ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section II.B of this Order, the Central Valley Water Board incorporates this Fact Sheet as findings of the Central Valley Water Board supporting the issuance of this Order. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger. Sections of the permit's standard language that are specific to publicly-owned treatment works are not applicable to combined sewer systems.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

WDID	5A340114001
CIWQS Facility Place ID	215236
Discharger	City of Sacramento
Name of Facility	Combined Wastewater Collection and Treatment System
Facility Address	1395 35th Avenue
	Sacramento, CA 95822
	Sacramento County
Facility Contact, Title and Phone	William O. Busath, Interim Director of Utilities, 916-808-1433
Authorized Person to Sign and Submit Reports	William O. Busath, Interim Director of Utilities, 916-808-1433
Mailing Address	Same as Facility Address
Billing Address	Same as Facility Address
Type of Facility	Combined Sewer System (CSS)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Not Applicable (Note: The pretreatment program for indirect users that discharge to the City's CSS is implemented by the Sacramento Regional County Sanitation District)
Recycling Requirements	Not Applicable
Facility Permitted Flow	380 million gallons per day (MGD) of treated flow
Facility Design Flow	380 MGD of treated flow
Watershed	Sacramento-San Joaquin Delta
Receiving Water	Sacramento River
Receiving Water Type	Inland Surface Water

A. The City of Sacramento (hereinafter Discharger) is the owner and operator of the Combined Wastewater Collection and Treatment System (hereinafter Facility). The Facility includes a Combined Sewer System (CSS) that collects and treats domestic and industrial wastewater and storm runoff.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The Facility discharges treated and untreated combined wastewater and storm runoff to the Sacramento River, a water of the United States, and is currently regulated by Order R5-2010-0004 which was adopted on 28 January 2010 and expired on 1 January 2015. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit are adopted pursuant to this Order. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

Prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. The State Water Board retains the jurisdictional authority to enforce such requirements under Water Code section 1211.

C. The Discharger filed a report of waste discharge (ROWD) and submitted an application for reissuance of its WDR's and NPDES permit on 1 July 2014. The application was deemed complete on 16 October 2014. A site visit was conducted on 9 December 2014 to observe operations and collect additional data to develop permit limitations and requirements for waste discharge.

II. FACILITY DESCRIPTION

The Discharger owns and operates a CSS that conveys domestic and commercial wastewater and storm water runoff from approximately 7,500 acres (approximately 270 miles of sewer pipe) in downtown Sacramento, East Sacramento, and Land Park areas. The Discharger also owns and operates a separate sanitary sewer system that conveys domestic and commercial wastewater. Approximately 3,800 acres (approximately 67 miles of sewer pipe) of the separated sanitary sewer system surrounding the CSS to the north, east, and south, contributes flows to the CSS. This portion of the separated system is regulated under a separate Order[1]. The remainder flows by gravity or is pumped to the Regional Interceptors to the Sacramento Regional Wastewater Treatment Plant (SRWTP). The entire collection system serves approximately 300,000 people.

A. Description of Wastewater and Biosolids Treatment and Controls

1. Facility Overview

The Facility consists of four main complexes to manage the collected combined sewage: Sumps 1/1A, Sumps 2/2A, the Pioneer Reservoir Treatment Plant (Pioneer Reservoir), and the Combined Wastewater Treatment Plant (CWTP). The CSS conveys domestic and industrial wastewater and storm runoff to Sumps 2/2A, where up to 60 MGD of flow is pumped via the Regional Force Main and City Interceptor to the SRWTP for secondary treatment prior to discharge to the Sacramento River. When flow to Sumps 2/2A exceeds 60 MGD, in system storage begins and, depending on the storm intensity and duration, flows may be routed to the CWTP (7 million gallons of storage capacity in the CWTP and approximately 2.5 million gallons of storage in the CWTP Force Main) and/or Pioneer Reservoir (23 million gallons of storage capacity in the Pioneer Reservoir and 5 million gallons of storage capacity in the Pioneer Interceptor). When the CWTP has optimized storage, flows continue to be sent to the Pioneer Reservoir for primary treatment

[1] State Water Board Order No. 2006-0003-DWQ, Statewide General WDR's for Sanitary Sewer Systems.

