injection Well Capacity Testing	
			Sampling Event Date	Results	Sampling Event Date	Results
pH+	--	unitless	8/5/2013	6.7	8/26/2013	6.8
Temperature+	--	°F	8/5/2013	21.7	8/26/2013	22.1
Total Suspended Solids	50	mg/L	8/5/2013	2.6	8/26/2013	<1.3
Turbidity	50	NTU	8/5/2013	0.96	8/26/2013	<0.1
$BOD_5$20°C	20	mg/L	8/5/2013	<2	8/26/2013	<2
Oil and Grease	--	mg/L	8/5/2013	<4.8	8/26/2013	<4.7
Settleable Solids	0.1	mL/L	8/5/2013	<0.1	8/26/2013	<0.1
Residual Chlorine	0.1	mg/L	8/5/2013	<0.1	8/26/2013	<0.1
Total Dissolved Solids	2000	mg/L	8/5/2013	240	8/26/2013	440
Sulfate	500	mg/L	8/5/2013	110	8/26/2013	100
Chloride	500	mg/L	8/5/2013	35	8/26/2013	97
Boron	2	mg/L	8/5/2013	0.11	8/26/2013	0.4
Nitrogen (Nitrate-N + Nitrite-N)	10	mg/L	8/5/2013	<0.26	8/26/2013	0.59
Copper	1000	µg/L	8/5/2013	<10	8/26/2013	<10
Lead	50	µg/L	8/5/2013	<5	8/26/2013	<5
Total Chromium	50	µg/L	8/5/2013	<5	8/26/2013	<5
1,1-Dichloroethane	5	µg/L	8/5/2013	<2	8/26/2013	<2
1,1-Dichloroethylene	6	µg/L	8/5/2013	<5	8/26/2013	<5
1,1,1-Trichloroethane	200	µg/L	8/5/2013	<2	8/26/2013	<2
1,1,2-Trichloroethane	5	µg/L	8/5/2013	<2	8/26/2013	<2
1,1,2,2-Tetrachlorethane	1	µg/L	8/5/2013	<2	8/26/2013	<2
1,2-Dichloroethane	0.5	µg/L	8/5/2013	<2	8/26/2013	<2
1,2-trans-Dichloroethylene	10	µg/L	8/5/2013	<2	8/26/2013	<2
Tetrachloroethylene	5	µg/L	8/5/2013	<2	8/26/2013	<2
Trichloroethylene	5	µg/L	8/5/2013	<2	8/26/2013	<2
Carbon Tetrachloride	0.5	µg/L	8/5/2013	<5	8/26/2013	<5
Vinyl Chloride	0.5	µg/L	8/5/2013	<5	8/26/2013	<5
Total Trihalomethanes	80	µg/L	8/5/2013	<1	8/26/2013	<5
Benzene	1	µg/L	8/5/2013	<2	8/26/2013	<2
Methy tertiary butyl ether (MTBE)	5	µg/L	8/5/2013	<1	8/26/2013	<1

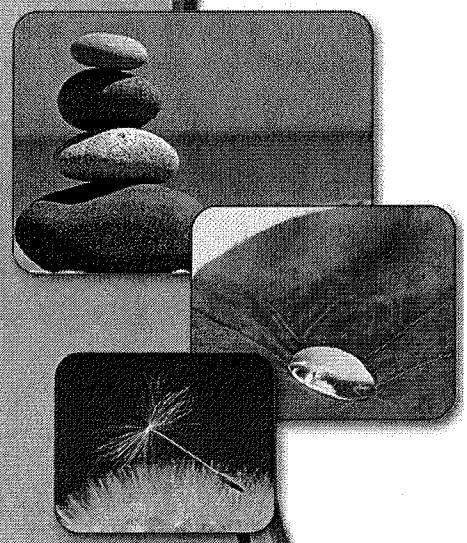
* Most stringent effluent limit as set forth in permit.
+ Field measurement

Table 4: Water Quality Testing Results for Discharge of Samples from Well MCWP-MW02

Constituent	Effluent Discharge Limit*	Unit	Pre-Injection Well Capacity Testing		Post-Injection Well Capacity Testing	
			Sampling Event Date	Results	Sampling Event Date	Results
pH+	--	unitless	8/29/2013	7.7	9/20/2013	7.9
Temperature+	--	°F	8/29/2013	21.4	9/20/2013	21.7
Total Suspended Solids	50	mg/L	8/29/2013	<1	9/20/2013	<1
Turbidity	50	NTU	8/29/2013	<0.1	9/20/2013	<0.1
$BOD_5$20°C	20	mg/L	8/29/2013	<2	9/20/2013	<2
Oil and Grease	--	mg/L	8/29/2013	<4.7	9/20/2013	<4.9
Settleable Solids	0.1	mL/L	8/29/2013	<0.1	9/20/2013	<0.1
Residual Chlorine	0.1	mg/L	8/29/2013	<0.1	9/20/2013	<0.1
Total Dissolved Solids	2000	mg/L	8/29/2013	1500	9/20/2013	330
Sulfate	500	mg/L	8/29/2013	520	9/20/2013	62
Sulfate	500	mg/L	9/10/2013	5.6	--	--
Chloride	500	mg/L	8/29/2013	250	9/20/2013	72
Boron	2	mg/L	8/29/2013	0.42	9/20/2013	0.23
Nitrogen (Nitrate-N + Nitrite-N)	10	mg/L	8/29/2013	1.3	9/20/2013	0.59
Copper	1000	µg/L	8/29/2013	<10	9/20/2013	<10
Lead	50	µg/L	8/29/2013	<5	9/20/2013	<5
Total Chromium	50	µg/L	8/29/2013	<5	9/20/2013	<5
1,1-Dichloroethane	5	µg/L	8/29/2013	<2	9/20/2013	<2
1,1-Dichloroethylene	6	µg/L	8/29/2013	<5	9/20/2013	<5
1,1,1-Trichloroethane	200	µg/L	8/29/2013	<2	9/20/2013	<2
1,1,2-Trichloroethane	5	µg/L	8/29/2013	<2	9/20/2013	<2
1,1,2,2-Tetrachlorethane	1	µg/L	8/29/2013	<2	9/20/2013	<2
1,2-Dichloroethane	0.5	µg/L	8/29/2013	<2	9/20/2013	<2
1,2-trans-Dichloroethylene	10	µg/L	8/29/2013	<2	9/20/2013	<2
Tetrachloroethylene	5	µg/L	8/29/2013	<2	9/20/2013	<2
Trichloroethylene	5	µg/L	8/29/2013	<2	9/20/2013	<2
Carbon Tetrachloride	0.5	µg/L	8/29/2013	<5	9/20/2013	<5
Vinyl Chloride	0.5	µg/L	8/29/2013	<5	9/20/2013	<5
Total Trihalomethanes	80	µg/L	8/29/2013	<5	9/20/2013	<2
Benzene	1	µg/L	8/29/2013	<2	9/20/2013	<2
Methy tertiary butyl ether (MTBE)	5	µg/L	8/29/2013	<1	9/20/2013	<1
Acute Toxicity	--	% survival	8/29/2013	100.%	--	--

* Most stringent effluent limit as set forth in permit.
\+ Field measurement

Analytical Laboratory Reports



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-55380-1
Client Project/Site: Malibu - Well Installation
Client Project Description: MCWP-MW01 Effluent

For:
RMC Water and Environment
2001 N. Main Street
Suite 400
Walnut Creek, California 94596

Attn: Leslie Dumas

Authorized for release by:
9/5/2013 11:37:03 AM

Janice Hsu, Project Manager I
janice.hsu@testamericainc.com

LINKS

Review your project results through TotalAccess

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-55380-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-55380-1	MCWP-MW01 Effluent	Water	08/26/13 10:30	08/26/13 14:50

Job ID: 440-55380-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-55380-1

Comments
Fish Bioassay was cancelled becasue the sub lab was not able to meet the method hold time.

Receipt
The sample was received on 8/26/2013 2:50 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 19.5° C.

Except:

Sample was received at the laboratory without a sample collection time documented on the chain-of-custody. As a result, a sample collection time consistent with the time written on the sample bottle was used.

Samples were received at the laboratory outside the required temperature criteria. They are considered acceptable since they were collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

GC/MS VOA
No analytical or quality issues were noted.

HPLC
No analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry
Method(s) 1664A: Insufficient sample volume was available to perform batch matrix spike/matrix spike duplicate (MS/MSD) associated with batch 128189. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

No other analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-55380-1

Client Sample ID: MCWP-MW01 Effluent
Date Collected: 08/26/13 10:30
Date Received: 08/26/13 14:50

Lab Sample ID: 440-55380-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/27/13 13:27	1
1,1,1-Trichloroethane	ND		2.0		ug/L			08/27/13 13:27	1
1,1,2,2-Tetrachloroethane	ND		2.0		ug/L			08/27/13 13:27	1
1,1,2-Trichloroethane	ND		2.0		ug/L			08/27/13 13:27	1
1,1-Dichloroethane	ND		2.0		ug/L			08/27/13 13:27	1
1,1-Dichlorethylene	ND		5.0		ug/L			08/27/13 13:27	1
1,1-Dichloropropene	ND		2.0		ug/L			08/27/13 13:27	1
1,2,3-Trichlorobenzene	ND		5.0		ug/L			08/27/13 13:27	1
1,2,3-Trichloropropane	ND		10		ug/L			08/27/13 13:27	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			08/27/13 13:27	1
1,2,4-Trimethylbenzene	ND		2.0		ug/L			08/27/13 13:27	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			08/27/13 13:27	1
1,2-Dichlorobenzene	ND		2.0		ug/L			08/27/13 13:27	1
1,2-Dichloroethane	ND		2.0		ug/L			08/27/13 13:27	1
1,2-Dichloropropane	ND		2.0		ug/L			08/27/13 13:27	1
1,3,5-Trimethylbenzene	ND		2.0		ug/L			08/27/13 13:27	1
1,3-Dichlorobenzene	ND		2.0		ug/L			08/27/13 13:27	1
1,3-Dichloropropane	ND		2.0		ug/L			08/27/13 13:27	1
1,4-Dichlorobenzene	ND		2.0		ug/L			08/27/13 13:27	1
2,2-Dichloropropane	ND		2.0		ug/L			08/27/13 13:27	1
2-Chlorotoluene	ND		5.0		ug/L			08/27/13 13:27	1
4-Chlorotoluene	ND		5.0		ug/L			08/27/13 13:27	1
Benzene	ND		2.0		ug/L			08/27/13 13:27	1
Bromobenzene	ND		5.0		ug/L			08/27/13 13:27	1
Bromoform	ND		5.0		ug/L			08/27/13 13:27	1
Bromomethane	ND		5.0		ug/L			08/27/13 13:27	1
Carbon tetrachloride	ND		5.0		ug/L			08/27/13 13:27	1
Chlorobenzene	ND		2.0		ug/L			08/27/13 13:27	1
Chloroethane	ND		5.0		ug/L			08/27/13 13:27	1
Chloroform	ND		2.0		ug/L			08/27/13 13:27	1
Chloromethane	ND		5.0		ug/L			08/27/13 13:27	1
cis-1,2-Dichloroethene	ND		2.0		ug/L			08/27/13 13:27	1
cis-1,3-Dichloropropene	ND		2.0		ug/L			08/27/13 13:27	1
Dibromomethane	ND		2.0		ug/L			08/27/13 13:27	1
Dichlorodifluoromethane	ND		5.0		ug/L			08/27/13 13:27	1
Ethylbenzene	ND		2.0		ug/L			08/27/13 13:27	1
Hexachlorobutadiene	ND		5.0		ug/L			08/27/13 13:27	1
Isopropylbenzene	ND		2.0		ug/L			08/27/13 13:27	1
m,p-Xylene	ND		2.0		ug/L			08/27/13 13:27	1
Methylene Chloride	ND		5.0		ug/L			08/27/13 13:27	1
Naphthalene	ND		5.0		ug/L			08/27/13 13:27	1
n-Butylbenzene	ND		5.0		ug/L			08/27/13 13:27	1
N-Propylbenzene	ND		2.0		ug/L			08/27/13 13:27	1
o-Xylene	ND		2.0		ug/L			08/27/13 13:27	1
sec-Butylbenzene	ND		5.0		ug/L			08/27/13 13:27	1
Styrene	ND		2.0		ug/L			08/27/13 13:27	1
tert-Butylbenzene	ND		5.0		ug/L			08/27/13 13:27	1
Tetrachloroethene	ND		2.0		ug/L			08/27/13 13:27	1
Toluene	ND		2.0		ug/L			08/27/13 13:27	1

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-55380-1

Client Sample ID: MCWP-MW01 Effluent
Date Collected: 08/26/13 10:30
Date Received: 08/26/13 14:50

Lab Sample ID: 440-55380-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-trans-Dichloroethylene	ND		2.0		ug/L			08/27/13 13:27	1
trans-1,3-Dichloropropene	ND		2.0		ug/L			08/27/13 13:27	1
Trichloroethylene	ND		2.0		ug/L			08/27/13 13:27	1
Trichlorofluoromethane	ND		5.0		ug/L			08/27/13 13:27	1
Vinyl chloride	ND		5.0		ug/L			08/27/13 13:27	1
1,2-Dibromoethane (EDB)	ND		2.0		ug/L			08/27/13 13:27	1
Bromochloromethane	ND		5.0		ug/L			08/27/13 13:27	1
Bromodichloromethane	ND		2.0		ug/L			08/27/13 13:27	1
Dibromochloromethane	ND		2.0		ug/L			08/27/13 13:27	1
p-Isopropyltoluene	ND		2.0		ug/L			08/27/13 13:27	1
Methyl-t-Butyl Ether (MTBE)	ND		1.0		ug/L			08/27/13 13:27	1
Trihalomethanes, Total	ND		5.0		ug/L			08/27/13 13:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*80 - 120*		*08/27/13 13:27*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*08/27/13 13:27*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 120*		*08/27/13 13:27*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.59**		0.26		mg/L			08/26/13 21:45	1
Chloride	**97**		10		mg/L			08/26/13 22:00	20
Nitrite as NO2	**0.86**		0.50		mg/L			08/26/13 21:45	1
Nitrate as NO3	**1.5**		0.50		mg/L			08/26/13 21:45	1
Sulfate	**100**		10		mg/L			08/26/13 22:00	20

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.40**		0.050		mg/L		08/27/13 11:02	08/27/13 18:01	1
Chromium	ND		5.0		ug/L		08/27/13 11:02	08/27/13 18:01	1
Lead	ND		5.0		ug/L		08/27/13 11:02	08/27/13 18:01	1
Copper	ND		10		ug/L		08/27/13 11:02	08/27/13 18:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	ND		4.7		mg/L		08/30/13 08:05	08/30/13 08:13	1
Total Dissolved Solids	**440**		10		mg/L			08/27/13 08:00	1
Total Suspended Solids	ND		1.3		mg/L			08/26/13 22:11	1
Biochemical Oxygen Demand	ND		2.0		mg/L			08/28/13 09:35	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.50**	**HF**	0.100		SU			08/30/13 15:26	1
Temperature	**24.0**	**HF**	1.00		Degrees C			08/30/13 15:26	1
Turbidity	ND		0.10		NTU			08/27/13 16:00	1
Settleable Solids	ND		0.10		mL/L/Hr			08/27/13 08:13	1
Residual Chlorine	ND	HF	0.10		mg/L			08/28/13 14:15	1

Method Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-55380-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
150.1	pH (Electrometric)	MCAWW	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2130B	Turbidity	SM	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 2540F	Solids, Settleable	SM	TAL IRV
SM 4500 Cl G	Chlorine, Residual	SM	TAL IRV
SM5210B	BOD, 5 Day	SM	TAL IRV

Protocol References:

1664A = EPA-821-98-002

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-55380-1

Client Sample ID: MCWP-MW01 Effluent

Date Collected: 08/26/13 10:30
Date Received: 08/26/13 14:50

Lab Sample ID: 440-55380-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	127261	08/27/13 13:27	SS	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		127136	08/26/13 21:45	NN	TAL IRV
Total/NA	Analysis	300.0		20	1 mL		127137	08/26/13 22:00	NN	TAL IRV
Total Recoverable	Prep	200.2			50 mL	50 mL	127337	08/27/13 11:02	EN	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			127504	08/27/13 18:01	MP	TAL IRV
Total/NA	Analysis	SM 2540D		1	800 mL	100 mL	127219	08/26/13 22:11	DK	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1000 mL	127289	08/27/13 08:13	NT	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	127293	08/27/13 08:00	XL	TAL IRV
Total/NA	Analysis	SM 2130B		1		20 mL	127462	08/27/13 16:00	TR	TAL IRV
Total/NA	Analysis	SM5210B		1		300 mL	127601	08/28/13 09:35	TAI	TAL IRV
Total/NA	Analysis	SM 4500 Cl G		1	10 mL	10 mL	127714	08/28/13 14:15	TAI	TAL IRV
Total/NA	Prep	1664A			1055 mL	1000 mL	128186	08/30/13 08:05	DA	TAL IRV
Total/NA	Analysis	1664A		1			128189	08/30/13 08:13	DA	TAL IRV
Total/NA	Analysis	150.1		1		50 mL	128357	08/30/13 15:26	TR	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-55380-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-127261/4
Matrix: Water
Analysis Batch: 127261

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/27/13 08:53	1
1,1,1-Trichloroethane	ND		2.0		ug/L			08/27/13 08:53	1
1,1,2,2-Tetrachloroethane	ND		2.0		ug/L			08/27/13 08:53	1
1,1,2-Trichloroethane	ND		2.0		ug/L			08/27/13 08:53	1
1,1-Dichloroethane	ND		2.0		ug/L			08/27/13 08:53	1
1,1-Dichlorethylene	ND		5.0		ug/L			08/27/13 08:53	1
1,1-Dichloropropene	ND		2.0		ug/L			08/27/13 08:53	1
1,2,3-Trichlorobenzene	ND		5.0		ug/L			08/27/13 08:53	1
1,2,3-Trichloropropane	ND		10		ug/L			08/27/13 08:53	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			08/27/13 08:53	1
1,2,4-Trimethylbenzene	ND		2.0		ug/L			08/27/13 08:53	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			08/27/13 08:53	1
1,2-Dichlorobenzene	ND		2.0		ug/L			08/27/13 08:53	1
1,2-Dichloroethane	ND		2.0		ug/L			08/27/13 08:53	1
1,2-Dichloropropane	ND		2.0		ug/L			08/27/13 08:53	1
1,3,5-Trimethylbenzene	ND		2.0		ug/L			08/27/13 08:53	1
1,3-Dichlorobenzene	ND		2.0		ug/L			08/27/13 08:53	1
1,3-Dichloropropane	ND		2.0		ug/L			08/27/13 08:53	1
1,4-Dichlorobenzene	ND		2.0		ug/L			08/27/13 08:53	1
2,2-Dichloropropane	ND		2.0		ug/L			08/27/13 08:53	1
2-Chlorotoluene	ND		5.0		ug/L			08/27/13 08:53	1
4-Chlorotoluene	ND		5.0		ug/L			08/27/13 08:53	1
Benzene	ND		2.0		ug/L			08/27/13 08:53	1
Bromobenzene	ND		5.0		ug/L			08/27/13 08:53	1
Bromoform	ND		5.0		ug/L			08/27/13 08:53	1
Bromomethane	ND		5.0		ug/L			08/27/13 08:53	1
Carbon tetrachloride	ND		5.0		ug/L			08/27/13 08:53	1
Chlorobenzene	ND		2.0		ug/L			08/27/13 08:53	1
Chloroethane	ND		5.0		ug/L			08/27/13 08:53	1
Chloroform	ND		2.0		ug/L			08/27/13 08:53	1
Chloromethane	ND		5.0		ug/L			08/27/13 08:53	1
cis-1,2-Dichloroethene	ND		2.0		ug/L			08/27/13 08:53	1
cis-1,3-Dichloropropene	ND		2.0		ug/L			08/27/13 08:53	1
Dibromomethane	ND		2.0		ug/L			08/27/13 08:53	1
Dichlorodifluoromethane	ND		5.0		ug/L			08/27/13 08:53	1
Ethylbenzene	ND		2.0		ug/L			08/27/13 08:53	1
Hexachlorobutadiene	ND		5.0		ug/L			08/27/13 08:53	1
Isopropylbenzene	ND		2.0		ug/L			08/27/13 08:53	1
m,p-Xylene	ND		2.0		ug/L			08/27/13 08:53	1
Methylene Chloride	ND		5.0		ug/L			08/27/13 08:53	1
Naphthalene	ND		5.0		ug/L			08/27/13 08:53	1
n-Butylbenzene	ND		5.0		ug/L			08/27/13 08:53	1
N-Propylbenzene	ND		2.0		ug/L			08/27/13 08:53	1
o-Xylene	ND		2.0		ug/L			08/27/13 08:53	1
sec-Butylbenzene	ND		5.0		ug/L			08/27/13 08:53	1
Styrene	ND		2.0		ug/L			08/27/13 08:53	1
tert-Butylbenzene	ND		5.0		ug/L			08/27/13 08:53	1
Tetrachloroethene	ND		2.0		ug/L			08/27/13 08:53	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-127261/4
Matrix: Water
Analysis Batch: 127261

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		2.0		ug/L			08/27/13 08:53	1
1,2-trans-Dichloroethylene	ND		2.0		ug/L			08/27/13 08:53	1
trans-1,3-Dichloropropene	ND		2.0		ug/L			08/27/13 08:53	1
Trichloroethylene	ND		2.0		ug/L			08/27/13 08:53	1
Trichlorofluoromethane	ND		5.0		ug/L			08/27/13 08:53	1
Vinyl chloride	ND		5.0		ug/L			08/27/13 08:53	1
1,2-Dibromoethane (EDB)	ND		2.0		ug/L			08/27/13 08:53	1
Bromochloromethane	ND		5.0		ug/L			08/27/13 08:53	1
Bromodichloromethane	ND		2.0		ug/L			08/27/13 08:53	1
Dibromochloromethane	ND		2.0		ug/L			08/27/13 08:53	1
p-Isopropyltoluene	ND		2.0		ug/L			08/27/13 08:53	1
Methyl-t-Butyl Ether (MTBE)	ND		1.0		ug/L			08/27/13 08:53	1
Trihalomethanes, Total	ND		5.0		ug/L			08/27/13 08:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*80 - 120*		*08/27/13 08:53*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*08/27/13 08:53*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 120*		*08/27/13 08:53*	*1*

Lab Sample ID: LCS 440-127261/5
Matrix: Water
Analysis Batch: 127261

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	25.0	25.8		ug/L		103	60 - 141
1,1,1-Trichloroethane	25.0	26.5		ug/L		106	70 - 130
1,1,2,2-Tetrachloroethane	25.0	25.3		ug/L		101	63 - 130
1,1,2-Trichloroethane	25.0	24.0		ug/L		96	70 - 130
1,1-Dichloroethane	25.0	23.9		ug/L		96	64 - 130
1,1-Dichlorethylene	25.0	24.6		ug/L		98	70 - 130
1,1-Dichloropropene	25.0	25.5		ug/L		102	70 - 130
1,2,3-Trichlorobenzene	25.0	22.6		ug/L		90	60 - 140
1,2,3-Trichloropropane	25.0	25.3		ug/L		101	63 - 130
1,2,4-Trichlorobenzene	25.0	23.7		ug/L		95	60 - 140
1,2,4-Trimethylbenzene	25.0	25.7		ug/L		103	70 - 135
1,2-Dibromo-3-Chloropropane	25.0	29.8		ug/L		119	52 - 140
1,2-Dichlorobenzene	25.0	23.3		ug/L		93	70 - 130
1,2-Dichloroethane	25.0	27.1		ug/L		109	57 - 138
1,2-Dichloropropane	25.0	23.0		ug/L		92	67 - 130
1,3,5-Trimethylbenzene	25.0	25.7		ug/L		103	70 - 136
1,3-Dichlorobenzene	25.0	23.7		ug/L		95	70 - 130
1,3-Dichloropropane	25.0	23.8		ug/L		95	70 - 130
1,4-Dichlorobenzene	25.0	23.0		ug/L		92	70 - 130
2,2-Dichloropropane	25.0	26.3		ug/L		105	68 - 141
2-Chlorotoluene	25.0	24.7		ug/L		99	70 - 130
4-Chlorotoluene	25.0	25.6		ug/L		102	70 - 130
Benzene	25.0	22.8		ug/L		91	68 - 130
Bromobenzene	25.0	23.7		ug/L		95	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-127261/5
Matrix: Water
Analysis Batch: 127261

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoform	25.0	27.6		ug/L		110	60 - 148
Bromomethane	25.0	27.4		ug/L		110	64 - 139
Carbon tetrachloride	25.0	27.5		ug/L		110	60 - 150
Chlorobenzene	25.0	23.2		ug/L		93	70 - 130
Chloroethane	25.0	26.8		ug/L		107	64 - 135
Chloroform	25.0	24.9		ug/L		100	70 - 130
Chloromethane	25.0	26.2		ug/L		105	47 - 140
cis-1,2-Dichloroethene	25.0	25.4		ug/L		102	70 - 133
cis-1,3-Dichloropropene	25.0	26.2		ug/L		105	70 - 133
Dibromomethane	25.0	26.6		ug/L		106	70 - 130
Dichlorodifluoromethane	25.0	28.7		ug/L		115	29 - 150
Ethylbenzene	25.0	25.0		ug/L		100	70 - 130
Hexachlorobutadiene	25.0	24.9		ug/L		99	10 - 150
Isopropylbenzene	25.0	25.2		ug/L		101	70 - 136
m,p-Xylene	50.0	49.5		ug/L		99	70 - 130
Methylene Chloride	25.0	23.1		ug/L		92	52 - 130
Naphthalene	25.0	25.5		ug/L		102	60 - 140
n-Butylbenzene	25.0	25.4		ug/L		102	65 - 150
N-Propylbenzene	25.0	26.2		ug/L		105	67 - 139
o-Xylene	25.0	25.4		ug/L		102	70 - 130
sec-Butylbenzene	25.0	25.6		ug/L		102	70 - 138
Styrene	25.0	24.9		ug/L		99	70 - 134
tert-Butylbenzene	25.0	25.7		ug/L		103	70 - 130
Tetrachloroethene	25.0	23.3		ug/L		93	70 - 130
Toluene	25.0	24.4		ug/L		98	70 - 130
1,2-trans-Dichloroethylene	25.0	24.1		ug/L		96	70 - 130
trans-1,3-Dichloropropene	25.0	27.2		ug/L		109	70 - 132
Trichloroethylene	25.0	23.8		ug/L		95	70 - 130
Trichlorofluoromethane	25.0	30.0		ug/L		120	60 - 150
Vinyl chloride	25.0	27.8		ug/L		111	59 - 133
1,2-Dibromoethane (EDB)	25.0	25.2		ug/L		101	70 - 130
Bromochloromethane	25.0	24.5		ug/L		98	70 - 130
Bromodichloromethane	25.0	27.2		ug/L		109	70 - 132
Dibromochloromethane	25.0	27.3		ug/L		109	69 - 145
p-Isopropyltoluene	25.0	23.7		ug/L		95	70 - 132
Methyl-t-Butyl Ether (MTBE)	25.0	26.4		ug/L		105	63 - 131