(including sedimentation and floatables removal, and disinfection using sodium hypochlorite) of up to 250 MGD and, after dechlorination (using sodium bisulfite), discharge to the Sacramento River at Discharge Point 006 and/or sent via the CWTP Force Main to the CWTP. In the CWTP, an additional 130 MGD of combined wastewater receives primary treatment (including sedimentation and floatables removal, and disinfection using sodium hypochlorite) and, after dechlorination (using sodium bisulfite), discharges to the Sacramento River at Discharge Points 002 or 003. The CWTP basins may also be used for storage of up to 9.5 million gallons (including the CWTP Force Main) of flow and diversion of flows back to the SRWTP. During major storms, Sumps 1/1A/1B can also pump up to 200 MGD of flow to Pioneer Reservoir. Collected sludge from the CWTP and Pioneer Reservoir is sent to the SRWTP.

During extreme high flow conditions after treatment has been maximized at the Pioneer Reservoir and the CWTP, discharges of untreated combined wastewater may occur at Sump 2/2A through Discharge Points 004 and 005 and at the Sump 1/1A Pioneer Bypass at Discharge Point 007. Each of the six permitted combined sewer overflow (CSO) Discharge Points (002 through 007) discharge directly to the Sacramento River.

The Facility also includes several remote storage facilities at strategic locations within the CSS to minimize the potential for localized flooding. The table below summarizes the Discharger's remote storage facilities. In addition to these designated storage facilities, the collection system is oversized to provide in-line storage throughout the service area.

Table F-2. CSS Remote Storage Facilities

Remote Storage Facility	Location	Capacity (Million Gallons)
42nd Street (Sump 77)	42nd Street and R Street	1.5
Medical Center (Sump 78)	49th Street and V Street	2.8
Tahoe Broadway (In-Line)	Broadway Blvd and Tahoe Park	1.5
Land Park (In-Line)	North of City Zoo	0.4
U&S Parallel Sewer	East of Sump 1 and 1A	0.4
Oak Park Regional Storage Facility	8th Avenue and San Carlos Way	4

2. Combined Sewer System Improvement Plan (CSSIP)

In the 1980s and early 1990s it was recognized that the combined stormwater and sewage system in downtown Sacramento posed health and safety problems beyond the periodic discharge of poorly treated or untreated sewage to the Sacramento River. Wet weather flooding was occurring within the City, either because combined system pipes were inadequate to drain away local runoff, or because those pipes were already filled to capacity by upstream runoff and there was nowhere for local runoff to go. Most seriously, at times upstream storm water and sewage would so overload the piping that the combined storm water and raw sewage would flow out of storm water inlets, flooding streets, yards, houses and commercial establishments with combined storm water and sewage.

The Central Valley Water Board initiated discussions with the Discharger and subsequently enforcement actions concerning the environmental and public health concerns associated with both the discharge to the Sacramento River and the outflow of sewage from the combined system pipes into the City. The initial discussions assumed that separate sewer and storm water systems would need to be constructed, but after considerable study, the City proposed enhancements to the combined system rather

than construction of separate systems. Those proposed enhancements were similar in cost to construction of separate sewage and storm water systems. The Central Valley Water Board, after careful consideration and hearings, accepted and approved the Discharger's proposal to enhance the combined system. The general areas of improvement were:

- Increased storage of combined system wastewater prior to discharge to the Sacramento River to capture the maximum volume of water feasible during wet weather events to optimize the pumping of combined system wastewater to the SRWTP.
- Improved pumping, piping and controls to allow maximum use of the increased wastewater storage.
- Improved treatment of combined system wastewater discharges to the Sacramento River.
- Selective replacement of bottlenecks in the combined system piping to provide adequate drainage for storm water and prevention of local flooding and sewage outflows.
- At locations where increased piping size alone would not eliminate flooding and outflows, storage volume was provided within the collection system to hold peak flows. This also increased the overall storage of the combined system, reducing discharges to the Sacramento River.
- Development of a hydraulic model of the combined system to allow identification of projects to optimize the system.
- Commitment of minimum annual expenditures for combined system improvements.