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*104*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*
Dibromofluoromethane (Surr)	*105*		*80 - 120*

Lab Sample ID: 440-54836-B-1 MS
Matrix: Water
Analysis Batch: 127261

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	ND		25.0	26.7		ug/L		107	60 - 149

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-54836-B-1 MS
Matrix: Water
Analysis Batch: 127261

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		25.0	27.9		ug/L		112	70 - 130
1,1,2,2-Tetrachloroethane	ND		25.0	26.2		ug/L		105	63 - 130
1,1,2-Trichloroethane	ND		25.0	24.8		ug/L		99	70 - 130
1,1-Dichloroethane	ND		25.0	25.6		ug/L		102	65 - 130
1,1-Dichlorethylene	ND		25.0	26.5		ug/L		106	70 - 130
1,1-Dichloropropene	ND		25.0	26.0		ug/L		104	64 - 130
1,2,3-Trichlorobenzene	ND		25.0	25.4		ug/L		102	60 - 140
1,2,3-Trichloropropane	ND		25.0	25.8		ug/L		103	60 - 130
1,2,4-Trichlorobenzene	ND		25.0	26.4		ug/L		106	60 - 140
1,2,4-Trimethylbenzene	ND		25.0	26.7		ug/L		107	70 - 130
1,2-Dibromo-3-Chloropropane	ND		25.0	30.7		ug/L		123	48 - 140
1,2-Dichlorobenzene	ND		25.0	24.6		ug/L		98	70 - 130
1,2-Dichloroethane	ND		25.0	27.9		ug/L		112	56 - 146
1,2-Dichloropropane	ND		25.0	24.3		ug/L		97	69 - 130
1,3,5-Trimethylbenzene	ND		25.0	26.3		ug/L		105	70 - 130
1,3-Dichlorobenzene	ND		25.0	25.2		ug/L		101	70 - 130
1,3-Dichloropropane	ND		25.0	24.8		ug/L		99	70 - 130
1,4-Dichlorobenzene	ND		25.0	24.1		ug/L		96	70 - 130
2,2-Dichloropropane	ND		25.0	27.2		ug/L		109	69 - 138
2-Chlorotoluene	ND		25.0	25.5		ug/L		102	70 - 130
4-Chlorotoluene	ND		25.0	26.8		ug/L		107	70 - 130
Benzene	ND		25.0	24.1		ug/L		96	66 - 130
Bromobenzene	ND		25.0	24.5		ug/L		98	70 - 130
Bromoform	ND		25.0	28.5		ug/L		114	59 - 150
Bromomethane	ND		25.0	28.0		ug/L		112	62 - 131
Carbon tetrachloride	ND		25.0	28.2		ug/L		113	60 - 150
Chlorobenzene	ND		25.0	24.0		ug/L		96	70 - 130
Chloroethane	ND		25.0	27.9		ug/L		112	68 - 130
Chloroform	ND		25.0	26.1		ug/L		104	70 - 130
Chloromethane	ND		25.0	27.2		ug/L		109	39 - 144
cis-1,2-Dichloroethene	ND		25.0	26.1		ug/L		104	70 - 130
cis-1,3-Dichloropropene	ND		25.0	27.7		ug/L		111	70 - 133
Dibromomethane	ND		25.0	27.1		ug/L		108	70 - 130
Dichlorodifluoromethane	ND		25.0	30.1		ug/L		119	25 - 142
Ethylbenzene	ND		25.0	26.1		ug/L		104	70 - 130
Hexachlorobutadiene	ND		25.0	28.3		ug/L		113	10 - 150
Isopropylbenzene	ND		25.0	26.0		ug/L		104	70 - 132
m,p-Xylene	ND		50.0	50.7		ug/L		101	70 - 133
Methylene Chloride	ND		25.0	24.4		ug/L		98	52 - 130
Naphthalene	ND		25.0	27.7		ug/L		111	60 - 140
n-Butylbenzene	ND		25.0	27.2		ug/L		109	61 - 149
N-Propylbenzene	ND		25.0	27.0		ug/L		108	66 - 135
o-Xylene	ND		25.0	26.4		ug/L		106	70 - 133
sec-Butylbenzene	ND		25.0	26.5		ug/L		106	67 - 134
Styrene	ND		25.0	25.3		ug/L		101	29 - 150
tert-Butylbenzene	ND		25.0	26.7		ug/L		107	70 - 130
Tetrachloroethene	ND		25.0	24.4		ug/L		98	70 - 137
Toluene	ND		25.0	25.3		ug/L		101	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-54836-B-1 MS
Matrix: Water
Analysis Batch: 127261

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-trans-Dichloroethylene	ND		25.0	25.1		ug/L		101	70 - 130
trans-1,3-Dichloropropene	ND		25.0	28.6		ug/L		115	70 - 138
Trichloroethylene	ND		25.0	24.6		ug/L		98	70 - 130
Trichlorofluoromethane	ND		25.0	32.0		ug/L		128	60 - 150
Vinyl chloride	ND		25.0	29.7		ug/L		119	50 - 137
1,2-Dibromoethane (EDB)	ND		25.0	26.0		ug/L		104	70 - 131
Bromochloromethane	ND		25.0	26.0		ug/L		104	70 - 130
Bromodichloromethane	ND		25.0	28.3		ug/L		113	70 - 138
Dibromochloromethane	ND		25.0	28.5		ug/L		114	70 - 148
p-Isopropyltoluene	ND		25.0	25.0		ug/L		100	70 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	27.7		ug/L		111	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*
Dibromofluoromethane (Surr)	*103*		*80 - 120*

Lab Sample ID: 440-54836-B-1 MSD
Matrix: Water
Analysis Batch: 127261

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	ND		25.0	26.3		ug/L		105	60 - 149	2	20
1,1,1-Trichloroethane	ND		25.0	26.9		ug/L		108	70 - 130	4	20
1,1,2,2-Tetrachloroethane	ND		25.0	25.7		ug/L		103	63 - 130	2	30
1,1,2-Trichloroethane	ND		25.0	25.4		ug/L		101	70 - 130	2	25
1,1-Dichloroethane	ND		25.0	25.2		ug/L		101	65 - 130	1	20
1,1-Dichlorethylene	ND		25.0	24.9		ug/L		100	70 - 130	6	20
1,1-Dichloropropene	ND		25.0	25.4		ug/L		102	64 - 130	2	20
1,2,3-Trichlorobenzene	ND		25.0	24.5		ug/L		98	60 - 140	4	20
1,2,3-Trichloropropane	ND		25.0	25.3		ug/L		101	60 - 130	2	30
1,2,4-Trichlorobenzene	ND		25.0	25.5		ug/L		102	60 - 140	3	20
1,2,4-Trimethylbenzene	ND		25.0	26.2		ug/L		105	70 - 130	2	25
1,2-Dibromo-3-Chloropropane	ND		25.0	28.5		ug/L		114	48 - 140	7	30
1,2-Dichlorobenzene	ND		25.0	24.6		ug/L		98	70 - 130	0	20
1,2-Dichloroethane	ND		25.0	27.7		ug/L		111	56 - 146	1	20
1,2-Dichloropropane	ND		25.0	24.4		ug/L		97	69 - 130	0	20
1,3,5-Trimethylbenzene	ND		25.0	25.6		ug/L		102	70 - 130	3	20
1,3-Dichlorobenzene	ND		25.0	24.5		ug/L		98	70 - 130	3	20
1,3-Dichloropropane	ND		25.0	24.4		ug/L		97	70 - 130	2	25
1,4-Dichlorobenzene	ND		25.0	24.1		ug/L		96	70 - 130	0	20
2,2-Dichloropropane	ND		25.0	26.8		ug/L		107	69 - 138	2	25
2-Chlorotoluene	ND		25.0	24.8		ug/L		99	70 - 130	3	20
4-Chlorotoluene	ND		25.0	26.0		ug/L		104	70 - 130	3	20
Benzene	ND		25.0	23.8		ug/L		95	66 - 130	1	20
Bromobenzene	ND		25.0	24.6		ug/L		98	70 - 130	1	20
Bromoform	ND		25.0	27.9		ug/L		112	59 - 150	2	25
Bromomethane	ND		25.0	27.8		ug/L		111	62 - 131	1	25

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-54836-B-1 MSD
Matrix: Water
Analysis Batch: 127261

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon tetrachloride	ND		25.0	27.1		ug/L		108	60 - 150	4	25
Chlorobenzene	ND		25.0	23.6		ug/L		94	70 - 130	2	20
Chloroethane	ND		25.0	27.3		ug/L		109	68 - 130	2	25
Chloroform	ND		25.0	26.1		ug/L		104	70 - 130	0	20
Chloromethane	ND		25.0	28.8		ug/L		115	39 - 144	6	25
cis-1,2-Dichloroethene	ND		25.0	26.7		ug/L		107	70 - 130	2	20
cis-1,3-Dichloropropene	ND		25.0	27.3		ug/L		109	70 - 133	1	20
Dibromomethane	ND		25.0	27.4		ug/L		110	70 - 130	1	25
Dichlorodifluoromethane	ND		25.0	29.3		ug/L		116	25 - 142	3	30
Ethylbenzene	ND		25.0	25.2		ug/L		101	70 - 130	3	20
Hexachlorobutadiene	ND		25.0	26.3		ug/L		105	10 - 150	7	20
Isopropylbenzene	ND		25.0	25.3		ug/L		101	70 - 132	3	20
m,p-Xylene	ND		50.0	49.5		ug/L		99	70 - 133	2	25
Methylene Chloride	ND		25.0	24.8		ug/L		99	52 - 130	2	20
Naphthalene	ND		25.0	26.6		ug/L		106	60 - 140	4	30
n-Butylbenzene	ND		25.0	26.0		ug/L		104	61 - 149	4	20
N-Propylbenzene	ND		25.0	26.0		ug/L		104	66 - 135	4	20
o-Xylene	ND		25.0	25.5		ug/L		102	70 - 133	4	20
sec-Butylbenzene	ND		25.0	25.6		ug/L		102	67 - 134	4	20
Styrene	ND		25.0	25.1		ug/L		100	29 - 150	1	30
tert-Butylbenzene	ND		25.0	25.9		ug/L		104	70 - 130	3	20
Tetrachloroethene	ND		25.0	23.1		ug/L		93	70 - 137	5	20
Toluene	ND		25.0	24.9		ug/L		100	70 - 130	2	20
1,2-trans-Dichloroethylene	ND		25.0	25.3		ug/L		101	70 - 130	1	20
trans-1,3-Dichloropropene	ND		25.0	28.9		ug/L		116	70 - 138	1	25
Trichloroethylene	ND		25.0	24.0		ug/L		96	70 - 130	2	20
Trichlorofluoromethane	ND		25.0	30.3		ug/L		121	60 - 150	6	25
Vinyl chloride	ND		25.0	29.3		ug/L		117	50 - 137	1	30
1,2-Dibromoethane (EDB)	ND		25.0	25.8		ug/L		103	70 - 131	1	25
Bromochloromethane	ND		25.0	26.6		ug/L		106	70 - 130	2	25
Bromodichloromethane	ND		25.0	28.2		ug/L		113	70 - 138	1	20
Dibromochloromethane	ND		25.0	28.1		ug/L		112	70 - 148	2	25
p-Isopropyltoluene	ND		25.0	24.2		ug/L		97	70 - 130	3	20
Methyl-t-Butyl Ether (MTBE)	ND		25.0	28.5		ug/L		114	70 - 130	3	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*
Dibromofluoromethane (Surr)	*106*		*80 - 120*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-127136/4
Matrix: Water
Analysis Batch: 127136

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.26		mg/L			08/26/13 17:12	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 440-127136/4
Matrix: Water
Analysis Batch: 127136

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as NO2	ND		0.50		mg/L			08/26/13 17:12	1
Nitrate as NO3	ND		0.50		mg/L			08/26/13 17:12	1

Lab Sample ID: LCS 440-127136/2
Matrix: Water
Analysis Batch: 127136

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as NO2	5.00	4.62		mg/L		92	90 - 110
Nitrate as NO3	5.00	4.71		mg/L		94	90 - 110

Lab Sample ID: MB 440-127137/4
Matrix: Water
Analysis Batch: 127137

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			08/26/13 17:12	1
Sulfate	ND		0.50		mg/L			08/26/13 17:12	1

Lab Sample ID: LCS 440-127137/2
Matrix: Water
Analysis Batch: 127137

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.54		mg/L		91	90 - 110
Sulfate	10.0	9.22		mg/L		92	90 - 110

Lab Sample ID: 440-55380-1 MS
Matrix: Water
Analysis Batch: 127137

Client Sample ID: MCWP-MW01 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	97		50.0	145		mg/L		96	80 - 120
Sulfate	100		100	196		mg/L		94	80 - 120

Lab Sample ID: 440-55380-1 MSD
Matrix: Water
Analysis Batch: 127137

Client Sample ID: MCWP-MW01 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	97		50.0	143		mg/L		93	80 - 120	1	20
Sulfate	100		100	191		mg/L		89	80 - 120	3	20

Method: 300.0 - Anions, Ion Chromatography - DL

Lab Sample ID: 440-55380-1 MS
Matrix: Water
Analysis Batch: 127136

Client Sample ID: MCWP-MW01 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as NO2 - DL	ND		50.0	50.3		mg/L		100	80 - 120
Nitrate as NO3 - DL	ND		50.0	49.4		mg/L		83	80 - 120

Lab Sample ID: 440-55380-1 MSD
Matrix: Water
Analysis Batch: 127136

Client Sample ID: MCWP-MW01 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as NO2 - DL	ND		50.0	47.0		mg/L		94	80 - 120	7	20
Nitrate as NO3 - DL	ND		50.0	49.4		mg/L		83	80 - 120	0	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-127337/1-A
Matrix: Water
Analysis Batch: 127504

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 127337

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.050		mg/L		08/27/13 11:02	08/27/13 17:50	1
Chromium	ND		5.0		ug/L		08/27/13 11:02	08/27/13 17:50	1
Lead	ND		5.0		ug/L		08/27/13 11:02	08/27/13 17:50	1
Copper	ND		10		ug/L		08/27/13 11:02	08/27/13 17:50	1

Lab Sample ID: LCS 440-127337/2-A
Matrix: Water
Analysis Batch: 127504

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 127337

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.500	0.517		mg/L		103	85 - 115
Chromium	500	496		ug/L		99	85 - 115
Lead	500	502		ug/L		100	85 - 115
Copper	500	472		ug/L		94	85 - 115

Lab Sample ID: 440-54629-C-1-B MS
Matrix: Water
Analysis Batch: 127504

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 127337

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.083		0.500	0.591		mg/L		102	70 - 130
Chromium	25		500	508		ug/L		97	70 - 130
Lead	170		500	667		ug/L		99	70 - 130
Copper	500		500	957		ug/L		92	70 - 130

Lab Sample ID: 440-54629-C-1-C MSD
Matrix: Water
Analysis Batch: 127504

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 127337

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.083		0.500	0.604		mg/L		104	70 - 130	2	20

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 440-54629-C-1-C MSD
Matrix: Water
Analysis Batch: 127504

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 127337

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	25		500	515		ug/L		98	70 - 130	1	20
Lead	170		500	677		ug/L		101	70 - 130	2	20
Copper	500		500	969		ug/L		94	70 - 130	1	20

Method: 150.1 - pH (Electrometric)

Lab Sample ID: 440-55594-C-1 DU
Matrix: Water
Analysis Batch: 128357

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.97		7.950		SU		0.3	2
Temperature	24.1		23.70		Degrees C		2	

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-128186/1-A
Matrix: Water
Analysis Batch: 128189

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 128186

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	ND		5.0		mg/L		08/30/13 08:05	08/30/13 08:13	1

Lab Sample ID: LCS 440-128186/2-A
Matrix: Water
Analysis Batch: 128189

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 128186

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM	20.0	16.8		mg/L		84	78 - 114

Lab Sample ID: LCSD 440-128186/3-A
Matrix: Water
Analysis Batch: 128189

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 128186

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM	20.0	17.5		mg/L		88	78 - 114	4	11

Method: SM 2130B - Turbidity

Lab Sample ID: MB 440-127462/5
Matrix: Water
Analysis Batch: 127462

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.10		NTU			08/27/13 16:00	1

Method: SM 2130B - Turbidity (Continued)

Lab Sample ID: 440-55372-D-2 DU
Matrix: Water
Analysis Batch: 127462

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	8.3		8.71		NTU		4	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-127293/1
Matrix: Water
Analysis Batch: 127293

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10		mg/L			08/27/13 08:00	1

Lab Sample ID: LCS 440-127293/2
Matrix: Water
Analysis Batch: 127293

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	976		mg/L		98	90 - 110

Lab Sample ID: 440-55380-1 DU
Matrix: Water
Analysis Batch: 127293

Client Sample ID: MCWP-MW01 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	440		435		mg/L		0.7	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-127219/1
Matrix: Water
Analysis Batch: 127219

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		10		mg/L			08/26/13 21:26	1

Lab Sample ID: LCS 440-127219/2
Matrix: Water
Analysis Batch: 127219

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	996		mg/L		100	85 - 115

Lab Sample ID: 440-55372-D-1 DU
Matrix: Water
Analysis Batch: 127219

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	320		320		mg/L		0.6	10

Method: SM 4500 Cl G - Chlorine, Residual

Lab Sample ID: MB 440-127714/1
Matrix: Water
Analysis Batch: 127714

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Residual Chlorine	ND		0.10		mg/L			08/28/13 14:15	1

Lab Sample ID: 440-55380-1 DU
Matrix: Water
Analysis Batch: 127714

Client Sample ID: MCWP-MW01 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Residual Chlorine	ND	HF	ND	HF	mg/L		NC	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-127601/1 USB
Matrix: Water
Analysis Batch: 127601

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			08/28/13 09:35	1

Lab Sample ID: LCS 440-127601/4
Matrix: Water
Analysis Batch: 127601

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	199	189		mg/L		95	85 - 115

Lab Sample ID: LCSD 440-127601/5
Matrix: Water
Analysis Batch: 127601

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand	199	191		mg/L		96	85 - 115	1	20

GC/MS VOA

Analysis Batch: 127261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-54836-B-1 MS	Matrix Spike	Total/NA	Water	8260B	
440-54836-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
440-55380-1	MCWP-MW01 Effluent	Total/NA	Water	8260B	
LCS 440-127261/5	Lab Control Sample	Total/NA	Water	8260B	
MB 440-127261/4	Method Blank	Total/NA	Water	8260B	

HPLC/IC

Analysis Batch: 127136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55380-1	MCWP-MW01 Effluent	Total/NA	Water	300.0	
440-55380-1 MS - DL	MCWP-MW01 Effluent	Total/NA	Water	300.0	
440-55380-1 MSD - DL	MCWP-MW01 Effluent	Total/NA	Water	300.0	
LCS 440-127136/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-127136/4	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 127137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55380-1	MCWP-MW01 Effluent	Total/NA	Water	300.0	
440-55380-1 MS	MCWP-MW01 Effluent	Total/NA	Water	300.0	
440-55380-1 MSD	MCWP-MW01 Effluent	Total/NA	Water	300.0	
LCS 440-127137/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-127137/4	Method Blank	Total/NA	Water	300.0	

Metals

Prep Batch: 127337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-54629-C-1-B MS	Matrix Spike	Total Recoverable	Water	200.2	
440-54629-C-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	
440-55380-1	MCWP-MW01 Effluent	Total Recoverable	Water	200.2	
LCS 440-127337/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
MB 440-127337/1-A	Method Blank	Total Recoverable	Water	200.2	

Analysis Batch: 127504

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-54629-C-1-B MS	Matrix Spike	Total Recoverable	Water	200.7 Rev 4.4	127337
440-54629-C-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7 Rev 4.4	127337
440-55380-1	MCWP-MW01 Effluent	Total Recoverable	Water	200.7 Rev 4.4	127337
LCS 440-127337/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	127337
MB 440-127337/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	127337

General Chemistry

Analysis Batch: 127219

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55372-D-1 DU	Duplicate	Total/NA	Water	SM 2540D	
440-55380-1	MCWP-MW01 Effluent	Total/NA	Water	SM 2540D	
LCS 440-127219/2	Lab Control Sample	Total/NA	Water	SM 2540D	
MB 440-127219/1	Method Blank	Total/NA	Water	SM 2540D	

General Chemistry (Continued)

Analysis Batch: 127289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55380-1	MCWP-MW01 Effluent	Total/NA	Water	SM 2540F	

Analysis Batch: 127293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55380-1	MCWP-MW01 Effluent	Total/NA	Water	SM 2540C	
440-55380-1 DU	MCWP-MW01 Effluent	Total/NA	Water	SM 2540C	
LCS 440-127293/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 440-127293/1	Method Blank	Total/NA	Water	SM 2540C	

Analysis Batch: 127462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55372-D-2 DU	Duplicate	Total/NA	Water	SM 2130B	
440-55380-1	MCWP-MW01 Effluent	Total/NA	Water	SM 2130B	
MB 440-127462/5	Method Blank	Total/NA	Water	SM 2130B	

Analysis Batch: 127601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55380-1	MCWP-MW01 Effluent	Total/NA	Water	SM5210B	
LCS 440-127601/4	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-127601/5	Lab Control Sample Dup	Total/NA	Water	SM5210B	
USB 440-127601/1 USB	Method Blank	Total/NA	Water	SM5210B	

Analysis Batch: 127714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55380-1	MCWP-MW01 Effluent	Total/NA	Water	SM 4500 Cl G	
440-55380-1 DU	MCWP-MW01 Effluent	Total/NA	Water	SM 4500 Cl G	
MB 440-127714/1	Method Blank	Total/NA	Water	SM 4500 Cl G	

Prep Batch: 128186

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55380-1	MCWP-MW01 Effluent	Total/NA	Water	1664A	
LCS 440-128186/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-128186/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	
MB 440-128186/1-A	Method Blank	Total/NA	Water	1664A	

Analysis Batch: 128189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55380-1	MCWP-MW01 Effluent	Total/NA	Water	1664A	128186
LCS 440-128186/2-A	Lab Control Sample	Total/NA	Water	1664A	128186
LCSD 440-128186/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	128186
MB 440-128186/1-A	Method Blank	Total/NA	Water	1664A	128186

Analysis Batch: 128357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55380-1	MCWP-MW01 Effluent	Total/NA	Water	150.1	
440-55594-C-1 DU	Duplicate	Total/NA	Water	150.1	

Qualifiers

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-55380-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-14
Arizona	State Program	9	AZ0671	10-13-13
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-14
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-28-14 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-14
New Mexico	State Program	6	N/A	01-31-14
Northern Mariana Islands	State Program	9	MP0002	01-31-14
Oregon	NELAP	10	4005	09-12-13
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

* Expired certification is currently pending renewal and is considered valid.

Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614
phone 949 261 1022 fax 949.260.3299

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Leslie Dumas	Site Contact: Robert Marks	Date: 8/26/13	COC No
RMC Water and Environment	Tel/Fax:	Lab Contact: Janice Hsu	Carrier:	1 of 1 COCs
2001 N. Main Street Suite 400	Analysis Turnaround Time			Job No.
Walnut Creek, CA 94596	Calendar (C) or Work Days (W) W			
(925) 627-4100 Phone	TAT if different from Below			TALS Proj #: 44008618
(925) 627-4101 FAX	☐ 2 weeks			
Project Name: Malibu - Well Installation (Short List)	☐ 1 week Normal			
Site: MCWP - MW01 Effluent	☐ 2 days TAT			
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Preservatives	Matrix	# of Cont.	Filtered Sample	TSS	Turbidity	BOD	Settleable Solids	Residual Chlorine	Sulfate	Chloride	NO3 + NO2	TDS	Boron, Copper, Lead, Chromium	8260 VOA (include MTBE)	1664 - Oil & Grease	pH & Temperature	Fish Bioassay	Sample Specific Notes.
MCWP - MW01 Effluent	8/26	10:30	N/A	W	5		X	X	X	X	X	X	X	X	X				X		48 hours hold time for Thrbidity,
" " "		8-26-13	HNO3	W	1											X					BOD & NO3 + NO2
" " "			HCL	W	2												X				1 VOA broken
" " "			HCL	W	2													X			
" " "			NA	W	1															X	

8/26/13 1800

440-55380 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments: Field pH = 6.8, Temp = 22.1°C

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
[signature]	PW2 Fnc	8/26 13 16	[signature]	SUNZ1SE	08-26-13 1.40
[signature]	SUNZ1SE	8/26 1450	[signature]	TA-I	8/26/13 14:50
Relinquished by:	Company:	Date/Time:	Received by:	Company	Date/Time:

19.7/19.5 cc

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9/5/2013

Login Sample Receipt Checklist

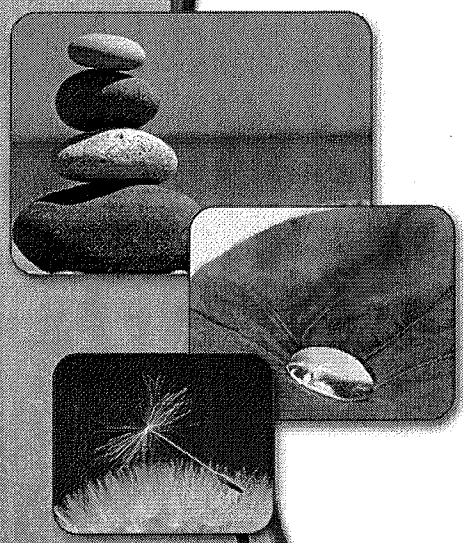
Client: RMC Water and Environment

Job Number: 440-55380-1

Login Number: 55380
List Number: 1
Creator: Chavez, Elizabeth

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Not provided by the client.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-53484-1
Client Project/Site: Malibu - Well Installation

For:
RMC Water and Environment
2001 N. Main Street
Suite 400
Walnut Creek, California 94596

Attn: Leslie Dumas

Authorized for release by:
8/13/2013 2:42:25 PM

Janice Hsu, Project Manager I
janice.hsu@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-53484-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-53484-1	MCWP-MW01 Effluent	Water	08/05/13 12:10	08/05/13 15:55

Job ID: 440-53484-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-53484-1

Comments
No additional comments.