The advantages of enhancing the combined system over construction of separate systems included:

- Elimination of all dry weather discharges and most wet weather discharges of storm water to the Sacramento River from the combined system area. If a separate storm water system was constructed, the collected urban runoff and storm water would presumably be discharged untreated to the Sacramento River, rather than being treated at the SRWTP to secondary treatment standards.
- Reduction in flooding in the downtown area. The existing piping was not adequate to handle storm water flows, so would need to be replaced with larger piping and pumping facilities in many areas. The existing piping was also not well designed to handle only sewage, and would need significant improvement if the existing piping was to carry only sewage. It appeared that, in parts of the City, two new piping systems would need to be constructed.
- If a separated system was to be constructed, piping would need to be modified in essentially every street throughout the CSS service area, causing major disruption of traffic and safety issues for years. Enhancement of the existing combined system required construction in more limited areas of the City.

In July 1995, the Discharger adopted the CSSIP which constituted the Discharger's Long Term Control Plan (LTCP) as required under the U.S. EPA CSO Control Policy. The interim goals established in the CSSIP were as follows:

- Obtaining protection from a 5-year storm in the six areas of worst flooding (including downtown, north of Capital park; U.C. Medical Center area; immediately south of Highway 80 between Riverside and Freeport; the area northeast of Highway 99 and Highway 80 interchange; the area northwest of Highway 99 and Highway 80 interchange, and the Land Park area),
- Obtaining protection from a 5-year storm throughout the combined sewer system area,
- Obtaining protection from a 10-year storm in the six areas of worst flooding, and then
- Obtaining the goal of protection from a 10-year storm event throughout the combined sewer system.

The Discharger's program is based on the presumption approach. This approach is defined in the U.S. EPA CSO Control Policy as a "*...program that meets any of the criteria listed below would be presumed to provide an adequate level of control to meet the water quality-based requirements of the CWA, provided the permitting authority determines that such presumption is reasonable in light of the data and analysis conducted in the characterization, monitoring, and modeling of the system and the consideration of sensitive areas described above. These criteria are provided because data and modeling of wet weather events often do not give a clear picture of the level of CSO controls necessary to protect WQS [*Water Quality Standards*]*".

The performance criteria for the presumption approach option selected by the Discharger specifies the elimination or the capture for treatment of no less than 85 percent by volume of the combined sewage collected in the CSS during precipitation events on a system-wide annual average basis. In addition, CSO's remaining after implementation of the Nine Minimum Controls and that is captured for treatment should receive a minimum of:

- Primary clarification (removal of floatables and settleable solids may be achieved by any combination-of treatment technologies or methods that are shown to be equivalent to primary clarification.);
- Solids and floatables disposal; and
- Disinfection of effluent, if necessary, to meet WQS, protect designated uses and protect human health, including removal of harmful disinfection chemical residuals, where necessary.

The first phase of the 1995 Plan concluded that increasing the pumping capacities of Sumps 1/1A and 2/2A concurrent with rehabilitation of the CSS and development of local storage projects, was the most cost-effective initial approach for reducing flooding and outflows from the CSS. In accordance with requirements contained in their Order 5-01-258, the Discharger provided an update to the Plan in March 2002 to bring up to date the status of current projects and goals. This update described several efforts being undertaken by the City:

- Continuing assessment of the effectiveness of CSS improvements using the City Storm Water Management Model (SWMM) (completed);
- Replacing and increasing the sizes of a network of CSS trunks in the downtown area (in the 7th Street, S Street, and 15th Street areas) to increase capacity and provide additional in-line storage (under construction);

- Constructing an 84-inch interceptor across I-5 to serve as an additional inlet to Sump 1A and provide additional in-line storage (completed);
- Constructing a regional storage facility on the Union Pacific rail yard to relieve flooding in the areas around the rail yard (on hold due to site contamination issues);
- Initiating a pilot program related to the use of Real Time Control (RTC) to operate the regional storage facilities (study completed); and
- Continuing efforts to rehabilitate and replace the CSS collection system.