Receipt
The sample was received on 8/5/2013 3:55 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 14.9° C.

GC/MS VOA
No analytical or quality issues were noted.

HPLC
Method(s) 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for chloride in batch 122285 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry
Method(s) 1664A: Insufficient sample volume was available to perform batch matrix spike/matrix spike duplicate (MS/MSD) associated with batch 123309. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

No other analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

Client Sample Results

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-53484-1

Client Sample ID: MCWP-MW01 Effluent
Date Collected: 08/05/13 12:10
Date Received: 08/05/13 15:55

Lab Sample ID: 440-53484-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/06/13 05:02	1
1,1,1-Trichloroethane	ND		2.0		ug/L			08/06/13 05:02	1
1,1,2,2-Tetrachloroethane	ND		2.0		ug/L			08/06/13 05:02	1
1,1,2-Trichloroethane	ND		2.0		ug/L			08/06/13 05:02	1
1,1-Dichloroethane	ND		2.0		ug/L			08/06/13 05:02	1
1,1-Dichlorethylene	ND		5.0		ug/L			08/06/13 05:02	1
1,1-Dichloropropene	ND		2.0		ug/L			08/06/13 05:02	1
1,2,3-Trichlorobenzene	ND		5.0		ug/L			08/06/13 05:02	1
1,2,3-Trichloropropane	ND		10		ug/L			08/06/13 05:02	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			08/06/13 05:02	1
1,2,4-Trimethylbenzene	ND		2.0		ug/L			08/06/13 05:02	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			08/06/13 05:02	1
1,2-Dichlorobenzene	ND		2.0		ug/L			08/06/13 05:02	1
1,2-Dichloroethane	ND		2.0		ug/L			08/06/13 05:02	1
1,2-Dichloropropane	ND		2.0		ug/L			08/06/13 05:02	1
1,3,5-Trimethylbenzene	ND		2.0		ug/L			08/06/13 05:02	1
1,3-Dichlorobenzene	ND		2.0		ug/L			08/06/13 05:02	1
1,3-Dichloropropane	ND		2.0		ug/L			08/06/13 05:02	1
1,4-Dichlorobenzene	ND		2.0		ug/L			08/06/13 05:02	1
2,2-Dichloropropane	ND		2.0		ug/L			08/06/13 05:02	1
2-Chlorotoluene	ND		5.0		ug/L			08/06/13 05:02	1
4-Chlorotoluene	ND		5.0		ug/L			08/06/13 05:02	1
Benzene	ND		2.0		ug/L			08/06/13 05:02	1
Bromobenzene	ND		5.0		ug/L			08/06/13 05:02	1
Bromoform	ND		5.0		ug/L			08/06/13 05:02	1
Bromomethane	ND		5.0		ug/L			08/06/13 05:02	1
Carbon tetrachloride	ND		5.0		ug/L			08/06/13 05:02	1
Chlorobenzene	ND		2.0		ug/L			08/06/13 05:02	1
Chloroethane	ND		5.0		ug/L			08/06/13 05:02	1
Chloroform	ND		2.0		ug/L			08/06/13 05:02	1
Chloromethane	ND		5.0		ug/L			08/06/13 05:02	1
cis-1,2-Dichloroethene	ND		2.0		ug/L			08/06/13 05:02	1
cis-1,3-Dichloropropene	ND		2.0		ug/L			08/06/13 05:02	1
Dibromomethane	ND		2.0		ug/L			08/06/13 05:02	1
Dichlorodifluoromethane	ND		5.0		ug/L			08/06/13 05:02	1
Ethylbenzene	ND		2.0		ug/L			08/06/13 05:02	1
Hexachlorobutadiene	ND		5.0		ug/L			08/06/13 05:02	1
Isopropylbenzene	ND		2.0		ug/L			08/06/13 05:02	1
m,p-Xylene	ND		2.0		ug/L			08/06/13 05:02	1
Methylene Chloride	ND		5.0		ug/L			08/06/13 05:02	1
Naphthalene	ND		5.0		ug/L			08/06/13 05:02	1
n-Butylbenzene	ND		5.0		ug/L			08/06/13 05:02	1
N-Propylbenzene	ND		2.0		ug/L			08/06/13 05:02	1
o-Xylene	ND		2.0		ug/L			08/06/13 05:02	1
sec-Butylbenzene	ND		5.0		ug/L			08/06/13 05:02	1
Styrene	ND		2.0		ug/L			08/06/13 05:02	1
tert-Butylbenzene	ND		5.0		ug/L			08/06/13 05:02	1
Tetrachloroethene	ND		2.0		ug/L			08/06/13 05:02	1
Toluene	ND		2.0		ug/L			08/06/13 05:02	1

Client Sample ID: MCWP-MW01 Effluent

Date Collected: 08/05/13 12:10
Date Received: 08/05/13 15:55

Lab Sample ID: 440-53484-1

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-trans-Dichloroethylene	ND		2.0		ug/L			08/06/13 05:02	1
trans-1,3-Dichloropropene	ND		2.0		ug/L			08/06/13 05:02	1
Trichloroethylene	ND		2.0		ug/L			08/06/13 05:02	1
Trichlorofluoromethane	ND		5.0		ug/L			08/06/13 05:02	1
Vinyl chloride	ND		5.0		ug/L			08/06/13 05:02	1
1,2-Dibromoethane (EDB)	ND		2.0		ug/L			08/06/13 05:02	1
Bromochloromethane	ND		5.0		ug/L			08/06/13 05:02	1
Bromodichloromethane	ND		2.0		ug/L			08/06/13 05:02	1
Dibromochloromethane	ND		2.0		ug/L			08/06/13 05:02	1
p-Isopropyltoluene	ND		2.0		ug/L			08/06/13 05:02	1
Methyl-t-Butyl Ether (MTBE)	ND		1.0		ug/L			08/06/13 05:02	1
Trihalomethanes, Total	ND		1.0		ug/L			08/06/13 05:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*80 - 120*		*08/06/13 05:02*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*08/06/13 05:02*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 120*		*08/06/13 05:02*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.26		mg/L			08/05/13 22:14	1
Chloride	**35**		5.0		mg/L			08/05/13 22:30	10
Nitrite as NO2	ND		0.50		mg/L			08/05/13 22:14	1
Nitrate as NO3	**0.60**		0.50		mg/L			08/05/13 22:14	1
Sulfate	**110**		5.0		mg/L			08/05/13 22:30	10

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.11**		0.050		mg/L		08/05/13 19:40	08/06/13 11:00	1
Chromium	ND		5.0		ug/L		08/05/13 19:40	08/06/13 11:00	1
Lead	ND		5.0		ug/L		08/05/13 19:40	08/06/13 11:00	1
Copper	ND		10		ug/L		08/05/13 19:40	08/06/13 11:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	ND		4.8		mg/L		08/09/13 07:27	08/09/13 07:34	1
Total Dissolved Solids	**240**		10		mg/L			08/06/13 07:30	1
Total Suspended Solids	**2.6**		1.3		mg/L			08/05/13 16:49	1
Biochemical Oxygen Demand	ND		2.0		mg/L			08/07/13 09:32	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.60**	**HF**	0.100		SU			08/10/13 13:32	1
Temperature	**21.6**	**HF**	1.00		Degrees C			08/10/13 13:32	1
Turbidity	**0.96**		0.10		NTU			08/06/13 10:48	1
Settleable Solids	ND		0.10		mL/L/Hr			08/06/13 08:28	1
Residual Chlorine	ND	HF	0.10		mg/L			08/07/13 15:23	1

Method Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-53484-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
150.1	pH (Electrometric)	MCAWW	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2130B	Turbidity	SM	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 2540F	Solids, Settleable	SM	TAL IRV
SM 4500 Cl G	Chlorine, Residual	SM	TAL IRV
SM5210B	BOD, 5 Day	SM	TAL IRV

Protocol References:

1664A = EPA-821-98-002

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-53484-1

Client Sample ID: MCWP-MW01 Effluent

Date Collected: 08/05/13 12:10
Date Received: 08/05/13 15:55

Lab Sample ID: 440-53484-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	122307	08/06/13 05:02	MP	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		122284	08/05/13 22:14	NN	TAL IRV
Total/NA	Analysis	300.0		10	1 mL		122285	08/05/13 22:30	NN	TAL IRV
Total Recoverable	Prep	200.2			50 mL	50 mL	122361	08/05/13 19:40	ND	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			122497	08/06/13 11:00	MP	TAL IRV
Total/NA	Analysis	SM 2540D		1	800 mL	100 mL	122353	08/05/13 16:49	DK	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1000 mL	122420	08/06/13 08:28	NT	TAL IRV
Total/NA	Analysis	SM 2130B		1		20 mL	122477	08/06/13 10:48	NT	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	122510	08/06/13 07:30	XL	TAL IRV
Total/NA	Analysis	SM5210B		1		300 mL	122762	08/07/13 09:32	TAI	TAL IRV
Total/NA	Analysis	SM 4500 Cl G		1	10 mL	10 mL	122888	08/07/13 15:23	TAI	TAL IRV
Total/NA	Prep	1664A			1050 mL	1000 mL	123308	08/09/13 07:27	DA	TAL IRV
Total/NA	Analysis	1664A		1			123309	08/09/13 07:34	DA	TAL IRV
Total/NA	Analysis	150.1		1		50 mL	123617	08/10/13 13:32	TR	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-53484-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-122307/4
Matrix: Water
Analysis Batch: 122307

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/05/13 21:00	1
1,1,1-Trichloroethane	ND		2.0		ug/L			08/05/13 21:00	1
1,1,2,2-Tetrachloroethane	ND		2.0		ug/L			08/05/13 21:00	1
1,1,2-Trichloroethane	ND		2.0		ug/L			08/05/13 21:00	1
1,1-Dichloroethane	ND		2.0		ug/L			08/05/13 21:00	1
1,1-Dichlorethylene	ND		5.0		ug/L			08/05/13 21:00	1
1,1-Dichloropropene	ND		2.0		ug/L			08/05/13 21:00	1
1,2,3-Trichlorobenzene	ND		5.0		ug/L			08/05/13 21:00	1
1,2,3-Trichloropropane	ND		10		ug/L			08/05/13 21:00	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			08/05/13 21:00	1
1,2,4-Trimethylbenzene	ND		2.0		ug/L			08/05/13 21:00	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			08/05/13 21:00	1
1,2-Dichlorobenzene	ND		2.0		ug/L			08/05/13 21:00	1
1,2-Dichloroethane	ND		2.0		ug/L			08/05/13 21:00	1
1,2-Dichloropropane	ND		2.0		ug/L			08/05/13 21:00	1
1,3,5-Trimethylbenzene	ND		2.0		ug/L			08/05/13 21:00	1
1,3-Dichlorobenzene	ND		2.0		ug/L			08/05/13 21:00	1
1,3-Dichloropropane	ND		2.0		ug/L			08/05/13 21:00	1
1,4-Dichlorobenzene	ND		2.0		ug/L			08/05/13 21:00	1
2,2-Dichloropropane	ND		2.0		ug/L			08/05/13 21:00	1
2-Chlorotoluene	ND		5.0		ug/L			08/05/13 21:00	1
4-Chlorotoluene	ND		5.0		ug/L			08/05/13 21:00	1
Benzene	ND		2.0		ug/L			08/05/13 21:00	1
Bromobenzene	ND		5.0		ug/L			08/05/13 21:00	1
Bromoform	ND		5.0		ug/L			08/05/13 21:00	1
Bromomethane	ND		5.0		ug/L			08/05/13 21:00	1
Carbon tetrachloride	ND		5.0		ug/L			08/05/13 21:00	1
Chlorobenzene	ND		2.0		ug/L			08/05/13 21:00	1
Chloroethane	ND		5.0		ug/L			08/05/13 21:00	1
Chloroform	ND		2.0		ug/L			08/05/13 21:00	1
Chloromethane	ND		5.0		ug/L			08/05/13 21:00	1
cis-1,2-Dichloroethene	ND		2.0		ug/L			08/05/13 21:00	1
cis-1,3-Dichloropropene	ND		2.0		ug/L			08/05/13 21:00	1
Dibromomethane	ND		2.0		ug/L			08/05/13 21:00	1
Dichlorodifluoromethane	ND		5.0		ug/L			08/05/13 21:00	1
Ethylbenzene	ND		2.0		ug/L			08/05/13 21:00	1
Hexachlorobutadiene	ND		5.0		ug/L			08/05/13 21:00	1
Isopropylbenzene	ND		2.0		ug/L			08/05/13 21:00	1
m,p-Xylene	ND		2.0		ug/L			08/05/13 21:00	1
Methylene Chloride	ND		5.0		ug/L			08/05/13 21:00	1
Naphthalene	ND		5.0		ug/L			08/05/13 21:00	1
n-Butylbenzene	ND		5.0		ug/L			08/05/13 21:00	1
N-Propylbenzene	ND		2.0		ug/L			08/05/13 21:00	1
o-Xylene	ND		2.0		ug/L			08/05/13 21:00	1
sec-Butylbenzene	ND		5.0		ug/L			08/05/13 21:00	1
Styrene	ND		2.0		ug/L			08/05/13 21:00	1
tert-Butylbenzene	ND		5.0		ug/L			08/05/13 21:00	1
Tetrachloroethene	ND		2.0		ug/L			08/05/13 21:00	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-122307/4
Matrix: Water
Analysis Batch: 122307

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		2.0		ug/L			08/05/13 21:00	1
1,2-trans-Dichloroethylene	ND		2.0		ug/L			08/05/13 21:00	1
trans-1,3-Dichloropropene	ND		2.0		ug/L			08/05/13 21:00	1
Trichloroethylene	ND		2.0		ug/L			08/05/13 21:00	1
Trichlorofluoromethane	ND		5.0		ug/L			08/05/13 21:00	1
Vinyl chloride	ND		5.0		ug/L			08/05/13 21:00	1
1,2-Dibromoethane (EDB)	ND		2.0		ug/L			08/05/13 21:00	1
Bromochloromethane	ND		5.0		ug/L			08/05/13 21:00	1
Bromodichloromethane	ND		2.0		ug/L			08/05/13 21:00	1
Dibromochloromethane	ND		2.0		ug/L			08/05/13 21:00	1
p-Isopropyltoluene	ND		2.0		ug/L			08/05/13 21:00	1
Methyl-t-Butyl Ether (MTBE)	ND		1.0		ug/L			08/05/13 21:00	1
Trihalomethanes, Total	ND		2.0		ug/L			08/05/13 21:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*108*		*80 - 120*		*08/05/13 21:00*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*08/05/13 21:00*	*1*
Dibromofluoromethane (Surr)	*99*		*80 - 120*		*08/05/13 21:00*	*1*

Lab Sample ID: LCS 440-122307/5
Matrix: Water
Analysis Batch: 122307

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	25.0	26.0		ug/L		104	60 - 141
1,1,1-Trichloroethane	25.0	24.0		ug/L		96	70 - 130
1,1,2,2-Tetrachloroethane	25.0	24.9		ug/L		99	63 - 130
1,1,2-Trichloroethane	25.0	23.1		ug/L		93	70 - 130
1,1-Dichloroethane	25.0	23.3		ug/L		93	64 - 130
1,1-Dichlorethylene	25.0	22.9		ug/L		91	70 - 130
1,1-Dichloropropene	25.0	23.9		ug/L		96	70 - 130
1,2,3-Trichlorobenzene	25.0	24.7		ug/L		99	60 - 140
1,2,3-Trichloropropane	25.0	23.3		ug/L		93	63 - 130
1,2,4-Trichlorobenzene	25.0	25.2		ug/L		101	60 - 140
1,2,4-Trimethylbenzene	25.0	27.0		ug/L		108	70 - 135
1,2-Dibromo-3-Chloropropane	25.0	21.4		ug/L		86	52 - 140
1,2-Dichlorobenzene	25.0	25.0		ug/L		100	70 - 130
1,2-Dichloroethane	25.0	24.6		ug/L		99	57 - 138
1,2-Dichloropropane	25.0	23.1		ug/L		93	67 - 130
1,3,5-Trimethylbenzene	25.0	26.6		ug/L		107	70 - 136
1,3-Dichlorobenzene	25.0	24.5		ug/L		98	70 - 130
1,3-Dichloropropane	25.0	24.5		ug/L		98	70 - 130
1,4-Dichlorobenzene	25.0	24.0		ug/L		96	70 - 130
2,2-Dichloropropane	25.0	25.9		ug/L		104	68 - 141
2-Chlorotoluene	25.0	25.7		ug/L		103	70 - 130
4-Chlorotoluene	25.0	25.7		ug/L		103	70 - 130
Benzene	25.0	22.8		ug/L		91	68 - 130
Bromobenzene	25.0	26.0		ug/L		104	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-122307/5
Matrix: Water
Analysis Batch: 122307

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoform	25.0	26.3		ug/L		105	60 - 148
Bromomethane	25.0	24.8		ug/L		99	64 - 139
Carbon tetrachloride	25.0	25.5		ug/L		102	60 - 150
Chlorobenzene	25.0	23.2		ug/L		93	70 - 130
Chloroethane	25.0	25.6		ug/L		102	64 - 135
Chloroform	25.0	25.0		ug/L		100	70 - 130
Chloromethane	25.0	19.0		ug/L		76	47 - 140
cis-1,2-Dichloroethene	25.0	26.4		ug/L		106	70 - 133
cis-1,3-Dichloropropene	25.0	25.7		ug/L		103	70 - 133
Dibromomethane	25.0	23.9		ug/L		96	70 - 130
Dichlorodifluoromethane	25.0	16.5		ug/L		66	29 - 150
Ethylbenzene	25.0	25.4		ug/L		101	70 - 130
Hexachlorobutadiene	25.0	23.1		ug/L		92	10 - 150
Isopropylbenzene	25.0	27.6		ug/L		110	70 - 136
m,p-Xylene	50.0	52.9		ug/L		106	70 - 130
Methylene Chloride	25.0	24.1		ug/L		97	52 - 130
Naphthalene	25.0	24.8		ug/L		99	60 - 140
n-Butylbenzene	25.0	24.6		ug/L		98	65 - 150
N-Propylbenzene	25.0	26.4		ug/L		106	67 - 139
o-Xylene	25.0	27.0		ug/L		108	70 - 130
sec-Butylbenzene	25.0	25.4		ug/L		102	70 - 138
Styrene	25.0	23.9		ug/L		96	70 - 134
tert-Butylbenzene	25.0	26.4		ug/L		106	70 - 130
Tetrachloroethene	25.0	23.2		ug/L		93	70 - 130
Toluene	25.0	25.7		ug/L		103	70 - 130
1,2-trans-Dichloroethylene	25.0	23.8		ug/L		95	70 - 130
trans-1,3-Dichloropropene	25.0	24.7		ug/L		99	70 - 132
Trichloroethylene	25.0	23.8		ug/L		95	70 - 130
Trichlorofluoromethane	25.0	28.5		ug/L		114	60 - 150
Vinyl chloride	25.0	22.5		ug/L		90	59 - 133
1,2-Dibromoethane (EDB)	25.0	24.9		ug/L		100	70 - 130
Bromochloromethane	25.0	23.7		ug/L		95	70 - 130
Bromodichloromethane	25.0	26.2		ug/L		105	70 - 132
Dibromochloromethane	25.0	26.5		ug/L		106	69 - 145
p-Isopropyltoluene	25.0	22.9		ug/L		92	70 - 132
Methyl-t-Butyl Ether (MTBE)	25.0	26.4		ug/L		106	63 - 131

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*106*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*80 - 120*

Lab Sample ID: 440-52804-C-2 MS
Matrix: Water
Analysis Batch: 122307

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	ND		25.0	26.4		ug/L		106	60 - 149

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-52804-C-2 MS
Matrix: Water
Analysis Batch: 122307

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		25.0	24.1		ug/L		96	70 - 130
1,1,2,2-Tetrachloroethane	ND		25.0	25.7		ug/L		103	63 - 130
1,1,2-Trichloroethane	ND		25.0	24.2		ug/L		97	70 - 130
1,1-Dichloroethane	ND		25.0	22.9		ug/L		92	65 - 130
1,1-Dichlorethylene	ND		25.0	23.3		ug/L		93	70 - 130
1,1-Dichloropropene	ND		25.0	24.0		ug/L		96	64 - 130
1,2,3-Trichlorobenzene	ND		25.0	25.0		ug/L		100	60 - 140
1,2,3-Trichloropropane	ND		25.0	23.4		ug/L		93	60 - 130
1,2,4-Trichlorobenzene	ND		25.0	25.5		ug/L		102	60 - 140
1,2,4-Trimethylbenzene	ND		25.0	26.5		ug/L		106	70 - 130
1,2-Dibromo-3-Chloropropane	ND		25.0	23.5		ug/L		94	48 - 140
1,2-Dichlorobenzene	ND		25.0	24.6		ug/L		98	70 - 130
1,2-Dichloroethane	ND		25.0	24.7		ug/L		99	56 - 146
1,2-Dichloropropane	ND		25.0	23.2		ug/L		93	69 - 130
1,3,5-Trimethylbenzene	ND		25.0	26.8		ug/L		107	70 - 130
1,3-Dichlorobenzene	ND		25.0	24.7		ug/L		99	70 - 130
1,3-Dichloropropane	ND		25.0	24.4		ug/L		97	70 - 130
1,4-Dichlorobenzene	ND		25.0	24.1		ug/L		96	70 - 130
2,2-Dichloropropane	ND		25.0	27.1		ug/L		108	69 - 138
2-Chlorotoluene	ND		25.0	24.8		ug/L		99	70 - 130
4-Chlorotoluene	ND		25.0	25.0		ug/L		100	70 - 130
Benzene	ND		25.0	23.4		ug/L		94	66 - 130
Bromobenzene	ND		25.0	25.6		ug/L		103	70 - 130
Bromoform	ND		25.0	27.4		ug/L		109	59 - 150
Bromomethane	ND		25.0	24.2		ug/L		97	62 - 131
Carbon tetrachloride	ND		25.0	26.3		ug/L		105	60 - 150
Chlorobenzene	ND		25.0	23.3		ug/L		93	70 - 130
Chloroethane	ND		25.0	25.2		ug/L		101	68 - 130
Chloroform	ND		25.0	24.2		ug/L		97	70 - 130
Chloromethane	ND		25.0	19.8		ug/L		79	39 - 144
cis-1,2-Dichloroethene	ND		25.0	25.8		ug/L		103	70 - 130
cis-1,3-Dichloropropene	ND		25.0	25.3		ug/L		101	70 - 133
Dibromomethane	ND		25.0	25.6		ug/L		102	70 - 130
Dichlorodifluoromethane	ND		25.0	17.3		ug/L		69	25 - 142
Ethylbenzene	ND		25.0	25.9		ug/L		103	70 - 130
Hexachlorobutadiene	ND		25.0	23.6		ug/L		94	10 - 150
Isopropylbenzene	ND		25.0	28.0		ug/L		112	70 - 132
m,p-Xylene	ND		50.0	53.2		ug/L		106	70 - 133
Methylene Chloride	ND		25.0	25.5		ug/L		91	52 - 130
Naphthalene	ND		25.0	25.6		ug/L		102	60 - 140
n-Butylbenzene	ND		25.0	25.1		ug/L		101	61 - 149
N-Propylbenzene	ND		25.0	26.2		ug/L		105	66 - 135
o-Xylene	ND		25.0	27.5		ug/L		110	70 - 133
sec-Butylbenzene	ND		25.0	25.6		ug/L		102	67 - 134
Styrene	ND		25.0	23.8		ug/L		95	29 - 150
tert-Butylbenzene	ND		25.0	26.2		ug/L		105	70 - 130
Tetrachloroethene	ND		25.0	23.8		ug/L		95	70 - 137
Toluene	ND		25.0	25.7		ug/L		103	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-52804-C-2 MS
Matrix: Water
Analysis Batch: 122307

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-trans-Dichloroethylene	ND		25.0	24.2		ug/L		97	70 - 130
trans-1,3-Dichloropropene	ND		25.0	26.3		ug/L		105	70 - 138
Trichloroethylene	ND		25.0	23.6		ug/L		94	70 - 130
Trichlorofluoromethane	ND		25.0	30.1		ug/L		120	60 - 150
Vinyl chloride	ND		25.0	22.1		ug/L		88	50 - 137
1,2-Dibromoethane (EDB)	ND		25.0	25.6		ug/L		103	70 - 131
Bromochloromethane	ND		25.0	23.9		ug/L		95	70 - 130
Bromodichloromethane	ND		25.0	26.2		ug/L		105	70 - 138
Dibromochloromethane	ND		25.0	27.7		ug/L		111	70 - 148
p-Isopropyltoluene	ND		25.0	23.1		ug/L		92	70 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	27.7		ug/L		111	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*106*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*
Dibromofluoromethane (Surr)	*101*		*80 - 120*

Lab Sample ID: 440-52804-C-2 MSD
Matrix: Water
Analysis Batch: 122307

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	ND		25.0	27.0		ug/L		108	60 - 149	2	20
1,1,1-Trichloroethane	ND		25.0	24.7		ug/L		99	70 - 130	2	20
1,1,2,2-Tetrachloroethane	ND		25.0	28.0		ug/L		112	63 - 130	8	30
1,1,2-Trichloroethane	ND		25.0	25.5		ug/L		102	70 - 130	5	25
1,1-Dichloroethane	ND		25.0	22.9		ug/L		92	65 - 130	0	20
1,1-Dichlorethylene	ND		25.0	24.3		ug/L		97	70 - 130	4	20
1,1-Dichloropropene	ND		25.0	25.3		ug/L		101	64 - 130	5	20
1,2,3-Trichlorobenzene	ND		25.0	26.1		ug/L		104	60 - 140	4	20
1,2,3-Trichloropropane	ND		25.0	25.9		ug/L		104	60 - 130	10	30
1,2,4-Trichlorobenzene	ND		25.0	27.0		ug/L		108	60 - 140	6	20
1,2,4-Trimethylbenzene	ND		25.0	27.5		ug/L		110	70 - 130	4	25
1,2-Dibromo-3-Chloropropane	ND		25.0	26.1		ug/L		104	48 - 140	10	30
1,2-Dichlorobenzene	ND		25.0	26.1		ug/L		104	70 - 130	6	20
1,2-Dichloroethane	ND		25.0	25.7		ug/L		103	56 - 146	4	20
1,2-Dichloropropane	ND		25.0	24.5		ug/L		98	69 - 130	6	20
1,3,5-Trimethylbenzene	ND		25.0	27.3		ug/L		109	70 - 130	2	20
1,3-Dichlorobenzene	ND		25.0	25.4		ug/L		102	70 - 130	3	20
1,3-Dichloropropane	ND		25.0	26.0		ug/L		104	70 - 130	6	25
1,4-Dichlorobenzene	ND		25.0	25.1		ug/L		100	70 - 130	4	20
2,2-Dichloropropane	ND		25.0	26.9		ug/L		108	69 - 138	1	25
2-Chlorotoluene	ND		25.0	26.0		ug/L		104	70 - 130	5	20
4-Chlorotoluene	ND		25.0	25.8		ug/L		103	70 - 130	3	20
Benzene	ND		25.0	24.0		ug/L		96	66 - 130	3	20
Bromobenzene	ND		25.0	26.7		ug/L		107	70 - 130	4	20
Bromoform	ND		25.0	28.5		ug/L		114	59 - 150	4	25
Bromomethane	ND		25.0	24.8		ug/L		99	62 - 131	3	25

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-52804-C-2 MSD
Matrix: Water
Analysis Batch: 122307

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon tetrachloride	ND		25.0	27.7		ug/L		111	60 - 150	5	25
Chlorobenzene	ND		25.0	24.1		ug/L		96	70 - 130	3	20
Chloroethane	ND		25.0	26.0		ug/L		104	68 - 130	3	25
Chloroform	ND		25.0	25.2		ug/L		101	70 - 130	4	20
Chloromethane	ND		25.0	21.1		ug/L		85	39 - 144	7	25
cis-1,2-Dichloroethene	ND		25.0	26.2		ug/L		105	70 - 130	2	20
cis-1,3-Dichloropropene	ND		25.0	25.9		ug/L		104	70 - 133	2	20
Dibromomethane	ND		25.0	26.2		ug/L		105	70 - 130	2	25
Dichlorodifluoromethane	ND		25.0	17.5		ug/L		70	25 - 142	1	30
Ethylbenzene	ND		25.0	26.6		ug/L		106	70 - 130	3	20
Hexachlorobutadiene	ND		25.0	24.5		ug/L		98	10 - 150	4	20
Isopropylbenzene	ND		25.0	28.6		ug/L		114	70 - 132	2	20
m,p-Xylene	ND		50.0	55.9		ug/L		112	70 - 133	5	25
Methylene Chloride	ND		25.0	25.3		ug/L		91	52 - 130	1	20
Naphthalene	ND		25.0	28.3		ug/L		113	60 - 140	10	30
n-Butylbenzene	ND		25.0	26.3		ug/L		105	61 - 149	5	20
N-Propylbenzene	ND		25.0	27.2		ug/L		109	66 - 135	4	20
o-Xylene	ND		25.0	29.0		ug/L		116	70 - 133	5	20
sec-Butylbenzene	ND		25.0	26.7		ug/L		107	67 - 134	4	20
Styrene	ND		25.0	24.3		ug/L		97	29 - 150	2	30
tert-Butylbenzene	ND		25.0	27.2		ug/L		109	70 - 130	4	20
Tetrachloroethene	ND		25.0	24.3		ug/L		97	70 - 137	2	20
Toluene	ND		25.0	26.7		ug/L		107	70 - 130	4	20
1,2-trans-Dichloroethylene	ND		25.0	25.5		ug/L		102	70 - 130	5	20
trans-1,3-Dichloropropene	ND		25.0	26.9		ug/L		108	70 - 138	2	25
Trichloroethylene	ND		25.0	25.2		ug/L		101	70 - 130	6	20
Trichlorofluoromethane	ND		25.0	31.2		ug/L		125	60 - 150	4	25
Vinyl chloride	ND		25.0	23.1		ug/L		92	50 - 137	4	30
1,2-Dibromoethane (EDB)	ND		25.0	27.2		ug/L		109	70 - 131	6	25
Bromochloromethane	ND		25.0	24.2		ug/L		97	70 - 130	2	25
Bromodichloromethane	ND		25.0	27.2		ug/L		109	70 - 138	4	20
Dibromochloromethane	ND		25.0	28.7		ug/L		115	70 - 148	4	25
p-Isopropyltoluene	ND		25.0	24.0		ug/L		96	70 - 130	4	20
Methyl-t-Butyl Ether (MTBE)	ND		25.0	28.8		ug/L		115	70 - 130	4	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*109*		*80 - 120*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*80 - 120*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-122284/4
Matrix: Water
Analysis Batch: 122284

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.26		mg/L			08/05/13 17:04	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 440-122284/4
Matrix: Water
Analysis Batch: 122284

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as NO2	ND		0.50		mg/L			08/05/13 17:04	1
Nitrate as NO3	ND		0.50		mg/L			08/05/13 17:04	1

Lab Sample ID: LCS 440-122284/2
Matrix: Water
Analysis Batch: 122284

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as NO2	5.00	5.03		mg/L		101	90 - 110
Nitrate as NO3	5.00	4.80		mg/L		96	90 - 110

Lab Sample ID: 500-60460-A-1 MS
Matrix: Water
Analysis Batch: 122284

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as NO2	ND		50.0	52.6		mg/L		105	80 - 120
Nitrate as NO3	ND		50.0	51.8		mg/L		104	80 - 120

Lab Sample ID: 500-60460-A-1 MSD
Matrix: Water
Analysis Batch: 122284

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as NO2	ND		50.0	51.7		mg/L		103	80 - 120	2	20
Nitrate as NO3	ND		50.0	51.2		mg/L		102	80 - 120	1	20

Lab Sample ID: MB 440-122285/4
Matrix: Water
Analysis Batch: 122285

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			08/05/13 17:04	1
Sulfate	ND		0.50		mg/L			08/05/13 17:04	1

Lab Sample ID: LCS 440-122285/2
Matrix: Water
Analysis Batch: 122285

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.94		mg/L		99	90 - 110
Sulfate	10.0	9.90		mg/L		99	90 - 110

Lab Sample ID: 500-60460-A-1 MS
Matrix: Water
Analysis Batch: 122285

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	180		50.0	215	F	mg/L		71	80 - 120
Sulfate	730		100	782	4	mg/L		52	80 - 120

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 500-60460-A-1 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 122285

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	180		50.0	204	F	mg/L		49	80 - 120	5	20
Sulfate	730		100	740	4	mg/L		10	80 - 120	5	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-122361/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 122497 — **Prep Batch: 122361**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.050		mg/L		08/05/13 19:40	08/06/13 10:56	1
Chromium	ND		5.0		ug/L		08/05/13 19:40	08/06/13 10:56	1
Lead	ND		5.0		ug/L		08/05/13 19:40	08/06/13 10:56	1
Copper	ND		10		ug/L		08/05/13 19:40	08/06/13 10:56	1

Lab Sample ID: LCS 440-122361/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 122497 — **Prep Batch: 122361**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.500	0.491		mg/L		98	85 - 115
Chromium	500	492		ug/L		98	85 - 115
Lead	500	498		ug/L		100	85 - 115
Copper	500	500		ug/L		100	85 - 115

Lab Sample ID: 440-53484-1 MS — **Client Sample ID: MCWP-MW01 Effluent**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 122497 — **Prep Batch: 122361**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.11		0.500	0.611		mg/L		100	70 - 130
Chromium	ND		500	484		ug/L		97	70 - 130
Lead	ND		500	486		ug/L		97	70 - 130
Copper	ND		500	491		ug/L		98	70 - 130

Lab Sample ID: 440-53484-1 MSD — **Client Sample ID: MCWP-MW01 Effluent**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 122497 — **Prep Batch: 122361**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.11		0.500	0.626		mg/L		103	70 - 130	2	20
Chromium	ND		500	484		ug/L		97	70 - 130	0	20
Lead	ND		500	486		ug/L		97	70 - 130	0	20
Copper	ND		500	501		ug/L		100	70 - 130	2	20

Method: 150.1 - pH (Electrometric)

Lab Sample ID: 440-53222-V-1 DU
Matrix: Water
Analysis Batch: 123617

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	8.18		8.190		SU		0.1	2
Temperature	21.7		21.60		Degrees C		0.5	

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-123308/1-A
Matrix: Water
Analysis Batch: 123309

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 123308

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	ND		5.0		mg/L		08/09/13 07:27	08/09/13 07:34	1

Lab Sample ID: LCS 440-123308/2-A
Matrix: Water
Analysis Batch: 123309

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 123308

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM	20.0	16.5		mg/L		82	78 - 114

Lab Sample ID: LCSD 440-123308/3-A
Matrix: Water
Analysis Batch: 123309

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 123308

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM	20.0	17.4		mg/L		87	78 - 114	5	11

Method: SM 2130B - Turbidity

Lab Sample ID: MB 440-122477/5
Matrix: Water
Analysis Batch: 122477

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.10		NTU			08/06/13 10:48	1

Lab Sample ID: 440-53484-1 DU
Matrix: Water
Analysis Batch: 122477

Client Sample ID: MCWP-MW01 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	0.96		0.980		NTU		2	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-122510/1
Matrix: Water
Analysis Batch: 122510

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10		mg/L			08/06/13 07:30	1

Lab Sample ID: LCS 440-122510/2
Matrix: Water
Analysis Batch: 122510

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	974		mg/L		97	90 - 110

Lab Sample ID: 440-53484-1 DU
Matrix: Water
Analysis Batch: 122510

Client Sample ID: MCWP-MW01 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	240		243		mg/L		0.8	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-122353/1
Matrix: Water
Analysis Batch: 122353

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		10		mg/L			08/05/13 16:49	1

Lab Sample ID: LCS 440-122353/2
Matrix: Water
Analysis Batch: 122353

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	999		mg/L		100	85 - 115

Lab Sample ID: 440-53338-E-2 DU
Matrix: Water
Analysis Batch: 122353

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	66		66.0		mg/L		0.8	10

Method: SM 4500 Cl G - Chlorine, Residual

Lab Sample ID: MB 440-122888/1
Matrix: Water
Analysis Batch: 122888

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Residual Chlorine	ND		0.10		mg/L			08/07/13 15:23	1

Method: SM 4500 Cl G - Chlorine, Residual (Continued)

Lab Sample ID: 440-53484-1 DU
Matrix: Water
Analysis Batch: 122888

Client Sample ID: MCWP-MW01 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Residual Chlorine	ND	HF	ND	HF	mg/L		NC	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-122762/1 USB
Matrix: Water
Analysis Batch: 122762

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			08/07/13 09:32	1

Lab Sample ID: LCS 440-122762/4
Matrix: Water
Analysis Batch: 122762

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	199	203		mg/L		102	85 - 115

Lab Sample ID: LCSD 440-122762/5
Matrix: Water
Analysis Batch: 122762

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand	199	209		mg/L		105	85 - 115	3	20

GC/MS VOA

Analysis Batch: 122307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-52804-C-2 MS	Matrix Spike	Total/NA	Water	8260B	
440-52804-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
440-53484-1	MCWP-MW01 Effluent	Total/NA	Water	8260B	
LCS 440-122307/5	Lab Control Sample	Total/NA	Water	8260B	
MB 440-122307/4	Method Blank	Total/NA	Water	8260B	

HPLC/IC

Analysis Batch: 122284

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53484-1	MCWP-MW01 Effluent	Total/NA	Water	300.0	
500-60460-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
500-60460-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
LCS 440-122284/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-122284/4	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 122285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53484-1	MCWP-MW01 Effluent	Total/NA	Water	300.0	
500-60460-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
500-60460-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
LCS 440-122285/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-122285/4	Method Blank	Total/NA	Water	300.0	

Metals

Prep Batch: 122361

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53484-1	MCWP-MW01 Effluent	Total Recoverable	Water	200.2	
440-53484-1 MS	MCWP-MW01 Effluent	Total Recoverable	Water	200.2	
440-53484-1 MSD	MCWP-MW01 Effluent	Total Recoverable	Water	200.2	
LCS 440-122361/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
MB 440-122361/1-A	Method Blank	Total Recoverable	Water	200.2	

Analysis Batch: 122497

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53484-1	MCWP-MW01 Effluent	Total Recoverable	Water	200.7 Rev 4.4	122361
440-53484-1 MS	MCWP-MW01 Effluent	Total Recoverable	Water	200.7 Rev 4.4	122361
440-53484-1 MSD	MCWP-MW01 Effluent	Total Recoverable	Water	200.7 Rev 4.4	122361
LCS 440-122361/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	122361
MB 440-122361/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	122361

General Chemistry

Analysis Batch: 122353

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53338-E-2 DU	Duplicate	Total/NA	Water	SM 2540D	
440-53484-1	MCWP-MW01 Effluent	Total/NA	Water	SM 2540D	
LCS 440-122353/2	Lab Control Sample	Total/NA	Water	SM 2540D	
MB 440-122353/1	Method Blank	Total/NA	Water	SM 2540D	

General Chemistry (Continued)

Analysis Batch: 122420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53484-1	MCWP-MW01 Effluent	Total/NA	Water	SM 2540F	

Analysis Batch: 122477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53484-1	MCWP-MW01 Effluent	Total/NA	Water	SM 2130B	
440-53484-1 DU	MCWP-MW01 Effluent	Total/NA	Water	SM 2130B	
MB 440-122477/5	Method Blank	Total/NA	Water	SM 2130B	

Analysis Batch: 122510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53484-1	MCWP-MW01 Effluent	Total/NA	Water	SM 2540C	
440-53484-1 DU	MCWP-MW01 Effluent	Total/NA	Water	SM 2540C	
LCS 440-122510/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 440-122510/1	Method Blank	Total/NA	Water	SM 2540C	

Analysis Batch: 122762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53484-1	MCWP-MW01 Effluent	Total/NA	Water	SM5210B	
LCS 440-122762/4	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-122762/5	Lab Control Sample Dup	Total/NA	Water	SM5210B	
USB 440-122762/1 USB	Method Blank	Total/NA	Water	SM5210B	

Analysis Batch: 122888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53484-1	MCWP-MW01 Effluent	Total/NA	Water	SM 4500 Cl G	
440-53484-1 DU	MCWP-MW01 Effluent	Total/NA	Water	SM 4500 Cl G	
MB 440-122888/1	Method Blank	Total/NA	Water	SM 4500 Cl G	

Prep Batch: 123308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53484-1	MCWP-MW01 Effluent	Total/NA	Water	1664A	
LCS 440-123308/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-123308/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	
MB 440-123308/1-A	Method Blank	Total/NA	Water	1664A	

Analysis Batch: 123309

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53484-1	MCWP-MW01 Effluent	Total/NA	Water	1664A	123308
LCS 440-123308/2-A	Lab Control Sample	Total/NA	Water	1664A	123308
LCSD 440-123308/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	123308
MB 440-123308/1-A	Method Blank	Total/NA	Water	1664A	123308

Analysis Batch: 123617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-53222-V-1 DU	Duplicate	Total/NA	Water	150.1	
440-53484-1	MCWP-MW01 Effluent	Total/NA	Water	150.1	

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
F	MS or MSD exceeds the control limits
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation

TestAmerica Job ID: 440-53484-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-14
Arizona	State Program	9	AZ0671	10-13-13
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-14
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-28-14 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-14
New Mexico	State Program	6	N/A	01-31-14
Northern Mariana Islands	State Program	9	MP0002	01-31-14
Oregon	NELAP	10	4005	09-12-13
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

* Expired certification is currently pending renewal and is considered valid.

Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614
phone 949 261 1022 fax 949 260.3299

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Leslie Dumas	Site Contact: Robert Mark	Date: 8/5/13	COC No.
RMC Water and Environment	Tel/Fax:	Lab Contact: Janice Hsu	Carrier:	1 of 1 COCs
2001 N. Main Street Suite 400	Analysis Turnaround Time			Job No.
Walnut Creek, CA 94596	Calendar (C) or Work Days (W) ___W___			
(925) 627-4100 Phone	TAT if different from Below 5 days			SDG No.
(925) 627-4101 FAX	☐ 2 weeks			
Project Name: Malibu - Well Installation	☐ 1 week			
Site: MCWP-MW01	☐ 2 days			
PO #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Preservatives	Matrix	# of Cont.	Filtered Sample	TSS	Turbidity	BOD	Settleable Solids	Residual Chlorine	Sulfate	Chloride	NO3 + NO2	TDS	Boron, Copper, Lead, Chromium	8260 VOA (include MTBE)	Oil & Grease	Sample Specific Notes
MCWP-MW01 Effluent	8/5	1210	N/A	W	5		X	X	X	X	X	X	X	X	X				48 hours hold time for Thrbidity.
			HNO3	W	1											X			BOD & NO3 + NO2
			HCL	W	3												X		
																		X	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time
	PWR, Inc	8/5 1220		PURE EFFECT	8-5-13 1220
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time:
	PURE EFFECT	8/5 1355			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time
				TAT	08/05/13 3:55 pm

15.5°C

440-53484 Chain of Custody

Login Sample Receipt Checklist

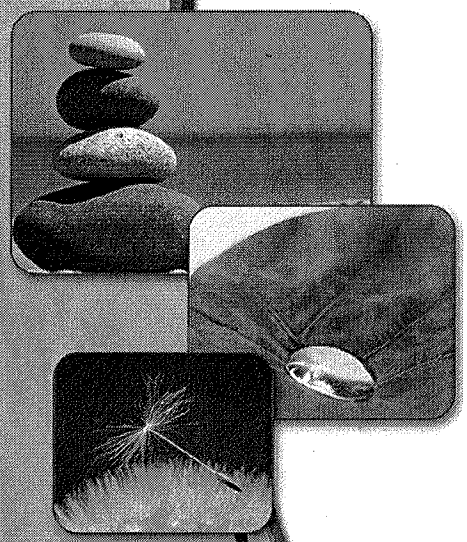
Client: RMC Water and Environment

Job Number: 440-53484-1

Login Number: 53484
List Number: 1
Creator: Avila, Stephanie

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	N/A	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-55735-1
Client Project/Site: Malibu - Well Installation
Client Project Description: MCWP-MW02 Effluent

For:
RMC Water and Environment
2001 N. Main Street
Suite 400
Walnut Creek, California 94596

Attn: Leslie Dumas

Authorized for release by:
9/5/2013 12:11:32 PM

Janice Hsu, Project Manager I
janice.hsu@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-55735-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-55735-1	MCWP-MW02 Effluent	Water	08/29/13 12:00	08/29/13 15:10

Job ID: 440-55735-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-55735-1

Comments
No additional comments.

Receipt
The sample was received on 8/29/2013 3:10 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 14.2° C.

Except:

The following sample(s) was received at the laboratory outside the required temperature criteria: 14.2. The sample(s) is considered acceptable since it was collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

GC/MS VOA
No analytical or quality issues were noted.

HPLC
Method(s) 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for nitrate in batch 127917 were outside control limits due to matrix effects. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry
Method(s) 1664A: Insufficient sample volume was available to perform batch matrix spike/matrix spike duplicate (MS/MSD) associated with batch 129153. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

No other analytical or quality issues were noted.

Subcontract non-Sister
No analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

Client Sample Results

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-55735-1

Client Sample ID: MCWP-MW02 Effluent
Date Collected: 08/29/13 12:00
Date Received: 08/29/13 15:10

Lab Sample ID: 440-55735-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/30/13 06:18	1
1,1,1-Trichloroethane	ND		2.0		ug/L			08/30/13 06:18	1
1,1,2,2-Tetrachloroethane	ND		2.0		ug/L			08/30/13 06:18	1
1,1,2-Trichloroethane	ND		2.0		ug/L			08/30/13 06:18	1
1,1-Dichloroethane	ND		2.0		ug/L			08/30/13 06:18	1
1,1-Dichlorethylene	ND		5.0		ug/L			08/30/13 06:18	1
1,1-Dichloropropene	ND		2.0		ug/L			08/30/13 06:18	1
1,2,3-Trichlorobenzene	ND		5.0		ug/L			08/30/13 06:18	1
1,2,3-Trichloropropane	ND		10		ug/L			08/30/13 06:18	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			08/30/13 06:18	1
1,2,4-Trimethylbenzene	ND		2.0		ug/L			08/30/13 06:18	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			08/30/13 06:18	1
1,2-Dichlorobenzene	ND		2.0		ug/L			08/30/13 06:18	1
1,2-Dichloroethane	ND		2.0		ug/L			08/30/13 06:18	1
1,2-Dichloropropane	ND		2.0		ug/L			08/30/13 06:18	1
1,3,5-Trimethylbenzene	ND		2.0		ug/L			08/30/13 06:18	1
1,3-Dichlorobenzene	ND		2.0		ug/L			08/30/13 06:18	1
1,3-Dichloropropane	ND		2.0		ug/L			08/30/13 06:18	1
1,4-Dichlorobenzene	ND		2.0		ug/L			08/30/13 06:18	1
2,2-Dichloropropane	ND		2.0		ug/L			08/30/13 06:18	1
2-Chlorotoluene	ND		5.0		ug/L			08/30/13 06:18	1
4-Chlorotoluene	ND		5.0		ug/L			08/30/13 06:18	1
Benzene	ND		2.0		ug/L			08/30/13 06:18	1
Bromobenzene	ND		5.0		ug/L			08/30/13 06:18	1
Bromoform	ND		5.0		ug/L			08/30/13 06:18	1
Bromomethane	ND		5.0		ug/L			08/30/13 06:18	1
Carbon tetrachloride	ND		5.0		ug/L			08/30/13 06:18	1
Chlorobenzene	ND		2.0		ug/L			08/30/13 06:18	1
Chloroethane	ND		5.0		ug/L			08/30/13 06:18	1
Chloroform	ND		2.0		ug/L			08/30/13 06:18	1
Chloromethane	ND		5.0		ug/L			08/30/13 06:18	1
cis-1,2-Dichloroethene	ND		2.0		ug/L			08/30/13 06:18	1
cis-1,3-Dichloropropene	ND		2.0		ug/L			08/30/13 06:18	1
Dibromomethane	ND		2.0		ug/L			08/30/13 06:18	1
Dichlorodifluoromethane	ND		5.0		ug/L			08/30/13 06:18	1
Ethylbenzene	ND		2.0		ug/L			08/30/13 06:18	1
Hexachlorobutadiene	ND		5.0		ug/L			08/30/13 06:18	1
Isopropylbenzene	ND		2.0		ug/L			08/30/13 06:18	1
m,p-Xylene	ND		2.0		ug/L			08/30/13 06:18	1
Methylene Chloride	ND		5.0		ug/L			08/30/13 06:18	1
Naphthalene	ND		5.0		ug/L			08/30/13 06:18	1
n-Butylbenzene	ND		5.0		ug/L			08/30/13 06:18	1
N-Propylbenzene	ND		2.0		ug/L			08/30/13 06:18	1
o-Xylene	ND		2.0		ug/L			08/30/13 06:18	1
sec-Butylbenzene	ND		5.0		ug/L			08/30/13 06:18	1
Styrene	ND		2.0		ug/L			08/30/13 06:18	1
tert-Butylbenzene	ND		5.0		ug/L			08/30/13 06:18	1
Tetrachloroethene	ND		2.0		ug/L			08/30/13 06:18	1
Toluene	ND		2.0		ug/L			08/30/13 06:18	1

Client Sample ID: MCWP-MW02 Effluent

Date Collected: 08/29/13 12:00
Date Received: 08/29/13 15:10

Lab Sample ID: 440-55735-1

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-trans-Dichloroethylene	ND		2.0		ug/L			08/30/13 06:18	1
trans-1,3-Dichloropropene	ND		2.0		ug/L			08/30/13 06:18	1
Trichloroethylene	ND		2.0		ug/L			08/30/13 06:18	1
Trichlorofluoromethane	ND		5.0		ug/L			08/30/13 06:18	1
Vinyl chloride	ND		5.0		ug/L			08/30/13 06:18	1
1,2-Dibromoethane (EDB)	ND		2.0		ug/L			08/30/13 06:18	1
Bromochloromethane	ND		5.0		ug/L			08/30/13 06:18	1
Bromodichloromethane	ND		2.0		ug/L			08/30/13 06:18	1
Dibromochloromethane	ND		2.0		ug/L			08/30/13 06:18	1
p-Isopropyltoluene	ND		2.0		ug/L			08/30/13 06:18	1
Methyl-t-Butyl Ether (MTBE)	ND		1.0		ug/L			08/30/13 06:18	1
Trihalomethanes, Total	ND		5.0		ug/L			08/30/13 06:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*108*		*80 - 120*		*08/30/13 06:18*	*1*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*		*08/30/13 06:18*	*1*
Dibromofluoromethane (Surr)	*107*		*80 - 120*		*08/30/13 06:18*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**1.3**		0.52		mg/L			08/29/13 17:55	2
Chloride	**250**		50		mg/L			08/29/13 18:10	100
Nitrite as NO2	**2.0**		1.0		mg/L			08/29/13 17:55	2
Nitrate as NO3	**3.1**		1.0		mg/L			08/29/13 17:55	2
Sulfate	**520**		50		mg/L			08/29/13 18:10	100