Also in accordance with requirements contained in Order 5-01-258, the Discharger provided in May 2003 a performance update as it relates to progress towards meeting the goals outlined in the 1995 Plan. The following summarizes the performance update provided by the Discharger:

- CSS Improvement Projects – Performance was improved based on the completion of a variety of CSS rehabilitation and improvement projects, including local and regional storage projects).
- CSS Performance over the Previous 2 Years – A reduction in complaint calls within the CSS (registered with the City's Rain Patrol system) as compared to the number of complaints received during previous storms of slightly greater size indicates the effectiveness of the improvement and rehabilitation projects.

  The Discharger utilized the City SWMM to analyze the effect of completed projects on system flooding, as well as projected system flooding based on future CSS projects. The Discharger concluded that significant reductions or elimination of flooding was occurring in the vicinity of the major projects.

  The Discharger also reported on field observations by their staff that indicated no outflows onto streets and properties, and out of system manholes.
- Future Plans and System Improvement Needs – Complete construction of an 84-inch interceptor across I-5 to serve as an additional inlet to Sump 1A and provide additional in-line storage (completed); continue pursuing the construction of a regional storage facility on the Union Pacific rail yard to relieve flooding in the areas around the rail yard; and continue efforts to rehabilitate and replace the CSS collection system.

In 2008, the Discharger initiated a two-phase update to the CSSIP to guide further improvements to the Facility. Completion of the two-phase CSSIP update was originally scheduled for fiscal year 2013/14.

The Final Administrative Draft was completed in June 2014 and summited with the ROWD. The report was finalized in August 2014 with no significant changes from the Final Administrative Draft.Phase 1 of the update was completed in July 2010 and included the following:

- Replacing the SWMM model with a new hydrologic and hydraulic model (InfoWorks ICM).
- Validating the new InfoWorks ICM model with actual storm data and comparing predicted model output values to actual recorded flows.

- Evaluation of outflow reduction for six mitigation improvement projects remaining from the 2008 update to the CSSIP .

The Discharger completed the efforts under Phase II as of August 2014. This task included the following elements:

- An update of the sewer flow projections, including refining the surface runoff subcatchment areas (sewer sheds) represented in the model, developing sewer design flow condition model representation for both existing and future conditions, and developing ground water inflow estimates.
- Re-evaluation of the 13 improvement projects that were sized with the old model to maximize their performance by ensuring weir lengths/sizes are appropriate, size and configuration of connections to the sewer system are set to optimize performance, and all storage fills completely during major storm events.
- Re-evaluation of the boundaries of the six areas of worst flooding using model simulations, topographic/mapping analysis, field checks of low-lying areas, and comparison to areas of known/reported property damage due to flooding.
- Quantification of the remaining outflows and flooding that will serve as baseline conditions for Phase 2 recommendations.
- Calibration of the operational controls for Sump 2/2A using recent wet-weather events.
- An update to the new model (InfoWorks ICM) to enable use of a two-dimensional module to more precisely represent overland surface routing of flows in the CSS drainage area.

The CSSIP Update will serve as a major component of the System Characterization portion of a Long-Term Control Plan (LTCP) Update proposed by the Discharge. According to information provided in the ROWD, and as described further in Section II.E of this Fact Sheet, the Discharger has proposed a 3-year schedule to complete the update of the LTCP.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 22, T8N, R4E, MDB&M, as shown in Attachment B, a part of this Order.
2. Domestic and industrial wastewater and storm runoff with primary treatment and disinfection is discharged from the CWTP at Discharge Point 002 (38° 31.164' N and 121° 31.440' W) or 003 (38° 31.397' N and 121° 31.424' W) to the Sacramento River, a water of the United States.
3. Untreated domestic and industrial wastewater and storm runoff from Sumps 2 and 2A is discharged at Discharge Points 004 (38° 32.869' N and 121° 30.622' W) or 005 (38°32.864' N and 121°31.623' W) to the Sacramento River, a water of the United States.
4. Domestic and industrial wastewater and storm runoff with primary treatment and disinfection is discharged from the Pioneer Reservoir at Discharge Point 006 (38° 34.308' N and 121° 30.800' W) to the Sacramento River, a water of the United States.
5. Untreated domestic and industrial wastewater and storm runoff from Sumps 1 and 1A is discharged at Discharge Point 007 (38° 34.322' N and 121° 30.786' W) to the Sacramento River, a water of the United States.