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		5.0		ug/L		08/29/13 19:13	08/30/13 12:32	1
Lead	ND		5.0		ug/L		08/29/13 19:13	08/30/13 12:32	1
Copper	ND		10		ug/L		08/29/13 19:13	08/30/13 12:32	1
Boron	**420**		50		ug/L		08/29/13 19:13	08/30/13 12:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	ND		4.7		mg/L		09/05/13 08:09	09/05/13 08:15	1
Total Dissolved Solids	**1500**		20		mg/L			08/29/13 20:00	1
Total Suspended Solids	ND		1.0		mg/L			08/29/13 19:36	1
Biochemical Oxygen Demand	ND		2.0		mg/L			08/30/13 13:35	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**8.04**	**HF**	0.100		SU			09/03/13 13:50	1
Temperature	**25.0**	**HF**	1.00		Degrees C			09/03/13 13:50	1
Turbidity	ND		0.10		NTU			08/30/13 09:35	1
Settleable Solids	ND		0.10		mL/L/Hr			08/30/13 07:53	1
Residual Chlorine	ND	HF	0.10		mg/L			08/30/13 11:59	1

Method Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-55735-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
150.1	pH (Electrometric)	MCAWW	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2130B	Turbidity	SM	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 2540F	Solids, Settleable	SM	TAL IRV
SM 4500 Cl G	Chlorine, Residual	SM	TAL IRV
SM5210B	BOD, 5 Day	SM	TAL IRV
Topsmelt fish test	General Sub Contract Method	NONE	SC0127

Protocol References:

1664A = EPA-821-98-002

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

NONE = NONE

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

SC0127 = Aquatic Testing Laboratories, 4350 Transport #107, Ventura, CA 93003

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-55735-1

Client Sample ID: MCWP-MW02 Effluent

Date Collected: 08/29/13 12:00
Date Received: 08/29/13 15:10

Lab Sample ID: 440-55735-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	128104	08/30/13 06:18	MP	TAL IRV
Total/NA	Analysis	300.0		2	1 mL		127917	08/29/13 17:55	NN	TAL IRV
Total/NA	Analysis	300.0		100	1 mL		127918	08/29/13 18:10	NN	TAL IRV
Total Recoverable	Prep	200.2			50 mL	50 mL	128111	08/29/13 19:13	ND	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			128318	08/30/13 12:32	MP	TAL IRV
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	127875	08/29/13 20:00	XL	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	100 mL	128113	08/29/13 19:36	DK	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1000 mL	128184	08/30/13 07:53	NT	TAL IRV
Total/NA	Analysis	SM 2130B		1		20 mL	128197	08/30/13 09:35	NT	TAL IRV
Total/NA	Analysis	SM5210B		1		300 mL	128250	08/30/13 13:35	TAI	TAL IRV
Total/NA	Analysis	SM 4500 Cl G		1	10 mL	10 mL	128280	08/30/13 11:59	TAI	TAL IRV
Total/NA	Analysis	150.1		1		50 mL	128652	09/03/13 13:50	NT	TAL IRV
Total/NA	Prep	1664A			1055 mL	1000 mL	129151	09/05/13 08:09	DA	TAL IRV
Total/NA	Analysis	1664A		1			129153	09/05/13 08:15	DA	TAL IRV

Laboratory References:

SC0127 = Aquatic Testing Laboratories, 4350 Transport #107, Ventura, CA 93003

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-55735-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-128104/3
Matrix: Water
Analysis Batch: 128104

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/29/13 20:54	1
1,1,1-Trichloroethane	ND		2.0		ug/L			08/29/13 20:54	1
1,1,2,2-Tetrachloroethane	ND		2.0		ug/L			08/29/13 20:54	1
1,1,2-Trichloroethane	ND		2.0		ug/L			08/29/13 20:54	1
1,1-Dichloroethane	ND		2.0		ug/L			08/29/13 20:54	1
1,1-Dichlorethylene	ND		5.0		ug/L			08/29/13 20:54	1
1,1-Dichloropropene	ND		2.0		ug/L			08/29/13 20:54	1
1,2,3-Trichlorobenzene	ND		5.0		ug/L			08/29/13 20:54	1
1,2,3-Trichloropropane	ND		10		ug/L			08/29/13 20:54	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			08/29/13 20:54	1
1,2,4-Trimethylbenzene	ND		2.0		ug/L			08/29/13 20:54	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			08/29/13 20:54	1
1,2-Dichlorobenzene	ND		2.0		ug/L			08/29/13 20:54	1
1,2-Dichloroethane	ND		2.0		ug/L			08/29/13 20:54	1
1,2-Dichloropropane	ND		2.0		ug/L			08/29/13 20:54	1
1,3,5-Trimethylbenzene	ND		2.0		ug/L			08/29/13 20:54	1
1,3-Dichlorobenzene	ND		2.0		ug/L			08/29/13 20:54	1
1,3-Dichloropropane	ND		2.0		ug/L			08/29/13 20:54	1
1,4-Dichlorobenzene	ND		2.0		ug/L			08/29/13 20:54	1
2,2-Dichloropropane	ND		2.0		ug/L			08/29/13 20:54	1
2-Chlorotoluene	ND		5.0		ug/L			08/29/13 20:54	1
4-Chlorotoluene	ND		5.0		ug/L			08/29/13 20:54	1
Benzene	ND		2.0		ug/L			08/29/13 20:54	1
Bromobenzene	ND		5.0		ug/L			08/29/13 20:54	1
Bromoform	ND		5.0		ug/L			08/29/13 20:54	1
Bromomethane	ND		5.0		ug/L			08/29/13 20:54	1
Carbon tetrachloride	ND		5.0		ug/L			08/29/13 20:54	1
Chlorobenzene	ND		2.0		ug/L			08/29/13 20:54	1
Chloroethane	ND		5.0		ug/L			08/29/13 20:54	1
Chloroform	ND		2.0		ug/L			08/29/13 20:54	1
Chloromethane	ND		5.0		ug/L			08/29/13 20:54	1
cis-1,2-Dichloroethene	ND		2.0		ug/L			08/29/13 20:54	1
cis-1,3-Dichloropropene	ND		2.0		ug/L			08/29/13 20:54	1
Dibromomethane	ND		2.0		ug/L			08/29/13 20:54	1
Dichlorodifluoromethane	ND		5.0		ug/L			08/29/13 20:54	1
Ethylbenzene	ND		2.0		ug/L			08/29/13 20:54	1
Hexachlorobutadiene	ND		5.0		ug/L			08/29/13 20:54	1
Isopropylbenzene	ND		2.0		ug/L			08/29/13 20:54	1
m,p-Xylene	ND		2.0		ug/L			08/29/13 20:54	1
Methylene Chloride	ND		5.0		ug/L			08/29/13 20:54	1
Naphthalene	ND		5.0		ug/L			08/29/13 20:54	1
n-Butylbenzene	ND		5.0		ug/L			08/29/13 20:54	1
N-Propylbenzene	ND		2.0		ug/L			08/29/13 20:54	1
o-Xylene	ND		2.0		ug/L			08/29/13 20:54	1
sec-Butylbenzene	ND		5.0		ug/L			08/29/13 20:54	1
Styrene	ND		2.0		ug/L			08/29/13 20:54	1
tert-Butylbenzene	ND		5.0		ug/L			08/29/13 20:54	1
Tetrachloroethene	ND		2.0		ug/L			08/29/13 20:54	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-128104/3
Matrix: Water
Analysis Batch: 128104

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		2.0		ug/L			08/29/13 20:54	1
1,2-trans-Dichloroethylene	ND		2.0		ug/L			08/29/13 20:54	1
trans-1,3-Dichloropropene	ND		2.0		ug/L			08/29/13 20:54	1
Trichloroethylene	ND		2.0		ug/L			08/29/13 20:54	1
Trichlorofluoromethane	ND		5.0		ug/L			08/29/13 20:54	1
Vinyl chloride	ND		5.0		ug/L			08/29/13 20:54	1
1,2-Dibromoethane (EDB)	ND		2.0		ug/L			08/29/13 20:54	1
Bromochloromethane	ND		5.0		ug/L			08/29/13 20:54	1
Bromodichloromethane	ND		2.0		ug/L			08/29/13 20:54	1
Dibromochloromethane	ND		2.0		ug/L			08/29/13 20:54	1
p-Isopropyltoluene	ND		2.0		ug/L			08/29/13 20:54	1
Methyl-t-Butyl Ether (MTBE)	ND		1.0		ug/L			08/29/13 20:54	1
Trihalomethanes, Total	ND		2.0		ug/L			08/29/13 20:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*107*		*80 - 120*		*08/29/13 20:54*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*08/29/13 20:54*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*		*08/29/13 20:54*	*1*

Lab Sample ID: LCS 440-128104/4
Matrix: Water
Analysis Batch: 128104

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	25.0	29.1		ug/L		116	60 - 141
1,1,1-Trichloroethane	25.0	22.1		ug/L		88	70 - 130
1,1,2,2-Tetrachloroethane	25.0	21.0		ug/L		84	63 - 130
1,1,2-Trichloroethane	25.0	23.1		ug/L		92	70 - 130
1,1-Dichloroethane	25.0	21.1		ug/L		84	64 - 130
1,1-Dichlorethylene	25.0	23.6		ug/L		94	70 - 130
1,1-Dichloropropene	25.0	23.3		ug/L		93	70 - 130
1,2,3-Trichlorobenzene	25.0	26.3		ug/L		105	60 - 140
1,2,3-Trichloropropane	25.0	19.9		ug/L		80	63 - 130
1,2,4-Trichlorobenzene	25.0	27.0		ug/L		108	60 - 140
1,2,4-Trimethylbenzene	25.0	24.9		ug/L		100	70 - 135
1,2-Dibromo-3-Chloropropane	25.0	19.5		ug/L		78	52 - 140
1,2-Dichlorobenzene	25.0	27.4		ug/L		110	70 - 130
1,2-Dichloroethane	25.0	24.7		ug/L		99	57 - 138
1,2-Dichloropropane	25.0	23.6		ug/L		94	67 - 130
1,3,5-Trimethylbenzene	25.0	24.7		ug/L		99	70 - 136
1,3-Dichlorobenzene	25.0	27.2		ug/L		109	70 - 130
1,3-Dichloropropane	25.0	21.8		ug/L		87	70 - 130
1,4-Dichlorobenzene	25.0	26.9		ug/L		108	70 - 130
2,2-Dichloropropane	25.0	21.4		ug/L		86	68 - 141
2-Chlorotoluene	25.0	22.5		ug/L		90	70 - 130
4-Chlorotoluene	25.0	22.7		ug/L		91	70 - 130
Benzene	25.0	22.4		ug/L		90	68 - 130
Bromobenzene	25.0	27.2		ug/L		109	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-128104/4
Matrix: Water
Analysis Batch: 128104

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoform	25.0	30.5		ug/L		122	60 - 148
Bromomethane	25.0	26.8		ug/L		107	64 - 139
Carbon tetrachloride	25.0	27.9		ug/L		111	60 - 150
Chlorobenzene	25.0	26.5		ug/L		106	70 - 130
Chloroethane	25.0	25.6		ug/L		102	64 - 135
Chloroform	25.0	22.2		ug/L		89	70 - 130
Chloromethane	25.0	29.4		ug/L		118	47 - 140
cis-1,2-Dichloroethene	25.0	23.8		ug/L		95	70 - 133
cis-1,3-Dichloropropene	25.0	26.9		ug/L		108	70 - 133
Dibromomethane	25.0	25.5		ug/L		102	70 - 130
Dichlorodifluoromethane	25.0	24.8		ug/L		99	29 - 150
Ethylbenzene	25.0	23.7		ug/L		95	70 - 130
Hexachlorobutadiene	25.0	27.3		ug/L		109	10 - 150
Isopropylbenzene	25.0	25.3		ug/L		101	70 - 136
m,p-Xylene	50.0	50.6		ug/L		101	70 - 130
Methylene Chloride	25.0	23.7		ug/L		95	52 - 130
Naphthalene	25.0	26.5		ug/L		106	60 - 140
n-Butylbenzene	25.0	21.9		ug/L		88	65 - 150
N-Propylbenzene	25.0	22.6		ug/L		90	67 - 139
o-Xylene	25.0	25.4		ug/L		102	70 - 130
sec-Butylbenzene	25.0	24.2		ug/L		97	70 - 138
Styrene	25.0	27.5		ug/L		110	70 - 134
tert-Butylbenzene	25.0	26.0		ug/L		104	70 - 130
Tetrachloroethene	25.0	27.4		ug/L		109	70 - 130
Toluene	25.0	25.3		ug/L		101	70 - 130
1,2-trans-Dichloroethylene	25.0	22.2		ug/L		89	70 - 130
trans-1,3-Dichloropropene	25.0	26.0		ug/L		104	70 - 132
Trichloroethylene	25.0	29.5		ug/L		118	70 - 130
Trichlorofluoromethane	25.0	29.4		ug/L		118	60 - 150
Vinyl chloride	25.0	27.7		ug/L		111	59 - 133
1,2-Dibromoethane (EDB)	25.0	24.9		ug/L		100	70 - 130
Bromochloromethane	25.0	27.0		ug/L		108	70 - 130
Bromodichloromethane	25.0	24.4		ug/L		98	70 - 132
Dibromochloromethane	25.0	30.0		ug/L		120	69 - 145
p-Isopropyltoluene	25.0	24.5		ug/L		98	70 - 132
Methyl-t-Butyl Ether (MTBE)	25.0	20.8		ug/L		83	63 - 131

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*108*		*80 - 120*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*
Dibromofluoromethane (Surr)	*101*		*80 - 120*

Lab Sample ID: 440-55087-C-3 MS
Matrix: Water
Analysis Batch: 128104

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	ND		25.0	29.4		ug/L		118	60 - 149

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-55735-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-55087-C-3 MS
Matrix: Water
Analysis Batch: 128104

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		25.0	22.0		ug/L		88	70 - 130
1,1,2,2-Tetrachloroethane	ND		25.0	21.0		ug/L		84	63 - 130
1,1,2-Trichloroethane	ND		25.0	23.8		ug/L		95	70 - 130
1,1-Dichloroethane	4.2		25.0	24.7		ug/L		82	65 - 130
1,1-Dichlorethylene	46		25.0	66.2		ug/L		81	70 - 130
1,1-Dichloropropene	ND		25.0	24.4		ug/L		97	64 - 130
1,2,3-Trichlorobenzene	ND		25.0	26.3		ug/L		105	60 - 140
1,2,3-Trichloropropane	ND		25.0	19.4		ug/L		78	60 - 130
1,2,4-Trichlorobenzene	ND		25.0	27.5		ug/L		110	60 - 140
1,2,4-Trimethylbenzene	ND		25.0	24.9		ug/L		99	70 - 130
1,2-Dibromo-3-Chloropropane	ND		25.0	18.3		ug/L		73	48 - 140
1,2-Dichlorobenzene	ND		25.0	27.5		ug/L		110	70 - 130
1,2-Dichloroethane	ND		25.0	25.6		ug/L		102	56 - 146
1,2-Dichloropropane	ND		25.0	23.7		ug/L		95	69 - 130
1,3,5-Trimethylbenzene	ND		25.0	24.9		ug/L		99	70 - 130
1,3-Dichlorobenzene	ND		25.0	28.0		ug/L		112	70 - 130
1,3-Dichloropropane	ND		25.0	22.3		ug/L		89	70 - 130
1,4-Dichlorobenzene	ND		25.0	27.1		ug/L		108	70 - 130
2,2-Dichloropropane	ND		25.0	21.5		ug/L		86	69 - 138
2-Chlorotoluene	ND		25.0	22.8		ug/L		91	70 - 130
4-Chlorotoluene	ND		25.0	23.1		ug/L		92	70 - 130
Benzene	ND		25.0	22.7		ug/L		91	66 - 130
Bromobenzene	ND		25.0	27.4		ug/L		109	70 - 130
Bromoform	ND		25.0	30.2		ug/L		121	59 - 150
Bromomethane	ND		25.0	25.6		ug/L		103	62 - 131
Carbon tetrachloride	ND		25.0	29.4		ug/L		118	60 - 150
Chlorobenzene	ND		25.0	26.9		ug/L		108	70 - 130
Chloroethane	ND		25.0	24.8		ug/L		99	68 - 130
Chloroform	ND		25.0	21.7		ug/L		87	70 - 130
Chloromethane	ND		25.0	28.9		ug/L		116	39 - 144
cis-1,2-Dichloroethene	ND		25.0	24.6		ug/L		93	70 - 130
cis-1,3-Dichloropropene	ND		25.0	27.2		ug/L		109	70 - 133
Dibromomethane	ND		25.0	25.9		ug/L		103	70 - 130
Dichlorodifluoromethane	ND		25.0	24.3		ug/L		97	25 - 142
Ethylbenzene	ND		25.0	24.3		ug/L		97	70 - 130
Hexachlorobutadiene	ND		25.0	27.4		ug/L		110	10 - 150
Isopropylbenzene	ND		25.0	25.6		ug/L		102	70 - 132
m,p-Xylene	ND		50.0	51.8		ug/L		104	70 - 133
Methylene Chloride	ND		25.0	22.9		ug/L		85	52 - 130
Naphthalene	ND		25.0	25.4		ug/L		101	60 - 140
n-Butylbenzene	ND		25.0	22.6		ug/L		90	61 - 149
N-Propylbenzene	ND		25.0	23.1		ug/L		93	66 - 135
o-Xylene	ND		25.0	26.1		ug/L		104	70 - 133
sec-Butylbenzene	ND		25.0	24.7		ug/L		99	67 - 134
Styrene	ND		25.0	26.4		ug/L		106	29 - 150
tert-Butylbenzene	ND		25.0	26.2		ug/L		105	70 - 130
Tetrachloroethene	4.2		25.0	32.1		ug/L		112	70 - 137
Toluene	ND		25.0	25.6		ug/L		102	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-55087-C-3 MS
Matrix: Water
Analysis Batch: 128104

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-trans-Dichloroethylene	ND		25.0	22.3		ug/L		89	70 - 130
trans-1,3-Dichloropropene	ND		25.0	26.6		ug/L		106	70 - 138
Trichloroethylene	7.6		25.0	36.9		ug/L		117	70 - 130
Trichlorofluoromethane	ND		25.0	29.6		ug/L		118	60 - 150
Vinyl chloride	ND		25.0	28.7		ug/L		113	50 - 137
1,2-Dibromoethane (EDB)	ND		25.0	25.2		ug/L		101	70 - 131
Bromochloromethane	ND		25.0	26.6		ug/L		106	70 - 130
Bromodichloromethane	ND		25.0	25.3		ug/L		101	70 - 138
Dibromochloromethane	ND		25.0	30.8		ug/L		123	70 - 148
p-Isopropyltoluene	ND		25.0	25.2		ug/L		101	70 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	19.9		ug/L		80	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*107*		*80 - 120*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*
Dibromofluoromethane (Surr)	*97*		*80 - 120*

Lab Sample ID: 440-55087-C-3 MSD
Matrix: Water
Analysis Batch: 128104

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	ND		25.0	29.6		ug/L		118	60 - 149	0	20
1,1,1-Trichloroethane	ND		25.0	22.7		ug/L		91	70 - 130	3	20
1,1,2,2-Tetrachloroethane	ND		25.0	20.9		ug/L		84	63 - 130	1	30
1,1,2-Trichloroethane	ND		25.0	23.4		ug/L		94	70 - 130	2	25
1,1-Dichloroethane	4.2		25.0	25.4		ug/L		85	65 - 130	3	20
1,1-Dichlorethylene	46		25.0	67.6		ug/L		86	70 - 130	2	20
1,1-Dichloropropene	ND		25.0	24.3		ug/L		97	64 - 130	0	20
1,2,3-Trichlorobenzene	ND		25.0	26.3		ug/L		105	60 - 140	0	20
1,2,3-Trichloropropane	ND		25.0	19.6		ug/L		78	60 - 130	1	30
1,2,4-Trichlorobenzene	ND		25.0	27.5		ug/L		110	60 - 140	0	20
1,2,4-Trimethylbenzene	ND		25.0	24.8		ug/L		99	70 - 130	0	25
1,2-Dibromo-3-Chloropropane	ND		25.0	17.8		ug/L		71	48 - 140	3	30
1,2-Dichlorobenzene	ND		25.0	27.5		ug/L		110	70 - 130	0	20
1,2-Dichloroethane	ND		25.0	25.6		ug/L		102	56 - 146	0	20
1,2-Dichloropropane	ND		25.0	23.7		ug/L		95	69 - 130	0	20
1,3,5-Trimethylbenzene	ND		25.0	24.9		ug/L		100	70 - 130	0	20
1,3-Dichlorobenzene	ND		25.0	27.8		ug/L		111	70 - 130	1	20
1,3-Dichloropropane	ND		25.0	22.0		ug/L		88	70 - 130	2	25
1,4-Dichlorobenzene	ND		25.0	27.4		ug/L		110	70 - 130	1	20
2,2-Dichloropropane	ND		25.0	22.4		ug/L		90	69 - 138	4	25
2-Chlorotoluene	ND		25.0	22.6		ug/L		90	70 - 130	1	20
4-Chlorotoluene	ND		25.0	22.9		ug/L		92	70 - 130	1	20
Benzene	ND		25.0	22.7		ug/L		91	66 - 130	0	20
Bromobenzene	ND		25.0	27.2		ug/L		109	70 - 130	0	20
Bromoform	ND		25.0	30.2		ug/L		121	59 - 150	0	25
Bromomethane	ND		25.0	26.0		ug/L		104	62 - 131	2	25

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-55087-C-3 MSD
Matrix: Water
Analysis Batch: 128104

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon tetrachloride	ND		25.0	29.4		ug/L		118	60 - 150	0	25
Chlorobenzene	ND		25.0	27.3		ug/L		109	70 - 130	1	20
Chloroethane	ND		25.0	25.5		ug/L		102	68 - 130	3	25
Chloroform	ND		25.0	22.2		ug/L		89	70 - 130	2	20
Chloromethane	ND		25.0	28.9		ug/L		116	39 - 144	0	25
cis-1,2-Dichloroethene	ND		25.0	25.0		ug/L		94	70 - 130	2	20
cis-1,3-Dichloropropene	ND		25.0	27.1		ug/L		108	70 - 133	0	20
Dibromomethane	ND		25.0	25.9		ug/L		104	70 - 130	0	25
Dichlorodifluoromethane	ND		25.0	25.3		ug/L		101	25 - 142	4	30
Ethylbenzene	ND		25.0	24.4		ug/L		98	70 - 130	1	20
Hexachlorobutadiene	ND		25.0	27.9		ug/L		111	10 - 150	2	20
Isopropylbenzene	ND		25.0	25.5		ug/L		102	70 - 132	0	20
m,p-Xylene	ND		50.0	51.9		ug/L		104	70 - 133	0	25
Methylene Chloride	ND		25.0	23.4		ug/L		87	52 - 130	2	20
Naphthalene	ND		25.0	25.4		ug/L		101	60 - 140	0	30
n-Butylbenzene	ND		25.0	22.6		ug/L		90	61 - 149	0	20
N-Propylbenzene	ND		25.0	23.0		ug/L		92	66 - 135	0	20
o-Xylene	ND		25.0	26.1		ug/L		104	70 - 133	0	20
sec-Butylbenzene	ND		25.0	24.8		ug/L		99	67 - 134	0	20
Styrene	ND		25.0	25.0		ug/L		100	29 - 150	5	30
tert-Butylbenzene	ND		25.0	26.3		ug/L		105	70 - 130	0	20
Tetrachloroethene	4.2		25.0	32.5		ug/L		113	70 - 137	1	20
Toluene	ND		25.0	25.7		ug/L		103	70 - 130	0	20
1,2-trans-Dichloroethylene	ND		25.0	22.5		ug/L		90	70 - 130	1	20
trans-1,3-Dichloropropene	ND		25.0	26.6		ug/L		106	70 - 138	0	25
Trichloroethylene	7.6		25.0	36.5		ug/L		116	70 - 130	1	20
Trichlorofluoromethane	ND		25.0	29.9		ug/L		119	60 - 150	1	25
Vinyl chloride	ND		25.0	28.8		ug/L		113	50 - 137	0	30
1,2-Dibromoethane (EDB)	ND		25.0	25.1		ug/L		100	70 - 131	0	25
Bromochloromethane	ND		25.0	27.0		ug/L		108	70 - 130	1	25
Bromodichloromethane	ND		25.0	25.3		ug/L		101	70 - 138	0	20
Dibromochloromethane	ND		25.0	31.0		ug/L		124	70 - 148	1	25
p-Isopropyltoluene	ND		25.0	25.3		ug/L		101	70 - 130	0	20
Methyl-t-Butyl Ether (MTBE)	ND		25.0	20.2		ug/L		81	70 - 130	1	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*108*		*80 - 120*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*
Dibromofluoromethane (Surr)	*101*		*80 - 120*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-127917/4
Matrix: Water
Analysis Batch: 127917

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.26		mg/L			08/29/13 11:22	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 440-127917/4
Matrix: Water
Analysis Batch: 127917

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as NO2	ND		0.50		mg/L			08/29/13 11:22	1
Nitrate as NO3	ND		0.50		mg/L			08/29/13 11:22	1

Lab Sample ID: LCS 440-127917/2
Matrix: Water
Analysis Batch: 127917

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as NO2	5.00	4.84		mg/L		97	90 - 110
Nitrate as NO3	5.00	4.91		mg/L		98	90 - 110

Lab Sample ID: 440-55667-K-10 MS
Matrix: Water
Analysis Batch: 127917

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as NO2	ND		100	110		mg/L		110	80 - 120
Nitrate as NO3	66		100	144	F	mg/L		78	80 - 120

Lab Sample ID: 440-55667-K-10 MSD
Matrix: Water
Analysis Batch: 127917

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as NO2	ND		100	111		mg/L		111	80 - 120	1	20
Nitrate as NO3	66		100	147		mg/L		81	80 - 120	2	20

Lab Sample ID: MB 440-127918/4
Matrix: Water
Analysis Batch: 127918

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			08/29/13 11:22	1
Sulfate	ND		0.50		mg/L			08/29/13 11:22	1

Lab Sample ID: LCS 440-127918/2
Matrix: Water
Analysis Batch: 127918

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.79		mg/L		96	90 - 110
Sulfate	10.0	9.81		mg/L		98	90 - 110

Lab Sample ID: 440-55667-K-10 MS
Matrix: Water
Analysis Batch: 127918

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	870		100	884	4	mg/L		11	80 - 120
Sulfate	62		200	224		mg/L		81	80 - 120

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 440-55667-K-10 MSD
Matrix: Water
Analysis Batch: 127918

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	870		100	874	4	mg/L		1	80 - 120	1	20
Sulfate	62		200	222		mg/L		80	80 - 120	1	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-128111/1-A
Matrix: Water
Analysis Batch: 128318

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 128111

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		5.0		ug/L		08/29/13 19:13	08/30/13 12:27	1
Lead	ND		5.0		ug/L		08/29/13 19:13	08/30/13 12:27	1
Copper	ND		10		ug/L		08/29/13 19:13	08/30/13 12:27	1
Boron	ND		50		ug/L		08/29/13 19:13	08/30/13 12:27	1

Lab Sample ID: LCS 440-128111/2-A
Matrix: Water
Analysis Batch: 128318

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 128111

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	500	490		ug/L		98	85 - 115
Lead	500	496		ug/L		99	85 - 115
Copper	500	483		ug/L		97	85 - 115
Boron	500	487		ug/L		97	85 - 115

Lab Sample ID: 440-55735-1 MS
Matrix: Water
Analysis Batch: 128318

Client Sample ID: MCWP-MW02 Effluent
Prep Type: Total Recoverable
Prep Batch: 128111

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	ND		500	517		ug/L		103	70 - 130
Lead	ND		500	515		ug/L		103	70 - 130
Copper	ND		500	529		ug/L		106	70 - 130
Boron	420		500	983		ug/L		113	70 - 130

Lab Sample ID: 440-55735-1 MSD
Matrix: Water
Analysis Batch: 128318

Client Sample ID: MCWP-MW02 Effluent
Prep Type: Total Recoverable
Prep Batch: 128111

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	ND		500	501		ug/L		100	70 - 130	3	20
Lead	ND		500	498		ug/L		100	70 - 130	4	20
Copper	ND		500	501		ug/L		100	70 - 130	6	20
Boron	420		500	920		ug/L		100	70 - 130	7	20

Method: 150.1 - pH (Electrometric)

Lab Sample ID: 440-55688-I-2 DU
Matrix: Water
Analysis Batch: 128652

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.34		7.330		SU		0.1	2
Temperature	25.0		25.00		Degrees C		0	

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-129151/1-A
Matrix: Water
Analysis Batch: 129153

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 129151

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	ND		5.0		mg/L		09/05/13 08:09	09/05/13 08:15	1

Lab Sample ID: LCS 440-129151/2-A
Matrix: Water
Analysis Batch: 129153

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 129151

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM	20.0	17.7		mg/L		88	78 - 114

Lab Sample ID: LCSD 440-129151/3-A
Matrix: Water
Analysis Batch: 129153

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 129151

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM	20.0	18.5		mg/L		92	78 - 114	4	11

Method: SM 2130B - Turbidity

Lab Sample ID: MB 440-128197/5
Matrix: Water
Analysis Batch: 128197

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.10		NTU			08/30/13 09:35	1

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-127875/1
Matrix: Water
Analysis Batch: 127875

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10		mg/L			08/29/13 08:03	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 440-127875/2
Matrix: Water
Analysis Batch: 127875

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	1020		mg/L		102	90 - 110

Lab Sample ID: 440-55585-B-1 DU
Matrix: Water
Analysis Batch: 127875

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	17000		17400		mg/L		4	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-128113/1
Matrix: Water
Analysis Batch: 128113

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		10		mg/L			08/29/13 19:20	1

Lab Sample ID: LCS 440-128113/2
Matrix: Water
Analysis Batch: 128113

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	987		mg/L		99	85 - 115

Lab Sample ID: 440-55689-K-1 DU
Matrix: Water
Analysis Batch: 128113

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	30		30.0		mg/L		2	10

Method: SM 4500 Cl G - Chlorine, Residual

Lab Sample ID: MB 440-128280/1
Matrix: Water
Analysis Batch: 128280

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Residual Chlorine	ND		0.10		mg/L			08/30/13 11:59	1

Lab Sample ID: 440-55735-1 DU
Matrix: Water
Analysis Batch: 128280

Client Sample ID: MCWP-MW02 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Residual Chlorine	ND	HF	ND	HF	mg/L		NC	20

QC Sample Results

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-55735-1

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-128250/1 USB
Matrix: Water
Analysis Batch: 128250

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			08/30/13 10:55	1

Lab Sample ID: LCS 440-128250/4
Matrix: Water
Analysis Batch: 128250

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	199	202		mg/L		102	85 - 115

Lab Sample ID: LCSD 440-128250/5
Matrix: Water
Analysis Batch: 128250

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand	199	204		mg/L		103	85 - 115	1	20

GC/MS VOA

Analysis Batch: 128104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55087-C-3 MS	Matrix Spike	Total/NA	Water	8260B	
440-55087-C-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
440-55735-1	MCWP-MW02 Effluent	Total/NA	Water	8260B	
LCS 440-128104/4	Lab Control Sample	Total/NA	Water	8260B	
MB 440-128104/3	Method Blank	Total/NA	Water	8260B	

HPLC/IC

Analysis Batch: 127917

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55667-K-10 MS	Matrix Spike	Total/NA	Water	300.0	
440-55667-K-10 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
440-55735-1	MCWP-MW02 Effluent	Total/NA	Water	300.0	
LCS 440-127917/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-127917/4	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 127918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55667-K-10 MS	Matrix Spike	Total/NA	Water	300.0	
440-55667-K-10 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
440-55735-1	MCWP-MW02 Effluent	Total/NA	Water	300.0	
LCS 440-127918/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-127918/4	Method Blank	Total/NA	Water	300.0	

Metals

Prep Batch: 128111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55735-1	MCWP-MW02 Effluent	Total Recoverable	Water	200.2	
440-55735-1 MS	MCWP-MW02 Effluent	Total Recoverable	Water	200.2	
440-55735-1 MSD	MCWP-MW02 Effluent	Total Recoverable	Water	200.2	
LCS 440-128111/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
MB 440-128111/1-A	Method Blank	Total Recoverable	Water	200.2	

Analysis Batch: 128318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55735-1	MCWP-MW02 Effluent	Total Recoverable	Water	200.7 Rev 4.4	128111
440-55735-1 MS	MCWP-MW02 Effluent	Total Recoverable	Water	200.7 Rev 4.4	128111
440-55735-1 MSD	MCWP-MW02 Effluent	Total Recoverable	Water	200.7 Rev 4.4	128111
LCS 440-128111/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	128111
MB 440-128111/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	128111

General Chemistry

Analysis Batch: 127875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55585-B-1 DU	Duplicate	Total/NA	Water	SM 2540C	
440-55735-1	MCWP-MW02 Effluent	Total/NA	Water	SM 2540C	
LCS 440-127875/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 440-127875/1	Method Blank	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 128113

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55689-K-1 DU	Duplicate	Total/NA	Water	SM 2540D	
440-55735-1	MCWP-MW02 Effluent	Total/NA	Water	SM 2540D	
LCS 440-128113/2	Lab Control Sample	Total/NA	Water	SM 2540D	
MB 440-128113/1	Method Blank	Total/NA	Water	SM 2540D	

Analysis Batch: 128184

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55735-1	MCWP-MW02 Effluent	Total/NA	Water	SM 2540F	

Analysis Batch: 128197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55735-1	MCWP-MW02 Effluent	Total/NA	Water	SM 2130B	
MB 440-128197/5	Method Blank	Total/NA	Water	SM 2130B	

Analysis Batch: 128250

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55735-1	MCWP-MW02 Effluent	Total/NA	Water	SM5210B	
LCS 440-128250/4	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-128250/5	Lab Control Sample Dup	Total/NA	Water	SM5210B	
USB 440-128250/1 USB	Method Blank	Total/NA	Water	SM5210B	

Analysis Batch: 128280

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55735-1	MCWP-MW02 Effluent	Total/NA	Water	SM 4500 Cl G	
440-55735-1 DU	MCWP-MW02 Effluent	Total/NA	Water	SM 4500 Cl G	
MB 440-128280/1	Method Blank	Total/NA	Water	SM 4500 Cl G	

Analysis Batch: 128652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55688-I-2 DU	Duplicate	Total/NA	Water	150.1	
440-55735-1	MCWP-MW02 Effluent	Total/NA	Water	150.1	

Prep Batch: 129151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55735-1	MCWP-MW02 Effluent	Total/NA	Water	1664A	
LCS 440-129151/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-129151/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	
MB 440-129151/1-A	Method Blank	Total/NA	Water	1664A	

Analysis Batch: 129153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-55735-1	MCWP-MW02 Effluent	Total/NA	Water	1664A	129151
LCS 440-129151/2-A	Lab Control Sample	Total/NA	Water	1664A	129151
LCSD 440-129151/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	129151
MB 440-129151/1-A	Method Blank	Total/NA	Water	1664A	129151

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
F	MS/MSD Recovery and/or RPD exceeds the control limits
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-55735-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-14
Arizona	State Program	9	AZ0671	10-13-13
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-14
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-28-14 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-14
New Mexico	State Program	6	N/A	01-31-14
Northern Mariana Islands	State Program	9	MP0002	01-31-14
Oregon	NELAP	10	4005	09-12-13
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

Laboratory: Aquatic Testing Laboratories

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
N/A	N/A	N/A	None on record.	

* Expired certification is currently pending renewal and is considered valid.

LABORATORY REPORT

Aquatic Testing Laboratories
"dedicated to providing quality aquatic toxicity testing"
4350 Transport Street, Unit 107
Ventura, CA 93003
(805) 650-0546 FAX (805) 650-0756
CA DOHS ELAP Cert. No.: 1775

Date: September 3, 2013

Client: Test America – Irvine
17461 Derian Ave., Suite 100
Irvine, CA 92614
Attn: Janice Hsu

Laboratory No.: A-13083004-001
Job No.: 440-55735-1
Sample ID.: 440-55735-1

Sample Control: The sample was received by ATL in a chilled state, within the recommended hold time and with the chain of custody record attached.

Date Sampled:	08/29/13
Date Received:	08/30/13
Temp. Received:	3.6°C
Chlorine (TRC):	0.0 mg/l
Date Tested:	08/30/13 to 09/03/13

Sample Analysis: The following analyses were performed on your sample:

Topsmelt (Atherinops affinis) 96hr Percent Survival Bioassay (EPA 821-R-02-012).

Attached are the test data generated from the analysis of your sample. All testing was conducted under the direct supervision of Joseph A. LeMay. Daily test readings were taken by Joseph A. LeMay (initialed: JAL) and Jacob LeMay (initialed: J).

Result Summary:

Sample ID.	Results
440-55735-1	100% Survival (TUa = 0.0)

Quality Control: Reviewed and approved by:

Joseph A. LeMay
Laboratory Director

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of the Laboratory's name for any advertising or publicity purpose without authorization is prohibited.

TOPSMELT PERCENT SURVIVAL BIOASSAY

Aquatic Testing Laboratories

Lab No.: A-13083004-001
Client/ID: TestAmerica 440-55735-1 Start Date: 08/30/2013

TEST SUMMARY

Species: *Atherinops affinis*.
Age: 12 (7-15) days.
Regulations: NPDES.
Test chamber volume: 300 ml.
Feeding: prior to renewal.
Temperature: 20 +/- 1°C.
Aeration: None, unless DO drops below 4.0 mg/l.
Dilution water: none.
QA/QC Batch No.: RT-130830.

Source: Aquatic BioSysytems.
Test type: Static-Renewal @ 48hrs.
Test Protocol: EPA-821-R-02-012.
Endpoints: Percent Survival at 96 hrs.
Test chamber: 500 ml beakers.
Number of replicates: 2.
Number of fish per chamber: 10.
Photoperiod: 16/8 hrs light/dark.

TEST DATA

		°C	DO	pH	Sal.	# Dead		Analyst & Time of Readings
						A	B	
INITIAL	Control	19.8	7.2	8.0	33	0	0	2
	100%	20.0	6.7	8.0	33	0	0	1400 8-30-13
24 Hr	Control	20.1	7.0	7.8	33	0	0	2
	100%	20.1	6.3	8.1	33	0	0	1330 8-31-13
48 Hr	Control	20.0	7.0	8.0	33	0	0	2
	100%	20.0	6.8	8.1	33	0	0	1300 9-1-13
Renewal	Control	20.0	7.8	8.0	33	0	0	2
	100%	20.0	7.5	8.0	33	0	0	1300 9-1-13
72 Hr	Control	20.4	6.5	7.9	33	0	0	2
	100%	20.4	6.8	8.0	33	0	0	1330 9-2-13
96 Hr	Control	20.3	5.7	7.6	33	0	0	2
	100%	20.3	6.2	8.1	33	0	0	1330 9-3-13

Comments:

Sample as received: Chlorine: 0.0 mg/l; pH: 7.6; Salinity: 1 ppt; Temp: 3.6°C;
DO: 6.1 mg/l; NH_3-N: 1.5 mg/l.

Sample and Control salinity may be adjusted with artificial sea salts.

RESULTS

Percent Survival In: Control: 100 % 100% Sample: 100 %

TestAmerica Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone (949) 261-1022 Fax (949) 260-3297

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Hsu, Janice	Carrier Tracking No(s):	COC No: 440-25139.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: janice.hsu@testamericainc.com		Page: Page 1 of 1
Company: Aquatic Testing Laboratories		**Analysis Requested**		Job #: 440-55735-1
Address: 4350 Transport #107,	Due Date Requested: 9/9/2013			Preservation Codes:
City: Ventura	TAT Requested (days):			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
State, Zip: CA, 93003				
Phone:	PO #:			Other:
Email:	WO #:			
Project Name: Malibu - Well Installation (Short List)	Project #: 44008618			
Site:	SSOW#:			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUBCONTRACT/ Topsmelt fish test	Total Number of Containers	Special Instructions/Note:
MCWP-MW02 Effluent (440-55735-1)	8/29/13	12:00 Pacific		Water			X		Topsmelt fish test

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 8-30-13 9:00	Company	Received by:	Date/Time: 8-30-13 9:00	Company TA-I
Relinquished by:	Date/Time: 8-30-13 1255	Company TA	Received by:	Date/Time: 8/30/13 12:55	Company TA
Relinquished by:	Date/Time: 8/30/13 1:30pm	Company TA	Received by:	Date/Time: 8-30-13 1330	Company TA

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3-6°

9/5/2013

Aquatic Testing Laboratories

REFERENCE TOXICANT DATA

TOPSMELT TOXICITY TEST
Reference Toxicant

Aquatic Testing Laboratories

QA/QC Batch No.: RT-130830

TEST SUMMARY

Species: *Atherinops affinis*.
Age: 12 days old (7 -15 days old).
Regulations: NPDES.
Test chamber volume: 250 ml.
Feeding: Prior to renewal at 48 hrs.
Temperature: 20 +/- 1°C.
Number of replicates: 2.
Dilution water: lab seawater (32 ppt).
Ref. tox.: Copper chloride.

Source: Aquatic BioSystems.
Test type: Static-Renewal.
Test Protocol: EPA-821-R-02-012.
Endpoints: LC50 at 96 hrs.
Test chamber: 500 ml plastic beakers.
Aeration: None.
Number of organisms per chamber: 10.
Photoperiod: 16/8 hrs light/dark.

TEST DATA

	INITIAL				24 Hr					48 Hr				
Date/Time:	8-30-13 14w				8-31-13 1330					9-1-13 1300				
Analyst:														
	°C	DO	pH	Sal.	°C	DO	pH	# Dead A	# Dead B	°C	DO	pH	# Dead A	# Dead B
Control	20.1	7.2	8.0	33	20.0	7.1	8.0	0	0	20.0	6.7	8.1	0	0
56 ug/l	20.2	7.4	8.1	33	20.0	7.3	8.0	0	0	20.0	6.8	8.1	0	0
100 ug/l	20.2	7.4	8.1	33	20.0	7.3	8.1	0	0	20.0	6.4	8.1	0	0
180 ug/l	20.2	7.4	8.1	33	20.1	7.4	8.1	3	2	20.0	6.8	8.1	0	0
320 ug/l	20.2	7.5	8.1	33	20.0	7.3	8.1	10	9	20.0	6.9	8.1	-	0
560 ug/l	20.2	7.4	8.1	33	20.0	7.5	8.1	10	10	-	-	-	-	-

	RENEWAL				72 Hr					96 Hr				
Date/Time:	9-1-13 1300				9-2-13 1330					9-3-13 1330				
Analyst:														
	°C	DO	pH	Sal.	°C	DO	pH	# Dead A	# Dead B	°C	DO	pH	# Dead A	# Dead B
Control	20.0	7.5	8.0	33	20.2	6.2	7.9	0	0	20.2	6.1	7.6	0	0
56 ug/l	20.0	7.3	8.0	33	20.2	6.1	7.9	0	0	20.2	6.0	7.7	0	0
100 ug/l	20.0	7.2	8.1	33	20.3	6.0	7.9	0	0	20.2	6.1	7.8	0	0
180 ug/l	20.0	7.3	8.2	33	20.3	6.2	7.9	1	0	20.1	6.4	7.9	0	0
320 ug/l	20.0	7.4	8.2	33	20.4	6.3	8.0	-	1	-	-	-	-	-
560 ug/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Comments: Dissolved Oxygen (DO) readings in mg/l O_2.; Salinity (Sal.) readings in ppt.
Concentration-response relationship acceptable? (see attached computer analysis):
Yes (response curve normal)
No (dose interrupted indicated or non-normal)

Acute Fish Test-96 Hr Survival

Start Date:	8/30/2013 14:00	Test ID:	RT130830ts	Sample ID:	REF-Ref Toxicant
End Date:	9/3/2013 13:30	Lab ID:	CAATL-Aquatic Testing Labs	Sample Type:	CUCL-Copper chloride
Sample Date:	8/30/2013	Protocol:	ACUTE-EPA-821-R-02-012	Test Species:	AA-Atherinops affinis
Comments:					

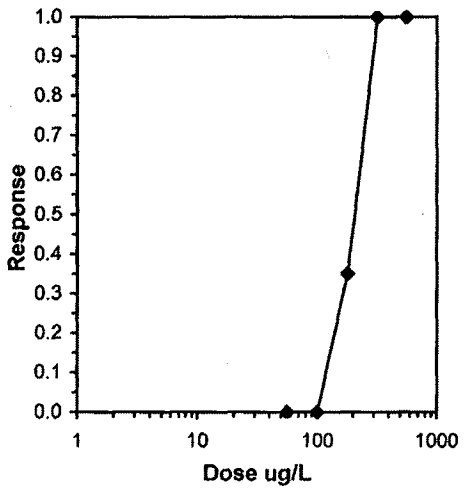
Conc-ug/L	1	2
D-Control	1.0000	1.0000
56	1.0000	1.0000
100	1.0000	1.0000
180	0.6000	0.7000
320	0.0000	0.0000
560	0.0000	0.0000

			Transform: Arcsin Square Root					Number	Total
Conc-ug/L	Mean	N-Mean	Mean	Min	Max	CV%	N	Resp	Number
D-Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
56	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
100	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
180	0.6500	0.6500	0.9386	0.8861	0.9912	7.916	2	7	20
320	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20
560	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Normality of the data set cannot be confirmed				
Equality of variance cannot be confirmed				

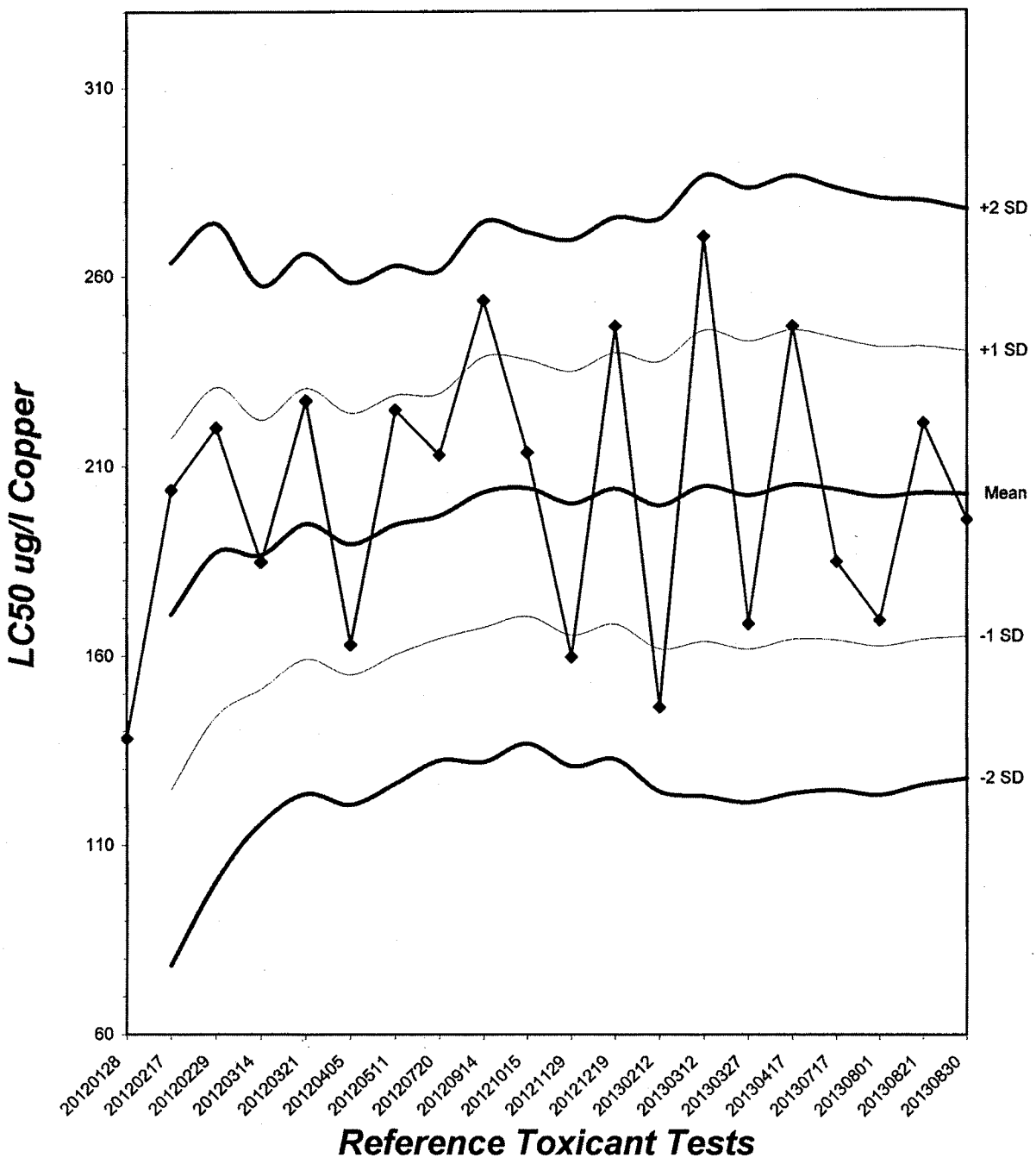
Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%	195.80	172.96	221.66
5.0%	197.56	171.94	226.98
10.0%	199.28	169.87	233.77
20.0%	202.52	160.72	255.20
Auto-0.0%	195.80	172.96	221.66



Topsmelt Acute Laboratory Control Chart

CV% = 18.5



1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax:970/484-2514

ORGANISM HISTORY

DATE: 8/27/2013

SPECIES: *Atherinops affinis*

AGE: 9 day

LIFE STAGE: Larvae

HATCH DATE: 8/18/2013

BEGAN FEEDING: Immediately

FOOD: *Artemia* sp.

Water Chemistry Record:	Current	Range
TEMPERATURE:	21 °C	16-22 °C
SALINITY/CONDUCTIVITY:	32 ppt	28-32 ppt
TOTAL HARDNESS (as $CaCO_3$):	--	--
TOTAL ALKALINITY (as $CaCO_3$):	155 mg/l	140-180 mg/l
pH:	7.85	7.60-8.29

Comments:

Facility Supervisor

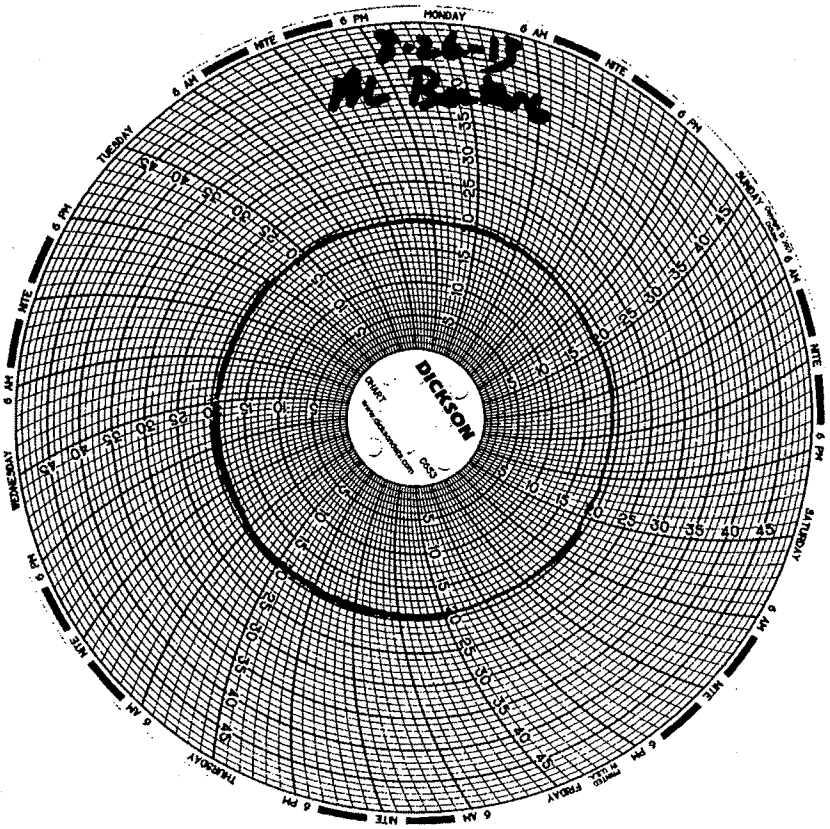
Aquatic Testing Laboratories

Test Temperature Chart

Test No: RT-130830

Date Tested: 08/30/13 to 09/03/13

Acceptable Range: 20 +/- 1°C



Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614
phone 949.261.1022 fax 949 260.3299

Chain of Custody Record

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TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Leslie Dumas	Site Contact: Robert Marks	Date: 8/29/13	COC No:
RMC Water and Environment	Tel/Fax:	Lab Contact: Janice Hsu	Carrier:	1 of 1 COCs
2001 N. Main Street Suite 400	Analysis Turnaround Time			Job No.
Walnut Creek, CA 94596	Calendar (C) or Work Days (W) W			
(925) 627-4100 Phone	TAT if different from Below			TALS Proj #: 44008618
(925) 627-4101 FAX	☐ 2 weeks			
Project Name: Malibu - Well Installation (Short List)	☐ 1 week Regular TAT			
Site:	☐ 2 days			
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Preservatives	Matrix	# of Cont.	Filtered Sample	TSS	Turbidity	BOD	Settleable Solids	Residual Chlorine	Sulfate	Chloride	NO3 + NO2	TDS	Boron, Copper, Lead, Chromium	8260 VOA (include MTBE)	1664 - Oil & Grease	pH & Temperature	Fish Bioassay				Sample Specific Notes:
MCWP-MW02 Effluent	8/29	12⁰⁰	N/A	W	5		X	X	X	X	X	X	X	X	X				X					48 hours hold time for Thrbidity,
" " "	"	"	HNO3	W	1											X								BOD & NO3 + NO2
" " "	"	"	HCL	W	3												X							
" " "	"	"	HCL	W	2													X						
" " "	"	"	NA	W	1															X				

440-55735 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☒ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Special Instructions/QC Requirements & Comments:

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
[signature]	PWR, Inc	8/29 14:15	[signature]	SUNRISE	08-29-13 2:15
[signature]	SUNRISE	8/29 3:10		Company	Date/Time
Relinquished by:	Company	Date/Time:	Received by:	Company TAI	Date/Time 08/29/13 15:10

9/4/2013

Page 33 of 34

9.4-13
8/29/13 5:4

14.4.1
14.2.1

Login Sample Receipt Checklist

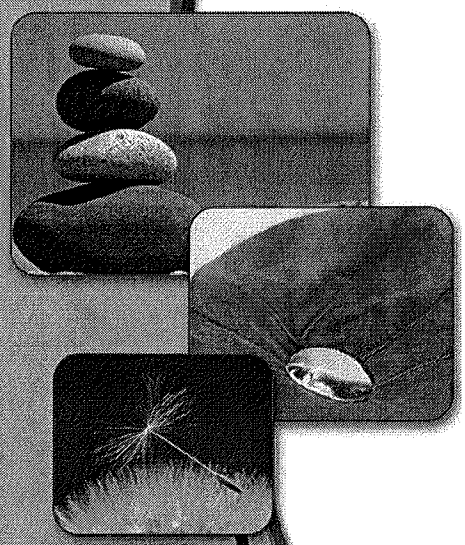
Client: RMC Water and Environment

Job Number: 440-55735-1

Login Number: 55735
List Number: 1
Creator: Sung, Hubert

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	False	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-56583-1
Client Project/Site: Malibu Park

For:
RMC Water and Environment
2001 N. Main Street
Suite 400
Walnut Creek, California 94596

Attn: Leslie Dumas

Authorized for release by:
9/12/2013 5:27:22 PM

Janice Hsu, Project Manager I
janice.hsu@testamericainc.com

LINKS

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Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-56583-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-56583-1	Malibu Park RMC	Water	09/10/13 08:30	09/10/13 12:42

Case Narrative

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-56583-1

Job ID: 440-56583-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-56583-1

Comments
No additional comments.

Receipt
The sample was received on 9/10/2013 12:42 PM; the sample arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 10.9° C.

HPLC
No analytical or quality issues were noted.

Client Sample Results

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-56583-1

Client Sample ID: Malibu Park RMC
Date Collected: 09/10/13 08:30
Date Received: 09/10/13 12:42

Lab Sample ID: 440-56583-1
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.6		0.50		mg/L			09/10/13 13:59	1

Method Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-56583-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-56583-1

Client Sample ID: Malibu Park RMC
Date Collected: 09/10/13 08:30
Date Received: 09/10/13 12:42

Lab Sample ID: 440-56583-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	1 mL		130052	09/10/13 13:59	CC	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-130052/4
Matrix: Water
Analysis Batch: 130052

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50		mg/L			09/10/13 10:32	1

Lab Sample ID: LCS 440-130052/2
Matrix: Water
Analysis Batch: 130052

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	9.87		mg/L		99	90 - 110

Lab Sample ID: 440-56361-F-1 MS
Matrix: Water
Analysis Batch: 130052

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	810		200	1430	4	mg/L		312	80 - 120

Lab Sample ID: 440-56361-F-1 MSD
Matrix: Water
Analysis Batch: 130052

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	810		200	1400	4	mg/L		294	80 - 120	2	20

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-56583-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-14
Arizona	State Program	9	AZ0671	10-13-13
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-14
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-28-14 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-14
New Mexico	State Program	6	N/A	01-31-14
Northern Mariana Islands	State Program	9	MP0002	01-31-14
Oregon	NELAP	10	4005	09-12-13
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

* Expired certification is currently pending renewal and is considered valid.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY FORM

17461 Derian Ave., #100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297

TAL-0013 (0513)

Client Name / Address:	Project / PO Number:
RMC WATER + ENVIRO	MALIBU PARK
Project Manager: LESLIE DUMAS / JANICE HSU	**Phone Number:** 925-708-6758
Sampler: BOB MERTZ	**Fax Number:**

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	Analysis Required: Sulfate	Special Instructions
MALIBU PARK RMC	WATER	500ML	1	9-10-13	8:30A	NONE	X	

9/10/13

440-56583 Chain of Custody

Relinquished By:	Date / Time:	Received By:	Date / Time:	Turnaround Time: (Check)
BMertz	9-10-13 12:42			same day ____ 72 hours ____
Relinquished By:	Date / Time:	Received By:	Date / Time:	24 hours ____ 5 days ____
				48 hours ____ normal ____
Relinquished By:	Date / Time:	Received in Lab By:	Date / Time:	Sample Integrity: (Check)
		VuBanh	9/10/13 12:42	intact ✓ on ice ✓ 11.1 / 10.9

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. *Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.*

Login Sample Receipt Checklist

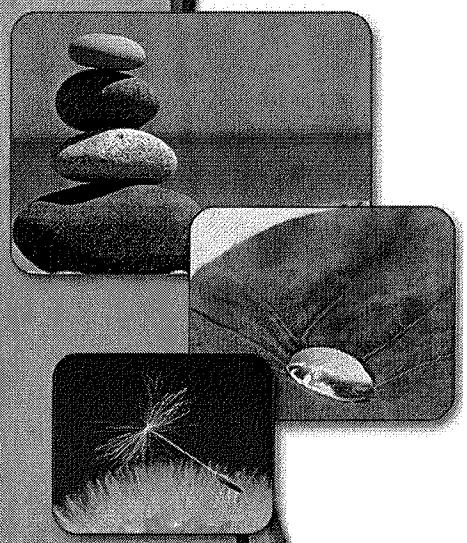
Client: RMC Water and Environment

Job Number: 440-56583-1

Login Number: 56583
List Number: 1
Creator: King, Ronald

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	Bob Mentz
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-57582-1
TestAmerica Sample Delivery Group: MCWP-MW02
Client Project/Site: Malibu - Well Installation

For:
RMC Water and Environment
2001 N. Main Street
Suite 400
Walnut Creek, California 94596

Attn: Leslie Dumas

Authorized for release by:
10/1/2013 1:32:43 PM

Janice Hsu, Project Manager I
(949)261-1022
janice.hsu@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-57582-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-57582-1	MCWP-MW02 Effluent	Water	09/20/13 11:00	09/20/13 16:40

Case Narrative

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-57582-1

Job ID: 440-57582-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-57582-1

Comments
No additional comments.

Receipt
The sample was received on 9/20/2013 4:40 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.0° C.

GC/MS VOA
No analytical or quality issues were noted.

HPLC
No analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry
Method(s) 1664A: Insufficient sample volume was available to perform batch matrix spike/matrix spike duplicate (MS/MSD) associated with batch 134233. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

No other analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-57582-1

Client Sample ID: MCWP-MW02 Effluent
Date Collected: 09/20/13 11:00
Date Received: 09/20/13 16:40

Lab Sample ID: 440-57582-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/22/13 15:15	1
1,1,1-Trichloroethane	ND		2.0		ug/L			09/22/13 15:15	1
1,1,2,2-Tetrachloroethane	ND		2.0		ug/L			09/22/13 15:15	1
1,1,2-Trichloroethane	ND		2.0		ug/L			09/22/13 15:15	1
1,1-Dichloroethane	ND		2.0		ug/L			09/22/13 15:15	1
1,1-Dichlorethylene	ND		5.0		ug/L			09/22/13 15:15	1
1,1-Dichloropropene	ND		2.0		ug/L			09/22/13 15:15	1
1,2,3-Trichlorobenzene	ND		5.0		ug/L			09/22/13 15:15	1
1,2,3-Trichloropropane	ND		10		ug/L			09/22/13 15:15	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			09/22/13 15:15	1
1,2,4-Trimethylbenzene	ND		2.0		ug/L			09/22/13 15:15	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			09/22/13 15:15	1
1,2-Dichlorobenzene	ND		2.0		ug/L			09/22/13 15:15	1
1,2-Dichloroethane	ND		2.0		ug/L			09/22/13 15:15	1
1,2-Dichloropropane	ND		2.0		ug/L			09/22/13 15:15	1
1,3,5-Trimethylbenzene	ND		2.0		ug/L			09/22/13 15:15	1
1,3-Dichlorobenzene	ND		2.0		ug/L			09/22/13 15:15	1
1,3-Dichloropropane	ND		2.0		ug/L			09/22/13 15:15	1
1,4-Dichlorobenzene	ND		2.0		ug/L			09/22/13 15:15	1
2,2-Dichloropropane	ND		2.0		ug/L			09/22/13 15:15	1
2-Chlorotoluene	ND		5.0		ug/L			09/22/13 15:15	1
4-Chlorotoluene	ND		5.0		ug/L			09/22/13 15:15	1
Benzene	ND		2.0		ug/L			09/22/13 15:15	1
Bromobenzene	ND		5.0		ug/L			09/22/13 15:15	1
Bromoform	ND		5.0		ug/L			09/22/13 15:15	1
Bromomethane	ND		5.0		ug/L			09/22/13 15:15	1
Carbon tetrachloride	ND		5.0		ug/L			09/22/13 15:15	1
Chlorobenzene	ND		2.0		ug/L			09/22/13 15:15	1
Chloroethane	ND		5.0		ug/L			09/22/13 15:15	1
Chloroform	ND		2.0		ug/L			09/22/13 15:15	1
Chloromethane	ND		5.0		ug/L			09/22/13 15:15	1
cis-1,2-Dichloroethene	ND		2.0		ug/L			09/22/13 15:15	1
cis-1,3-Dichloropropene	ND		2.0		ug/L			09/22/13 15:15	1
Dibromomethane	ND		2.0		ug/L			09/22/13 15:15	1
Dichlorodifluoromethane	ND		5.0		ug/L			09/22/13 15:15	1
Ethylbenzene	ND		2.0		ug/L			09/22/13 15:15	1
Hexachlorobutadiene	ND		5.0		ug/L			09/22/13 15:15	1
Isopropylbenzene	ND		2.0		ug/L			09/22/13 15:15	1
m,p-Xylene	ND		2.0		ug/L			09/22/13 15:15	1
Methylene Chloride	ND		5.0		ug/L			09/22/13 15:15	1
Naphthalene	ND		5.0		ug/L			09/22/13 15:15	1
n-Butylbenzene	ND		5.0		ug/L			09/22/13 15:15	1
N-Propylbenzene	ND		2.0		ug/L			09/22/13 15:15	1
o-Xylene	ND		2.0		ug/L			09/22/13 15:15	1
sec-Butylbenzene	ND		5.0		ug/L			09/22/13 15:15	1
Styrene	ND		2.0		ug/L			09/22/13 15:15	1
tert-Butylbenzene	ND		5.0		ug/L			09/22/13 15:15	1
Tetrachloroethene	ND		2.0		ug/L			09/22/13 15:15	1
Toluene	ND		2.0		ug/L			09/22/13 15:15	1

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-57582-1

Client Sample ID: MCWP-MW02 Effluent
Date Collected: 09/20/13 11:00
Date Received: 09/20/13 16:40

Lab Sample ID: 440-57582-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-trans-Dichloroethylene	ND		2.0		ug/L			09/22/13 15:15	1
trans-1,3-Dichloropropene	ND		2.0		ug/L			09/22/13 15:15	1
Trichloroethylene	ND		2.0		ug/L			09/22/13 15:15	1
Trichlorofluoromethane	ND		5.0		ug/L			09/22/13 15:15	1
Vinyl chloride	ND		5.0		ug/L			09/22/13 15:15	1
1,2-Dibromoethane (EDB)	ND		2.0		ug/L			09/22/13 15:15	1
Bromochloromethane	ND		5.0		ug/L			09/22/13 15:15	1
Bromodichloromethane	ND		2.0		ug/L			09/22/13 15:15	1
Dibromochloromethane	ND		2.0		ug/L			09/22/13 15:15	1
p-Isopropyltoluene	ND		2.0		ug/L			09/22/13 15:15	1
Methyl-t-Butyl Ether (MTBE)	ND		1.0		ug/L			09/22/13 15:15	1
Trihalomethanes, Total	ND		2.0		ug/L			09/22/13 15:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*80 - 120*		*09/22/13 15:15*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*09/22/13 15:15*	*1*
Dibromofluoromethane (Surr)	*93*		*80 - 120*		*09/22/13 15:15*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.59**		0.26		mg/L			09/20/13 17:29	1
Chloride	**72**		5.0		mg/L			09/20/13 17:42	10
Nitrite as NO2	**0.92**		0.50		mg/L			09/20/13 17:29	1
Nitrate as NO3	**1.4**		0.50		mg/L			09/20/13 17:29	1
Sulfate	**62**		5.0		mg/L			09/20/13 17:42	10

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.23**		0.050		mg/L		09/20/13 19:41	09/23/13 10:45	1
Chromium	ND		5.0		ug/L		09/20/13 19:41	09/23/13 10:45	1
Lead	ND		5.0		ug/L		09/20/13 19:41	09/23/13 10:45	1
Copper	ND		10		ug/L		09/20/13 19:41	09/23/13 10:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	ND		4.9		mg/L		09/30/13 07:18	09/30/13 09:18	1
Total Dissolved Solids	**330**		10		mg/L			09/23/13 08:00	1
Total Suspended Solids	ND		1.0		mg/L			09/24/13 09:26	1
Biochemical Oxygen Demand	ND		2.0		mg/L			09/22/13 08:38	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.64**	**HF**	0.100		SU			09/21/13 16:14	1
Temperature	**20.6**	**HF**	1.00		Degrees C			09/21/13 16:14	1
Turbidity	ND		0.10		NTU			09/21/13 16:30	1
Settleable Solids	ND		0.10		mL/L/Hr			09/21/13 11:00	1
Residual Chlorine	ND	HF	0.10		mg/L			09/23/13 16:23	1

Method Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-57582-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
150.1	pH (Electrometric)	MCAWW	TAL IRV
1664A	HEM and SGT-HEM	1664A	TAL IRV
SM 2130B	Turbidity	SM	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
SM 2540F	Solids, Settleable	SM	TAL IRV
SM 4500 Cl G	Chlorine, Residual	SM	TAL IRV
SM5210B	BOD, 5 Day	SM	TAL IRV

Protocol References:

1664A = EPA-821-98-002

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-57582-1

Client Sample ID: MCWP-MW02 Effluent

Date Collected: 09/20/13 11:00
Date Received: 09/20/13 16:40

Lab Sample ID: 440-57582-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	132648	09/22/13 15:15	MR	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		132384	09/20/13 17:29	NN	TAL IRV
Total/NA	Analysis	300.0		10	1 mL		132385	09/20/13 17:42	NN	TAL IRV
Total Recoverable	Prep	200.2			50 mL	50 mL	132564	09/20/13 19:41	JB	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			132767	09/23/13 10:45	MP	TAL IRV
Total/NA	Analysis	SM 2540F		1	1000 mL	1000 mL	132617	09/21/13 11:00	TR	TAL IRV
Total/NA	Analysis	SM 2130B		1		20 mL	132618	09/21/13 16:30	TR	TAL IRV
Total/NA	Analysis	150.1		1		50 mL	132639	09/21/13 16:14	TR	TAL IRV
Total/NA	Analysis	SM5210B		1		300 mL	132660	09/22/13 08:38	QPD	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	132715	09/23/13 08:00	XL	TAL IRV
Total/NA	Analysis	SM 4500 Cl G		1			132890	09/23/13 16:23	QPD	TAL IRV
Total/NA	Analysis	SM 2540D		1	1000 mL	100 mL	132997	09/24/13 09:26	XL	TAL IRV
Total/NA	Prep	1664A			1030 mL	1000 mL	134197	09/30/13 07:18	DA	TAL IRV
Total/NA	Analysis	1664A		1			134233	09/30/13 09:18	DA	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-57582-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-132648/4
Matrix: Water
Analysis Batch: 132648

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/22/13 10:38	1
1,1,1-Trichloroethane	ND		2.0		ug/L			09/22/13 10:38	1
1,1,2,2-Tetrachloroethane	ND		2.0		ug/L			09/22/13 10:38	1
1,1,2-Trichloroethane	ND		2.0		ug/L			09/22/13 10:38	1
1,1-Dichloroethane	ND		2.0		ug/L			09/22/13 10:38	1
1,1-Dichlorethylene	ND		5.0		ug/L			09/22/13 10:38	1
1,1-Dichloropropene	ND		2.0		ug/L			09/22/13 10:38	1
1,2,3-Trichlorobenzene	ND		5.0		ug/L			09/22/13 10:38	1
1,2,3-Trichloropropane	ND		10		ug/L			09/22/13 10:38	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			09/22/13 10:38	1
1,2,4-Trimethylbenzene	ND		2.0		ug/L			09/22/13 10:38	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			09/22/13 10:38	1
1,2-Dichlorobenzene	ND		2.0		ug/L			09/22/13 10:38	1
1,2-Dichloroethane	ND		2.0		ug/L			09/22/13 10:38	1
1,2-Dichloropropane	ND		2.0		ug/L			09/22/13 10:38	1
1,3,5-Trimethylbenzene	ND		2.0		ug/L			09/22/13 10:38	1
1,3-Dichlorobenzene	ND		2.0		ug/L			09/22/13 10:38	1
1,3-Dichloropropane	ND		2.0		ug/L			09/22/13 10:38	1
1,4-Dichlorobenzene	ND		2.0		ug/L			09/22/13 10:38	1
2,2-Dichloropropane	ND		2.0		ug/L			09/22/13 10:38	1
2-Chlorotoluene	ND		5.0		ug/L			09/22/13 10:38	1
4-Chlorotoluene	ND		5.0		ug/L			09/22/13 10:38	1
Benzene	ND		2.0		ug/L			09/22/13 10:38	1
Bromobenzene	ND		5.0		ug/L			09/22/13 10:38	1
Bromoform	ND		5.0		ug/L			09/22/13 10:38	1
Bromomethane	ND		5.0		ug/L			09/22/13 10:38	1
Carbon tetrachloride	ND		5.0		ug/L			09/22/13 10:38	1
Chlorobenzene	ND		2.0		ug/L			09/22/13 10:38	1
Chloroethane	ND		5.0		ug/L			09/22/13 10:38	1
Chloroform	ND		2.0		ug/L			09/22/13 10:38	1
Chloromethane	ND		5.0		ug/L			09/22/13 10:38	1
cis-1,2-Dichloroethene	ND		2.0		ug/L			09/22/13 10:38	1
cis-1,3-Dichloropropene	ND		2.0		ug/L			09/22/13 10:38	1
Dibromomethane	ND		2.0		ug/L			09/22/13 10:38	1
Dichlorodifluoromethane	ND		5.0		ug/L			09/22/13 10:38	1
Ethylbenzene	ND		2.0		ug/L			09/22/13 10:38	1
Hexachlorobutadiene	ND		5.0		ug/L			09/22/13 10:38	1
Isopropylbenzene	ND		2.0		ug/L			09/22/13 10:38	1
m,p-Xylene	ND		2.0		ug/L			09/22/13 10:38	1
Methylene Chloride	ND		5.0		ug/L			09/22/13 10:38	1
Naphthalene	ND		5.0		ug/L			09/22/13 10:38	1
n-Butylbenzene	ND		5.0		ug/L			09/22/13 10:38	1
N-Propylbenzene	ND		2.0		ug/L			09/22/13 10:38	1
o-Xylene	ND		2.0		ug/L			09/22/13 10:38	1
sec-Butylbenzene	ND		5.0		ug/L			09/22/13 10:38	1
Styrene	ND		2.0		ug/L			09/22/13 10:38	1
tert-Butylbenzene	ND		5.0		ug/L			09/22/13 10:38	1
Tetrachloroethene	ND		2.0		ug/L			09/22/13 10:38	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-132648/4
Matrix: Water
Analysis Batch: 132648

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		2.0		ug/L			09/22/13 10:38	1
1,2-trans-Dichloroethylene	ND		2.0		ug/L			09/22/13 10:38	1
trans-1,3-Dichloropropene	ND		2.0		ug/L			09/22/13 10:38	1
Trichloroethylene	ND		2.0		ug/L			09/22/13 10:38	1
Trichlorofluoromethane	ND		5.0		ug/L			09/22/13 10:38	1
Vinyl chloride	ND		5.0		ug/L			09/22/13 10:38	1
1,2-Dibromoethane (EDB)	ND		2.0		ug/L			09/22/13 10:38	1
Bromochloromethane	ND		5.0		ug/L			09/22/13 10:38	1
Bromodichloromethane	ND		2.0		ug/L			09/22/13 10:38	1
Dibromochloromethane	ND		2.0		ug/L			09/22/13 10:38	1
p-Isopropyltoluene	ND		2.0		ug/L			09/22/13 10:38	1
Methyl-t-Butyl Ether (MTBE)	ND		1.0		ug/L			09/22/13 10:38	1
Trihalomethanes, Total	ND		2.0		ug/L			09/22/13 10:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)					*09/22/13 10:38*	*1*
4-Bromofluorobenzene (Surr)					*09/22/13 10:38*	*1*
Dibromofluoromethane (Surr)					*09/22/13 10:38*	*1*

Lab Sample ID: LCS 440-132648/5
Matrix: Water
Analysis Batch: 132648

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	25.0	24.7		ug/L		99	60 - 141
1,1,1-Trichloroethane	25.0	21.0		ug/L		84	70 - 130
1,1,2,2-Tetrachloroethane	25.0	22.8		ug/L		91	63 - 130
1,1,2-Trichloroethane	25.0	23.7		ug/L		95	70 - 130
1,1-Dichloroethane	25.0	20.5		ug/L		82	64 - 130
1,1-Dichlorethylene	25.0	22.8		ug/L		91	70 - 130
1,1-Dichloropropene	25.0	23.5		ug/L		94	70 - 130
1,2,3-Trichlorobenzene	25.0	24.8		ug/L		99	60 - 140
1,2,3-Trichloropropane	25.0	21.0		ug/L		84	63 - 130
1,2,4-Trichlorobenzene	25.0	26.3		ug/L		105	60 - 140
1,2,4-Trimethylbenzene	25.0	24.7		ug/L		99	70 - 135
1,2-Dibromo-3-Chloropropane	25.0	20.4		ug/L		82	52 - 140
1,2-Dichlorobenzene	25.0	24.1		ug/L		96	70 - 130
1,2-Dichloroethane	25.0	21.2		ug/L		85	57 - 138
1,2-Dichloropropane	25.0	23.5		ug/L		94	67 - 130
1,3,5-Trimethylbenzene	25.0	23.9		ug/L		96	70 - 136
1,3-Dichlorobenzene	25.0	24.5		ug/L		98	70 - 130
1,3-Dichloropropane	25.0	24.4		ug/L		97	70 - 130
1,4-Dichlorobenzene	25.0	23.6		ug/L		94	70 - 130
2,2-Dichloropropane	25.0	21.1		ug/L		85	68 - 141
2-Chlorotoluene	25.0	22.6		ug/L		90	70 - 130
4-Chlorotoluene	25.0	23.7		ug/L		95	70 - 130
Benzene	25.0	23.4		ug/L		94	68 - 130
Bromobenzene	25.0	23.5		ug/L		94	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-132648/5
Matrix: Water
Analysis Batch: 132648

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoform	25.0	22.6		ug/L		90	60 - 148
Bromomethane	25.0	21.3		ug/L		85	64 - 139
Carbon tetrachloride	25.0	22.5		ug/L		90	60 - 150
Chlorobenzene	25.0	23.5		ug/L		94	70 - 130
Chloroethane	25.0	21.5		ug/L		86	64 - 135
Chloroform	25.0	22.2		ug/L		89	70 - 130
Chloromethane	25.0	19.4		ug/L		78	47 - 140
cis-1,2-Dichloroethene	25.0	24.1		ug/L		96	70 - 133
cis-1,3-Dichloropropene	25.0	26.6		ug/L		106	70 - 133
Dibromomethane	25.0	22.5		ug/L		90	70 - 130
Dichlorodifluoromethane	25.0	12.8		ug/L		51	29 - 150
Ethylbenzene	25.0	24.5		ug/L		98	70 - 130
Hexachlorobutadiene	25.0	23.4		ug/L		94	10 - 150
Isopropylbenzene	25.0	22.8		ug/L		91	70 - 136
m,p-Xylene	50.0	49.4		ug/L		99	70 - 130
Methylene Chloride	25.0	19.1		ug/L		77	52 - 130
Naphthalene	25.0	25.0		ug/L		100	60 - 140
n-Butylbenzene	25.0	24.9		ug/L		100	65 - 150
N-Propylbenzene	25.0	22.9		ug/L		92	67 - 139
o-Xylene	25.0	24.8		ug/L		99	70 - 130
sec-Butylbenzene	25.0	23.6		ug/L		94	70 - 138
Styrene	25.0	26.4		ug/L		106	70 - 134
tert-Butylbenzene	25.0	23.5		ug/L		94	70 - 130
Tetrachloroethene	25.0	23.0		ug/L		92	70 - 130
Toluene	25.0	23.7		ug/L		95	70 - 130
1,2-trans-Dichloroethylene	25.0	22.8		ug/L		91	70 - 130
trans-1,3-Dichloropropene	25.0	23.9		ug/L		96	70 - 132
Trichloroethylene	25.0	23.3		ug/L		93	70 - 130
Trichlorofluoromethane	25.0	21.6		ug/L		86	60 - 150
Vinyl chloride	25.0	18.9		ug/L		76	59 - 133
1,2-Dibromoethane (EDB)	25.0	24.0		ug/L		96	70 - 130
Bromochloromethane	25.0	23.1		ug/L		92	70 - 130
Bromodichloromethane	25.0	23.7		ug/L		95	70 - 132
Dibromochloromethane	25.0	24.8		ug/L		99	69 - 145
p-Isopropyltoluene	25.0	23.8		ug/L		95	70 - 132
Methyl-t-Butyl Ether (MTBE)	25.0	21.6		ug/L		86	63 - 131

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*
Dibromofluoromethane (Surr)	*88*		*80 - 120*

Lab Sample ID: 440-57032-F-10 MS
Matrix: Water
Analysis Batch: 132648

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	ND		25.0	26.1		ug/L		105	60 - 149

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-57032-F-10 MS
Matrix: Water
Analysis Batch: 132648

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		25.0	22.2		ug/L		89	70 - 130
1,1,2,2-Tetrachloroethane	ND		25.0	24.7		ug/L		99	63 - 130
1,1,2-Trichloroethane	ND		25.0	25.0		ug/L		100	70 - 130
1,1-Dichloroethane	ND		25.0	20.7		ug/L		83	65 - 130
1,1-Dichlorethylene	ND		25.0	22.3		ug/L		89	70 - 130
1,1-Dichloropropene	ND		25.0	24.8		ug/L		99	64 - 130
1,2,3-Trichlorobenzene	ND		25.0	26.5		ug/L		106	60 - 140
1,2,3-Trichloropropane	ND		25.0	22.9		ug/L		92	60 - 130
1,2,4-Trichlorobenzene	ND		25.0	27.6		ug/L		111	60 - 140
1,2,4-Trimethylbenzene	ND		25.0	25.7		ug/L		103	70 - 130
1,2-Dibromo-3-Chloropropane	ND		25.0	22.1		ug/L		88	48 - 140
1,2-Dichlorobenzene	ND		25.0	25.7		ug/L		103	70 - 130
1,2-Dichloroethane	ND		25.0	23.4		ug/L		94	56 - 146
1,2-Dichloropropane	ND		25.0	24.8		ug/L		99	69 - 130
1,3,5-Trimethylbenzene	ND		25.0	25.1		ug/L		101	70 - 130
1,3-Dichlorobenzene	ND		25.0	25.6		ug/L		103	70 - 130
1,3-Dichloropropane	ND		25.0	25.3		ug/L		101	70 - 130
1,4-Dichlorobenzene	ND		25.0	24.8		ug/L		99	70 - 130
2,2-Dichloropropane	ND		25.0	20.9		ug/L		83	69 - 138
2-Chlorotoluene	ND		25.0	24.1		ug/L		97	70 - 130
4-Chlorotoluene	ND		25.0	25.1		ug/L		100	70 - 130
Benzene	ND		25.0	25.7		ug/L		98	66 - 130
Bromobenzene	ND		25.0	25.3		ug/L		101	70 - 130
Bromoform	ND		25.0	24.4		ug/L		98	59 - 150
Bromomethane	ND		25.0	21.2		ug/L		85	62 - 131
Carbon tetrachloride	ND		25.0	23.9		ug/L		96	60 - 150
Chlorobenzene	ND		25.0	24.5		ug/L		98	70 - 130
Chloroethane	ND		25.0	21.0		ug/L		84	68 - 130
Chloroform	ND		25.0	22.5		ug/L		90	70 - 130
Chloromethane	ND		25.0	19.0		ug/L		76	39 - 144
cis-1,2-Dichloroethene	ND		25.0	23.9		ug/L		96	70 - 130
cis-1,3-Dichloropropene	ND		25.0	27.9		ug/L		112	70 - 133
Dibromomethane	ND		25.0	24.1		ug/L		96	70 - 130
Dichlorodifluoromethane	ND		25.0	12.5		ug/L		50	25 - 142
Ethylbenzene	ND		25.0	25.4		ug/L		101	70 - 130
Hexachlorobutadiene	ND		25.0	25.0		ug/L		100	10 - 150
Isopropylbenzene	ND		25.0	24.1		ug/L		96	70 - 132
m,p-Xylene	ND		50.0	51.0		ug/L		102	70 - 133
Methylene Chloride	ND		25.0	19.1		ug/L		76	52 - 130
Naphthalene	ND		25.0	27.1		ug/L		108	60 - 140
n-Butylbenzene	ND		25.0	25.7		ug/L		103	61 - 149
N-Propylbenzene	ND		25.0	24.5		ug/L		98	66 - 135
o-Xylene	ND		25.0	25.8		ug/L		103	70 - 133
sec-Butylbenzene	ND		25.0	24.7		ug/L		99	67 - 134
Styrene	ND		25.0	25.2		ug/L		101	29 - 150
tert-Butylbenzene	ND		25.0	25.0		ug/L		100	70 - 130
Tetrachloroethene	ND		25.0	24.0		ug/L		96	70 - 137
Toluene	ND		25.0	24.6		ug/L		98	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-57032-F-10 MS
Matrix: Water
Analysis Batch: 132648

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-trans-Dichloroethylene	ND		25.0	23.2		ug/L		93	70 - 130
trans-1,3-Dichloropropene	ND		25.0	25.2		ug/L		101	70 - 138
Trichloroethylene	ND		25.0	24.3		ug/L		97	70 - 130
Trichlorofluoromethane	ND		25.0	22.0		ug/L		88	60 - 150
Vinyl chloride	ND		25.0	19.1		ug/L		76	50 - 137
1,2-Dibromoethane (EDB)	ND		25.0	25.6		ug/L		103	70 - 131
Bromochloromethane	ND		25.0	24.0		ug/L		96	70 - 130
Bromodichloromethane	ND		25.0	24.6		ug/L		98	70 - 138
Dibromochloromethane	ND		25.0	26.2		ug/L		105	70 - 148
p-Isopropyltoluene	ND		25.0	24.9		ug/L		100	70 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	22.3		ug/L		89	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*
Dibromofluoromethane (Surr)	*86*		*80 - 120*

Lab Sample ID: 440-57032-F-10 MSD
Matrix: Water
Analysis Batch: 132648

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	ND		25.0	26.5		ug/L		106	60 - 149	2	20
1,1,1-Trichloroethane	ND		25.0	23.7		ug/L		95	70 - 130	7	20
1,1,2,2-Tetrachloroethane	ND		25.0	25.0		ug/L		100	63 - 130	1	30
1,1,2-Trichloroethane	ND		25.0	25.1		ug/L		100	70 - 130	0	25
1,1-Dichloroethane	ND		25.0	22.6		ug/L		90	65 - 130	9	20
1,1-Dichlorethylene	ND		25.0	24.4		ug/L		98	70 - 130	9	20
1,1-Dichloropropene	ND		25.0	25.5		ug/L		102	64 - 130	3	20
1,2,3-Trichlorobenzene	ND		25.0	27.3		ug/L		109	60 - 140	3	20
1,2,3-Trichloropropane	ND		25.0	22.6		ug/L		90	60 - 130	1	30
1,2,4-Trichlorobenzene	ND		25.0	27.7		ug/L		111	60 - 140	0	20
1,2,4-Trimethylbenzene	ND		25.0	26.3		ug/L		105	70 - 130	3	25
1,2-Dibromo-3-Chloropropane	ND		25.0	21.5		ug/L		86	48 - 140	3	30
1,2-Dichlorobenzene	ND		25.0	26.1		ug/L		104	70 - 130	2	20
1,2-Dichloroethane	ND		25.0	23.7		ug/L		95	56 - 146	1	20
1,2-Dichloropropane	ND		25.0	25.5		ug/L		102	69 - 130	3	20
1,3,5-Trimethylbenzene	ND		25.0	25.7		ug/L		103	70 - 130	2	20
1,3-Dichlorobenzene	ND		25.0	25.8		ug/L		103	70 - 130	1	20
1,3-Dichloropropane	ND		25.0	25.8		ug/L		103	70 - 130	2	25
1,4-Dichlorobenzene	ND		25.0	25.0		ug/L		100	70 - 130	1	20
2,2-Dichloropropane	ND		25.0	21.2		ug/L		85	69 - 138	2	25
2-Chlorotoluene	ND		25.0	24.4		ug/L		97	70 - 130	1	20
4-Chlorotoluene	ND		25.0	25.3		ug/L		101	70 - 130	1	20
Benzene	ND		25.0	25.6		ug/L		97	66 - 130	1	20
Bromobenzene	ND		25.0	25.6		ug/L		102	70 - 130	1	20
Bromoform	ND		25.0	24.2		ug/L		97	59 - 150	1	25
Bromomethane	ND		25.0	22.1		ug/L		89	62 - 131	4	25

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-57032-F-10 MSD
Matrix: Water
Analysis Batch: 132648

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon tetrachloride	ND		25.0	24.8		ug/L		99	60 - 150	4	25
Chlorobenzene	ND		25.0	24.6		ug/L		98	70 - 130	0	20
Chloroethane	ND		25.0	22.1		ug/L		88	68 - 130	5	25
Chloroform	ND		25.0	23.9		ug/L		96	70 - 130	6	20
Chloromethane	ND		25.0	20.3		ug/L		81	39 - 144	6	25
cis-1,2-Dichloroethene	ND		25.0	25.7		ug/L		103	70 - 130	7	20
cis-1,3-Dichloropropene	ND		25.0	28.3		ug/L		113	70 - 133	1	20
Dibromomethane	ND		25.0	24.6		ug/L		98	70 - 130	2	25
Dichlorodifluoromethane	ND		25.0	13.1		ug/L		52	25 - 142	5	30
Ethylbenzene	ND		25.0	25.5		ug/L		102	70 - 130	1	20
Hexachlorobutadiene	ND		25.0	25.5		ug/L		102	10 - 150	2	20
Isopropylbenzene	ND		25.0	24.3		ug/L		97	70 - 132	1	20
m,p-Xylene	ND		50.0	51.0		ug/L		102	70 - 133	0	25
Methylene Chloride	ND		25.0	20.6		ug/L		83	52 - 130	8	20
Naphthalene	ND		25.0	27.5		ug/L		110	60 - 140	2	30
n-Butylbenzene	ND		25.0	26.5		ug/L		106	61 - 149	3	20
N-Propylbenzene	ND		25.0	24.5		ug/L		98	66 - 135	0	20
o-Xylene	ND		25.0	25.6		ug/L		102	70 - 133	1	20
sec-Butylbenzene	ND		25.0	25.0		ug/L		100	67 - 134	1	20
Styrene	ND		25.0	24.9		ug/L		99	29 - 150	1	30
tert-Butylbenzene	ND		25.0	25.4		ug/L		102	70 - 130	2	20
Tetrachloroethene	ND		25.0	24.3		ug/L		97	70 - 137	1	20
Toluene	ND		25.0	25.3		ug/L		101	70 - 130	3	20
1,2-trans-Dichloroethylene	ND		25.0	24.1		ug/L		96	70 - 130	4	20
trans-1,3-Dichloropropene	ND		25.0	25.3		ug/L		101	70 - 138	1	25
Trichloroethylene	ND		25.0	25.0		ug/L		100	70 - 130	3	20
Trichlorofluoromethane	ND		25.0	23.6		ug/L		94	60 - 150	7	25
Vinyl chloride	ND		25.0	19.9		ug/L		80	50 - 137	4	30
1,2-Dibromoethane (EDB)	ND		25.0	25.3		ug/L		101	70 - 131	1	25
Bromochloromethane	ND		25.0	25.1		ug/L		100	70 - 130	4	25
Bromodichloromethane	ND		25.0	26.3		ug/L		105	70 - 138	7	20
Dibromochloromethane	ND		25.0	26.4		ug/L		105	70 - 148	0	25
p-Isopropyltoluene	ND		25.0	25.2		ug/L		101	70 - 130	1	20
Methyl-t-Butyl Ether (MTBE)	ND		25.0	22.9		ug/L		92	70 - 130	3	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*
Dibromofluoromethane (Surr)	*88*		*80 - 120*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-132384/4
Matrix: Water
Analysis Batch: 132384

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.26		mg/L			09/20/13 12:42	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 440-132384/4
Matrix: Water
Analysis Batch: 132384

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as NO2	ND		0.50		mg/L			09/20/13 12:42	1
Nitrate as NO3	ND		0.50		mg/L			09/20/13 12:42	1

Lab Sample ID: LCS 440-132384/2
Matrix: Water
Analysis Batch: 132384

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as NO2	5.00	4.71		mg/L		94	90 - 110
Nitrate as NO3	5.00	4.61		mg/L		92	90 - 110

Lab Sample ID: 440-57537-A-2 MS
Matrix: Water
Analysis Batch: 132384

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as NO2	ND		5.00	4.37		mg/L		87	80 - 120
Nitrate as NO3	ND		5.00	5.41		mg/L		100	80 - 120

Lab Sample ID: 440-57537-A-2 MSD
Matrix: Water
Analysis Batch: 132384

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as NO2	ND		5.00	4.44		mg/L		89	80 - 120	1	20
Nitrate as NO3	ND		5.00	5.62		mg/L		104	80 - 120	4	20

Lab Sample ID: MB 440-132385/4
Matrix: Water
Analysis Batch: 132385

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			09/20/13 12:42	1
Sulfate	ND		0.50		mg/L			09/20/13 12:42	1

Lab Sample ID: LCS 440-132385/2
Matrix: Water
Analysis Batch: 132385

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.54		mg/L		91	90 - 110
Sulfate	10.0	9.29		mg/L		93	90 - 110

Lab Sample ID: 440-57537-A-2 MS
Matrix: Water
Analysis Batch: 132385

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.8		5.00	11.2		mg/L		107	80 - 120
Sulfate	1.2		10.0	10.4		mg/L		92	80 - 120

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 440-57537-A-2 MSD
Matrix: Water
Analysis Batch: 132385

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	5.8		5.00	11.2		mg/L		108	80 - 120	0	20
Sulfate	1.2		10.0	10.5		mg/L		93	80 - 120	0	20

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-132564/1-A
Matrix: Water
Analysis Batch: 132767

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 132564

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.050		mg/L		09/20/13 19:41	09/23/13 10:13	1
Chromium	ND		5.0		ug/L		09/20/13 19:41	09/23/13 10:13	1
Lead	ND		5.0		ug/L		09/20/13 19:41	09/23/13 10:13	1
Copper	ND		10		ug/L		09/20/13 19:41	09/23/13 10:13	1

Lab Sample ID: LCS 440-132564/2-A
Matrix: Water
Analysis Batch: 132767

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 132564

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.500	0.491		mg/L		98	85 - 115
Chromium	500	489		ug/L		98	85 - 115
Lead	500	495		ug/L		99	85 - 115
Copper	500	497		ug/L		99	85 - 115

Lab Sample ID: 440-57535-A-3-B MS
Matrix: Water
Analysis Batch: 132767

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 132564

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.74		0.500	1.29		mg/L		111	70 - 130
Chromium	ND		500	533		ug/L		107	70 - 130
Lead	6.7		500	520		ug/L		103	70 - 130
Copper	18		500	569		ug/L		110	70 - 130

Lab Sample ID: 440-57535-A-3-C MSD
Matrix: Water
Analysis Batch: 132767

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 132564

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.74		0.500	1.29		mg/L		109	70 - 130	1	20
Chromium	ND		500	532		ug/L		106	70 - 130	0	20
Lead	6.7		500	519		ug/L		102	70 - 130	0	20
Copper	18		500	562		ug/L		109	70 - 130	1	20

Method: 150.1 - pH (Electrometric)

Lab Sample ID: 440-57457-I-1 DU
Matrix: Water
Analysis Batch: 132639

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.69		7.680		SU		0.1	2
Temperature	20.8		20.50		Degrees C		1	

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-134197/1-A
Matrix: Water
Analysis Batch: 134233

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 134197

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	ND		5.0		mg/L		09/30/13 07:18	09/30/13 09:18	1

Lab Sample ID: LCS 440-134197/2-A
Matrix: Water
Analysis Batch: 134233

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 134197

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM	20.0	16.6		mg/L		83	78 - 114

Lab Sample ID: LCSD 440-134197/3-A
Matrix: Water
Analysis Batch: 134233

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 134197

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM	20.0	17.2		mg/L		86	78 - 114	4	11

Method: SM 2130B - Turbidity

Lab Sample ID: MB 440-132618/5
Matrix: Water
Analysis Batch: 132618

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	ND		0.10		NTU			09/21/13 16:30	1

Lab Sample ID: 440-57582-1 DU
Matrix: Water
Analysis Batch: 132618

Client Sample ID: MCWP-MW02 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	ND		ND		NTU		NC	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-132715/1
Matrix: Water
Analysis Batch: 132715

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10		mg/L			09/23/13 08:00	1

Lab Sample ID: LCS 440-132715/2
Matrix: Water
Analysis Batch: 132715

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	992		mg/L		99	90 - 110

Lab Sample ID: 440-57582-1 DU
Matrix: Water
Analysis Batch: 132715

Client Sample ID: MCWP-MW02 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	330		330		mg/L		0.9	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-132997/1
Matrix: Water
Analysis Batch: 132997

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		10		mg/L			09/24/13 09:26	1

Lab Sample ID: LCS 440-132997/2
Matrix: Water
Analysis Batch: 132997

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	984		mg/L		98	85 - 115

Lab Sample ID: 440-57642-A-1 DU
Matrix: Water
Analysis Batch: 132997

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	51		50.5		mg/L		1	10

Method: SM 4500 Cl G - Chlorine, Residual

Lab Sample ID: MB 440-132890/1
Matrix: Water
Analysis Batch: 132890

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Residual Chlorine	ND		0.10		mg/L			09/23/13 16:23	1

Method: SM 4500 Cl G - Chlorine, Residual (Continued)

Lab Sample ID: 440-57582-1 DU
Matrix: Water
Analysis Batch: 132890

Client Sample ID: MCWP-MW02 Effluent
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Residual Chlorine	ND	HF	ND	HF	mg/L		NC	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-132660/1 USB
Matrix: Water
Analysis Batch: 132660

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			09/22/13 08:38	1

Lab Sample ID: LCS 440-132660/4
Matrix: Water
Analysis Batch: 132660

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	199	206		mg/L		104	85 - 115

Lab Sample ID: LCSD 440-132660/5
Matrix: Water
Analysis Batch: 132660

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand	199	204		mg/L		103	85 - 115	1	20

QC Association Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-57582-1

GC/MS VOA

Analysis Batch: 132648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-57032-F-10 MS	Matrix Spike	Total/NA	Water	8260B	
440-57032-F-10 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
440-57582-1	MCWP-MW02 Effluent	Total/NA	Water	8260B	
LCS 440-132648/5	Lab Control Sample	Total/NA	Water	8260B	
MB 440-132648/4	Method Blank	Total/NA	Water	8260B	

HPLC/IC

Analysis Batch: 132384

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-57537-A-2 MS	Matrix Spike	Total/NA	Water	300.0	
440-57537-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
440-57582-1	MCWP-MW02 Effluent	Total/NA	Water	300.0	
LCS 440-132384/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-132384/4	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 132385

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-57537-A-2 MS	Matrix Spike	Total/NA	Water	300.0	
440-57537-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
440-57582-1	MCWP-MW02 Effluent	Total/NA	Water	300.0	
LCS 440-132385/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-132385/4	Method Blank	Total/NA	Water	300.0	

Metals

Prep Batch: 132564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-57535-A-3-B MS	Matrix Spike	Total Recoverable	Water	200.2	
440-57535-A-3-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.2	
440-57582-1	MCWP-MW02 Effluent	Total Recoverable	Water	200.2	
LCS 440-132564/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
MB 440-132564/1-A	Method Blank	Total Recoverable	Water	200.2	

Analysis Batch: 132767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-57535-A-3-B MS	Matrix Spike	Total Recoverable	Water	200.7 Rev 4.4	132564
440-57535-A-3-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7 Rev 4.4	132564
440-57582-1	MCWP-MW02 Effluent	Total Recoverable	Water	200.7 Rev 4.4	132564
LCS 440-132564/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	132564
MB 440-132564/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	132564

General Chemistry

Analysis Batch: 132617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-57582-1	MCWP-MW02 Effluent	Total/NA	Water	SM 2540F	

General Chemistry (Continued)

Analysis Batch: 132618

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-57582-1	MCWP-MW02 Effluent	Total/NA	Water	SM 2130B	
440-57582-1 DU	MCWP-MW02 Effluent	Total/NA	Water	SM 2130B	
MB 440-132618/5	Method Blank	Total/NA	Water	SM 2130B	

Analysis Batch: 132639

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-57457-I-1 DU	Duplicate	Total/NA	Water	150.1	
440-57582-1	MCWP-MW02 Effluent	Total/NA	Water	150.1	

Analysis Batch: 132660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-57582-1	MCWP-MW02 Effluent	Total/NA	Water	SM5210B	
LCS 440-132660/4	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-132660/5	Lab Control Sample Dup	Total/NA	Water	SM5210B	
USB 440-132660/1 USB	Method Blank	Total/NA	Water	SM5210B	

Analysis Batch: 132715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-57582-1	MCWP-MW02 Effluent	Total/NA	Water	SM 2540C	
440-57582-1 DU	MCWP-MW02 Effluent	Total/NA	Water	SM 2540C	
LCS 440-132715/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 440-132715/1	Method Blank	Total/NA	Water	SM 2540C	

Analysis Batch: 132890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-57582-1	MCWP-MW02 Effluent	Total/NA	Water	SM 4500 Cl G	
440-57582-1 DU	MCWP-MW02 Effluent	Total/NA	Water	SM 4500 Cl G	
MB 440-132890/1	Method Blank	Total/NA	Water	SM 4500 Cl G	

Analysis Batch: 132997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-57582-1	MCWP-MW02 Effluent	Total/NA	Water	SM 2540D	
440-57642-A-1 DU	Duplicate	Total/NA	Water	SM 2540D	
LCS 440-132997/2	Lab Control Sample	Total/NA	Water	SM 2540D	
MB 440-132997/1	Method Blank	Total/NA	Water	SM 2540D	

Prep Batch: 134197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-57582-1	MCWP-MW02 Effluent	Total/NA	Water	1664A	
LCS 440-134197/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-134197/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	
MB 440-134197/1-A	Method Blank	Total/NA	Water	1664A	

Analysis Batch: 134233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-57582-1	MCWP-MW02 Effluent	Total/NA	Water	1664A	134197
LCS 440-134197/2-A	Lab Control Sample	Total/NA	Water	1664A	134197
LCSD 440-134197/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	134197
MB 440-134197/1-A	Method Blank	Total/NA	Water	1664A	134197

Definitions/Glossary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-57582-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: RMC Water and Environment
Project/Site: Malibu - Well Installation (Short List)

TestAmerica Job ID: 440-57582-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-14
Arizona	State Program	9	AZ0671	10-13-13
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-14
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-28-14 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-14
New Mexico	State Program	6	N/A	01-31-14
Northern Mariana Islands	State Program	9	MP0002	01-31-14
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

* Expired certification is currently pending renewal and is considered valid.

Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614
phone 949.261.1022 fax 949.260.3299

440-57582 Chain of Custody

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Leslie Dumas	Site Contact: R. Marks	Date: 9/20/13	COC No:
RMC Water and Environment	Tel/Fax:	Lab Contact: Janice Hsu	Carrier:	1 of 1 COCs
2001 N. Main Street Suite 400	Analysis Turnaround Time			Job No.
Walnut Creek, CA 94596	Calendar (C) or Work Days (W) W			
(925) 627-4100 Phone	TAT if different from Below			TALS Proj #: 44008618
(925) 627-4101 FAX	☐ 2 weeks			
Project Name: Malibu - Well Installation (Short List)	☐ 1 week			
Site: MCWP-MW02	☐ 2 days			
PO#	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Preservatives	Matrix	# of Cont.	Filtered Sample	TSS	Turbidity	BOD	Settleable Solids	Residual Chlorine	Sulfate	Chloride	NO3 + NO2	TDS	Boron, Copper, Lead, Chromium	8260 VOA (include MTBE)	1664 - Oil & Grease	pH & Temperature	Fish Bioassay	Sample Specific Notes:
MCWP-MW02 Effluent	9/20	11:00	N/A	W	5		X	X	X	X	X	X	X	X	X				X		48 hours hold time for Thrbidity.
" " "	"	"	HNO3	W	1											X					BOD & NO3 + NO2
" " "	"	"	HCL	W	3												X				
" " "	"	"	HCL	W	2													X			

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Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments:

Relinquished by	Company	Date/Time:	Received by	Company	Date/Time
R Marks	PWR, Inc	9/20, 1310	Joaquin Lopez	SUNRISE	9-20-13
Relinquished by	Company.	Date/Time:	Received by	Company.	Date/Time: 1:10
Relinquished by	Company	Date/Time	Received by: Tim Sadaflon	Company: TA IRV	Date/Time: 9/20/13 1640

10/1/2013

TS 9/20/13 1632

5.6/5.0

Login Sample Receipt Checklist

Client: RMC Water and Environment

Job Number: 440-57582-1

Login Number: 57582
List Number: 1
Creator: Soderblom, Tim

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	R. Marks
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	